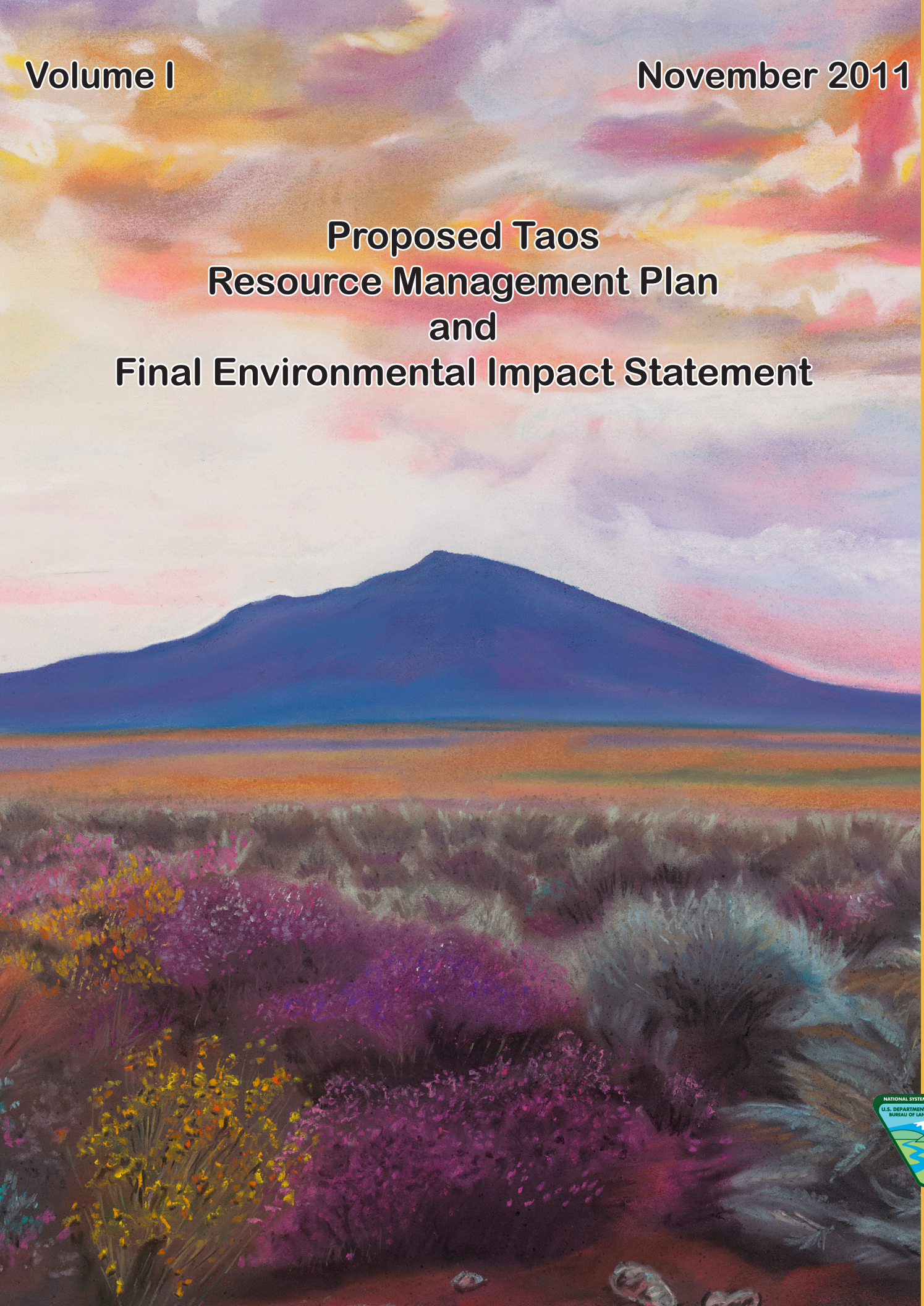
Volume I

November 2011

Proposed Taos Resource Management Plan and Final Environmental Impact Statement



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New Mexico • Taos Field Office

NATIONAL SYSTEM OF PUBLIC LANDS
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

BLM MISSION

To sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/NM/PL-12-01-1610

Cover art by Pam Herrera-Olivas, Wildlife Biologist, Taos Field Office.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
New Mexico State Office
P.O. Box 27115
Santa Fe, New Mexico 87502-0115
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IN REPLY REFER TO

1610 (F0200)

November 2011

Dear Reader:

Enclosed is the Proposed Resource Management Plan (PRMP) and Final Environmental Impact Statement (FEIS) for the Bureau of Land Management (BLM) New Mexico, Taos Field Office. The BLM prepared the PRMP/FEIS in consultation with cooperating agencies, taking into account public comments received during this planning effort. The PRMP provides a framework for the future management direction and appropriate use of public lands located in Colfax, Harding, Los Alamos, Mora, San Miguel, Santa Fe, Taos, and Union Counties, and the eastern half of Rio Arriba County, New Mexico, comprising of approximately 595,100 surface acres and 1,517,850 acres of mineral estate. The document contains land use planning decisions to guide the BLM's management of the Taos Field Office.

This PRMP/FEIS have been developed in accordance with the National Environmental Policy Act of 1969, as amended, and the Federal Land Policy and Management Act of 1976, as amended. The PRMP is largely based on Alternative A, the Preferred Alternative, in the Draft Resource Management Plan/Environmental Impact Statement (DRMP/DEIS), which was released on June 10, 2010, for public review and comment. The PRMP/FEIS contains the Proposed Plan, a summary of changes made between the DRMP/DEIS and PRMP/FEIS (see Appendix K), impacts of the Proposed Plan, a summary of the written and verbal comments received during the public review period for the DRMP/DEIS, and responses to the comments (see Appendix J).

Pursuant to BLM's planning regulations at 43 CFR 1610.5-2, any person who participated in the planning process for this PRMP and has an interest that may be adversely affected by the planning decisions, may protest approval of the planning decisions within 30 days from the date the Environmental Protection Agency (EPA) publishes the Notice of Availability in the Federal Register. For further information on filing a protest, please see the accompanying protest regulations in the pages that follow (labeled as Attachment #1). The regulations specify the required elements of your protest. Take care to document all relevant facts. As much as possible, reference or cite the planning documents or available planning records (e.g., meeting minutes or summaries, correspondence, etc.).

Emailed and faxed protests will not be accepted as valid protests unless the protesting party also provides the original letter by either regular or overnight mail postmarked by the close of the protest period. Under these conditions, the BLM will consider the emailed or faxed protest as an advance copy and will afford it full consideration. If you wish to provide the BLM with such advance notification, please direct faxed protests to the attention of Brenda Hudgens-Williams, BLM protest coordinator at 202-452-5112, and emailed protests to: Brenda_Hudgens-Williams@blm.gov.

All protests, including the follow-up letter to emails or faxes, must be in writing and mailed to one of the following addresses:

Regular Mail:
Director (210)
Attn: Brenda Hudgens-Williams
P.O. Box 71383
Washington, D.C. 20024-1383

Overnight Mail:
Director (210)
Attn: Brenda Hudgens-Williams
20 M Street SE, Room 2134LM
Washington, D.C. 20003

Before including your address, phone number, email address, or other personal identifying information in your protest, be advised that your entire protest—including your personal identifying information—may be made publicly available at any time. While you can ask us in your protest to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

The BLM Director will make every attempt to promptly render a decision on each protest. The decision will be in writing and will be sent to the protesting party by Certified Mail, Return Receipt Requested. The decision of the BLM Director shall be the final decision of the Department of the Interior. Responses to protest issues will be complied and formalized in a Director's Protest Decision Report made available following issuance of the decisions.

Upon resolution of all land use plan protests, the BLM will issue an Approved RMP and Record of Decision (ROD). The Approved RMP and ROD will be mailed or made available electronically to all who participated in the planning process and will be available to all parties through the "Planning" page of the BLM national website (http://www.blm.gov/planning) or by mail upon request.

Unlike land use planning decisions, any implementation decisions included in this PRMP/FEIS are not subject to protest under the BLM planning regulations but are subject to an administrative review process through appeals to the Office of Hearings and Appeals, Interior Board of Land Appeals, pursuant to 43 CFR, Part 4 Subpart E. Implementation decisions generally constitute the BLM's final approval allowing on-the-ground actions to proceed. Where implementation decisions are made as part of the land use planning process, they are still subject to the appeals process or other administrative review as prescribed by specific resource program regulations once the BLM resolves the protests to land use planning decisions and issues an Approved RMP and ROD. The Approved RMP and ROD will identify any implementation decisions made in the plan that may be appealed to the Office of Hearing and Appeals.

Sincerely,

Jesse Juen
Acting State Director

1 Attachment

Protest Regulations

[CITE: 43CFR1610.5-2]

TITLE 43--PUBLIC LANDS: INTERIOR
CHAPTER II--BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR
PART 1600--PLANNING, PROGRAMMING, BUDGETING--Table of Contents
Subpart 1610--Resource Management Planning

Sec. 1610.5-2 Protest procedures

(a) Any person who participated in the planning process and has an interest which is or may be adversely affected by the approval or amendment of a resource management plan may protest such approval or amendment. A protest may raise only those issues which were submitted for the record during the planning process.

(1) The protest shall be in writing and shall be filed with the Director. The protest shall be filed within 30 days of the date the Environmental Protection Agency published the notice of receipt of the final environmental impact statement containing the plan or amendment in the *Federal Register*. For an amendment not requiring the preparation of an environmental impact statement, the protest shall be filed within 30 days of the publication of the notice of its effective date.

(2) The protest shall contain:

(i) The name, mailing address, telephone number and interest of the person filing the protest;
(ii) A statement of the issue or issues being protested;
(iii) A statement of the part or parts of the plan or amendment being protested;
(iv) A copy of all documents addressing the issue or issues that were submitted during the planning process by the protesting party or an indication of the date the issue or issues were discussed for the record; and
(v) A concise statement explaining why the State Director's decision is believed to be wrong.

(3) The Director shall promptly render a decision on the protest.

(b) The decision shall be in writing and shall set forth the reasons for the decision. The decision shall be sent to the protesting party by Certified Mail, Return Receipt Requested. The decision of the Director shall be the final decision of the Department of the Interior.

Proposed Taos Resource Management Plan
and
Final Environmental Impact Statement

ABSTRACT

The Proposed Taos Resource Management Plan (Proposed RMP) and Final Environmental Impact Statement (Final EIS) considers land use planning decisions for public lands and resources administered by the Bureau of Land Management in northeastern New Mexico. The planning area, which consists of lands within Colfax, Harding, Los Alamos, Mora, San Miguel, Santa Fe, Taos, and Union Counties and the eastern portion of Rio Arriba County, includes approximately 595,100 surface acres and 1,520,000 acres of Federal minerals administered by the Taos Field Office. The management decisions considered in the Proposed RMP/Final EIS must be consistent with the principles of multiple use and sustained yield as directed by the Federal Land Policy and Management Act of 1976.

Four alternatives are analyzed in detail in this Final EIS, including the Proposed RMP: The no action alternative, which would be a continuation of management under the 1988 Taos Resource Management Plan, provides for a baseline against which the other alternatives can be compared. Alternative A, the Proposed RMP, provides for the optimum combination of management decisions in an effort to balance the protection, restoration, and enhancement of natural and cultural values with resource uses and development. Alternative B places the greatest emphasis on protection, restoration, maintenance, or enhancement of the ecosystems in the planning area using natural processes, while affording the greatest protection to cultural resources. Alternative C emphasizes resource uses and commodity production and provides for the greatest opportunities for developed recreation. Upon completion, the RMP will establish the long-term management of all public lands and resources administered by the Taos Field Office.

The Proposed RMP/Final EIS is prepared subsequent to the release of a Draft RMP/Draft EIS on June 10, 2010 for public review and comment, and includes responses to all substantive, public comments on the draft document as well as all appropriate revisions. It is prepared by the BLM in cooperation with the New Mexico Department of Game and Fish, Santa Fe County, and Ohkay Owingeh Pueblo.

Acronyms/Abbreviations

ACEC ~ area of critical environmental concern
AGFD ~ Arizona Game and Fish Department
AMS ~ analysis of the management situation
APD ~ application for permit to drill
ARS ~ Arkansas River shiner
ATV ~ all-terrain vehicle
AUM ~ animal unit month

BA ~ biological assessment
BMP ~ best management practices

CAA ~ Clean Air Act
CBM ~ coalbed methane
CEQ ~ Council on Environmental Quality
CFR ~ Code of Federal Regulations
CRMP ~ coordinated resource management plan
CSP ~ concentrating solar power
CSU ~ controlled surface use
CWCS ~ Comprehensive Wildlife Conservation Strategy
CWMA ~ coordinated weed management area

DOI ~ Department of the Interior
DOQQs ~ digital orthophoto quarter-quadrangle

EA ~ environmental assessment
EIS ~ environmental impact statement
EO ~ Executive order
ERMA ~ extensive recreation management area
ESA ~ Endangered Species Act

FEAST ~ Forest Economic Analysis Spreadsheet Tool
FEMAT ~ Forest Ecosystem Management Assessment Team
FGDC ~ Federal Geographic Data Committee
FIA ~ forest inventory analysis
FLPMA ~ Federal Land Policy and Management Act
FMU ~ fire management unit
FRCC ~ fire regime condition class

GBASPA ~ Galisteo Basin Archaeological Sites Protection Act
GCM ~ global change models
GH ~ greenhouse gasses
GIS ~ geographic information system

HIV ~ High Intermountain Valleys
HMA ~ habitat management area
HMP ~ habitat management plan

IMP ~ interim management policy
IPM ~ integrated pest management
IWM ~ integrated weed management

JDB ~ John Dunn Bridge

LWCF ~ Land and Water Conservation Fund

MLRA ~ major land resource areas

NEPA ~ National Environmental Policy Act
NHPA ~ National Historic Preservation Act
NMANG ~ New Mexico Army National Guard
NMAPM ~ New Mexico and Arizona Plateaus and Mesas
NMDGF ~ New Mexico Department of Game and Fish
NMDOT ~ New Mexico Department of Transportation
NMED ~ New Mexico Environmental Department
NMEMNRD ~ New Mexico Energy, Minerals and Natural Resources Department
NMOCD ~ New Mexico Oil Conservation Division
NOI ~ notice of intent
NPDES ~ National Pollutant Discharge Elimination System
NRCS ~ Natural Resources Conservation Service
NREL ~ National Renewable Energy Laboratory
NRHP ~ National Register of Historic Places
NRT ~ national recreation trails
NSO ~ no surface occupancy
NVUM ~ National Vehicle Use Map

OHV ~ off-highway vehicle

PCPV ~ Pecos-Canadian Plains and Valleys
PFC ~ proper functioning condition
PFT ~ permanent fulltime employees
PILT ~ payment in lieu of taxes
PV ~ photovolatic

RAC ~ resource advisory council
RFD ~ reasonably foreseeable development
RGCT ~ Rio Grande cutthroat trout
RMP ~ resource management plan
RMZ ~ riparian management zone
R&PP ~ Recreation and Public Purpose Act

SCORP ~ Statewide Comprehensive Outdoor Recreation Plan
SDI ~ stand density index
SHP ~ Southern High Plains
SHPO ~ state historic preservation office
SMA ~ special management area
SMLG ~ Sebastian Martin Land Grant
SRBPA ~ Snake River Birds of Prey Area
SRMA ~ special recreation management area
SRP ~ special recreation permit
SWPP ~ storm water prevention plans

TAFO ~ Taos Field Office (BLM)
T&E ~ threatened and endangered
TJB ~ Taos Junction Bridge
TL ~ timing limitation
TMDL ~ total maximum daily load

USFWS ~ U.S. Fish and Wildlife Service
USGS ~ U.S. Geological Survey

VRM ~ visual resource management

WSR ~ wild and scenic river
WUI ~ wildfire urban interface

Table of Contents

Executive Summary 1
Introduction 1
Planning Area 1
Planning Process 1
Planning Issues 2
Alternatives 3
Environmental Consequences 5
Changes from the Draft RMP/EIS 8
Collaboration 9
Chapter 1 Introduction 11
1.1 Purpose and Need 11
1.2 Planning Area 13
1.3 Scoping 15
1.3.1 Issues 16
1.3.2 Issues Considered but Not Further Analyzed 19
1.3.3 Other Elements Not Addressed in this RMP Revision 19
1.3.4 Planning Criteria 20
1.3.5 Relationship to Statutes, Regulations, and other Plans 21
1.3.6 Resource Management Plan Decisions and Implementation Decisions 23
1.4 Planning Process 23
1.5 Collaboration 26
1.6 Changes from Draft RMP/EIS 27
Chapter 2 Alternatives 29
2.1 Introduction and General Description of Each Alternative 29
2.2 Alternative Development 30
2.3 Alternatives Considered but not Analyzed in Detail 31
2.4 Management Common to All Alternatives 31
2.4.1 Resources 31
2.4.2 Resource Uses 54
2.4.3 Special Designations 66
2.5 No Action Alternative 75
2.5.1 Overview of the Alternative 75
2.5.2 Resources 75
2.5.3 Resource Uses 79
2.5.4 Special Designations 99
2.6 Alternative A (Proposed RMP) 100
2.6.1 Overview of Alternative 100
2.6.2 Resources 100
2.6.3 Resource Uses 108
2.6.4 Special Designations 150
2.7 Alternative B 152
2.7.1 Overview of the Alternative 152
2.7.2 Resources 152
2.7.3 Resource Uses 155
2.7.4 Special Designations 163
2.8 Alternative C 164
2.8.1 Overview of the Alternative 164
2.8.2 Resources 164

2.8.3 Resource Uses 167
2.8.4 Special Designations 176
2.9 Summary Comparison of Alternatives and Impacts 177
Chapter 3 Existing Environment 199
3.1 Introduction 199
3.2 Resources 200
3.2.1 Air and Atmospheric Values 200
3.2.2 Cultural 202
3.2.3 Fish and Wildlife 205
3.2.4 Geology 221
3.2.5 Paleontology 225
3.2.6 Soils 226
3.2.7 Special Status Species 230
3.2.8 Vegetative Communities 238
3.2.9 Visual Resources 250
3.2.10 Water Resources 253
3.2.11 Lands with Wilderness Characteristics 257
3.2.12 Wildland Fire 262
3.3 Resource Uses 270
3.3.1 Forestry and Woodland Products 270
3.3.2 Land Tenure 274
3.3.3 Land Use Authorizations, Utility Corridors, Communication Sites 280
3.3.4 Livestock Grazing 284
3.3.5 Mineral Resources 290
3.3.6 Recreation 311
3.3.7 Renewable Energy 317
3.3.8 Transportation and Access 319
3.3.9 Withdrawals 323
3.3.10 Special Designations 323
3.4 Social and Economic 341
3.4.1 Social and Economic Context 341
3.4.2 History 341
3.4.3 Cultural Identity 342
3.4.4 Demographic Overview 342
3.4.5 Economic Specialization and Employment 344
3.4.6 Economic Well-Being and Poverty 347
3.4.7 Components of Personal Income 348
3.4.8 Contributions to the Area from BLM Management 350
3.4.9 Taos Field Office Contributions by Industry 358
3.4.10 Nonmarket Economic Value 360
3.4.11 Community Resiliency 360
3.4.12 Communities in the Area and Interested in BLM Land in the Planning Area 361
3.4.13 Environmental Justice 366
Chapter 4 Environmental Consequences 369
4.1 Introduction 369
4.2 Analytical Assumptions 369
4.3 Types of Impacts Evaluated 370
4.4 Incomplete or Unavailable Information 371
4.5 Resources 371
4.5.1 Air and Atmospheric Values 371
4.5.2 Cultural Resources 374

4.5.3 Fish and Wildlife 380
4.5.4 Paleontological Resources 397
4.5.5 Soils 401
4.5.6 Special Status Species 403
4.5.7 Vegetation 408
4.5.8 Visual Resources 417
4.5.9 Water 421
4.5.10 Lands with Wilderness Characteristics 422
4.5.11 Wildland Fire 428
4.6 Resource Uses 429
4.6.1 Forestry and Woodland Products 429
4.6.2 Land Tenure 431
4.6.3 Land Use Authorizations, Utility Corridors, Communication Sites 433
4.6.4 Livestock Grazing 436
4.6.5 Minerals 441
4.6.6 Recreation 458
4.6.7 Renewable Energy 462
4.6.8 Transportation and Access 464
4.6.9 Special Designations 467
4.7 Social and Economic Conditions 472
4.8 Irreversible and Irretrievable Commitment of Resources 479
4.9 Cumulative Impacts Analysis 480
4.9.1 Past, Present, and Reasonably Foreseeable Actions 481
4.9.2 Cumulative Impacts 484
Chapter 5 Consultation and Coordination 493
5.1 Introduction 493
5.2 Description of Consultation and Collaborative Efforts 494
5.2.1 Tribes 494
5.2.2 Intergovernmental Cooperation and Collaboration (State and Local Levels) 494
5.2.3 Federal Agencies 497
5.2.4 Interest Groups 497
5.3 Comments on the Draft RMP/EIS 497
5.4 List of Preparers 498

List of Tables

Table S-1. Comparison of allocations 4
Table S-2. Comparison of effects 6
Table 1-1. Land and mineral ownership within the Taos planning area 14
Table 2-1. Cultural resource use allocation categories 33
Table 2-2. Wilderness study areas 71
Table 2-3. Special designations by alternative 73
Table 2-4. Inventoried and currently established VRM classifications 78
Table 2-5. Areas managed for wilderness characteristics 79
Table 2-6. State and private lands identified lands for acquisition, no action alternative 82
Table 2-7. Lands Identified for disposal, no action alternative 85
Table 2-8. Leasing decisions for no action alternative (oil and gas) 87
Table 2-9. No action mineral constraints and withdrawals/closures[1] 90
Table 2-10. Availability for solar and wind rights-of-way 94
Table 2-11. OHV designations per RMP alternatives 97
Table 2-12. VRM classifications—Alternative A 106

Table 2-13. Areas managed for wilderness characteristics 107
Table 2-15. Leasing decisions for Alternative A (oil and gas) 117
Table 2-16. Alternative A mineral constraints or withdrawals/closures 119
Table 2-17. Acreage of settings 122
Table 2-18. Acreage of recreation areas 123
Table 2-19. VRM classifications—Alternative B 153
Table 2-20. Areas managed for wilderness characteristics 154
Table 2-21. Lands identified for disposal—Alternative B 156
Table 2-22. Leasing decisions for Alternative B (oil and gas) 158
Table 2-23. Alternative B mineral constraints and withdrawals/closures 159
Table 2-24. VRM classifications—Alternative C 166
Table 2-25. Area managed for wilderness characteristics 166
Table 2-26. Lands identified for disposal—Alternative C 169
Table 2-27. Leasing decisions for Alternative C 171
Table 2-28. Alternative C mineral constraints and withdrawals/closures 172
Table 2-29. Acreage of settings 174
Table 2-30. Summary comparison of alternatives 178
Table 2-31. Summary comparison of impacts 190
Table 3-1. Planning categories 199
Table 3-2. Fish species and origin in the Rio Grande Watershed 206
Table 3-3. Primary land cover types (SWReGAP) associated with key habitat 208
Table 3-5. Wildlife key aquatic habitats 210
Table 3-6. Planning units with condition class, limiting factors, and threats 210
Table 3-7. Big game migration corridors surface (additional subsurface) acres 211
Table 3-8. Seasonal habitat for big game surface (additional subsurface) acres 211
Table 3-9. Bat species located in the planning area (Gannon 1997) 218
Table 3-10. Management concerns by fossil yield classification 226
Table 3-11. General soil map units by planning unit 228
Table 3-12. Special status species with potential habitat in the planning area 231
Table 3-13. Riparian areas within the planning area 241
Table 3-14. Protected riparian areas (USDI 2000) 243
Table 3-15. SWReGAP vegetation categories 245
Table 3-16. Current condition indices for multi-resource disciplines 247
Table 3-17. Trends of dominant terrestrial vegetation types 248
Table 3-18. State listed noxious weeds in the planning area 249
Table 3-19. Perennial rivers in the planning area 255
Table 3-20. New Mexico Environment Department list of impaired streams within the planning area . 257
Table 3-21. Areas inventoried for wilderness characteristics 259
Table 3-23. Fire Regime Groups and Descriptions 265
Table 3-24. Fire Regime Condition Class description 266
FRCC 1 266
FRCC's are within or near a historical range. The risk of losing ecosystem components is low. Fire frequencies have departed from historical frequencies by no more than one return interval. Vegetation attributes (species composition and structure) are intact and functioning within a historical range. 266
Where appropriate, these areas can be maintained within the historical fire regime by treatments such as management of unplanned ignitions for resource benefit 266
FRCC 2 266
FRCC's have been moderately altered from their historical range. The risk of losing key ecosystem components has increased to moderate. Fire frequencies have departed (either decreased or increased) from historical frequencies by more than one return interval. This results in moderate

changes to one or more of the following: fire size, frequency, intensity, severity, or landscape patterns. Vegetation attributes have been moderately altered from their historical range.....266
Where appropriate, these areas may need moderate levels of restoration treatments, such as management of unplanned ignitions for resource benefit and hand or mechanical treatments, to be restored to the historical fire regime.....266
FRCC 3.....266
FRCC's have been significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals, resulting in more dramatic changes to one or more of the following: fire size, frequency, intensity, severity, or landscape patterns.....266
Where appropriate, these areas may need high levels of restoration treatment, such as hand or mechanical treatments. These treatments may be necessary before fire is managed to restore the historical fire regime.....266
Table 3-25. Fire regime condition class.....267
Table 3-26. Vegetation type trends by fire regime/condition class.....267
Table 3-27. Annual fuels targets for each fire management unit (acres).....268
Table 3-28. Pre-settlement condition annual disturbance regimes (acres).....269
Table 3-29. Fire management unit prioritization.....270
Table 3-30. Forest inventory analysis (FIA) for Taos Field Office-BLM 1999 data, by county.....271
Table 3-31. Forest inventory analysis by size class (all plots combined and averaged).....272
Table 3-32. Summary of forest/woodland types.....274
Table 3-33. Communication sites and locations.....281
Table 3-34. Landfill status.....284
Table 3-35. Allotment management category.....285
Table 3-36. Land ownership acreages.....290
Table 3-37. Historical number of wells drilled in the planning area.....295
Table 3-38. Mining districts with locatable minerals that include or may influence BLM-administered land.....303
Table 3-39. Visitor use at special recreation management areas.....314
Table 3-40. Summary of areas warranting consideration as ACECs.....332
Table 3-41. Byways in the Taos planning area.....333
Table 3-42. Wild and scenic rivers (designated and eligible segments).....337
Table 3-43. Roadless areas/wilderness study areas.....339
Table 3-44. Population change in counties within the planning area.....343
Table 3-45. Number and percent of persons of Hispanic origin (of any race).....344
Table 3-46. Population by race (2000).....344
Table 3-47. Estimated annual employment contribution by resource program.....350
Table 3-48. Estimated annual labor income contribution by resource program.....351
Table 3-49. Annual AUM authorizations in the planning area.....352
Table 3-50. Taos Field Office expenditures and employment.....358
Table 3-51. Current role of Taos Field Office contributions to local economy.....359
Table 3-52. Racial and ethnic composition of farm operators.....368
Table 4-1. Types of impacts.....370
Table 4-2. Livestock grazing actions related to riparian areas.....411
Table 4-3. Alternative comparison, areas managed for wilderness characteristics.....426
Table 4-4. Lands identified for disposal.....432
Table 4-5. Lands identified for acquisition.....433
Table 4-6. Right-of-way exclusion areas.....436
Table 4-7. No action disposal acreage and AUMs.....440
Table 4-8. Oil and gas development potential.....447
Table 4-9. Nondiscretionary closure to oil and gas leasing by alternative.....448

Table 4-11. Oil and gas leasing constraints by planning unit and potential 450
Table 4-12. Specially designated areas with NSO by alternative and potential 451
Table 4-13. Summary of mineral material disposal decisions by alternative 457
Table 4-14. Travel management designations per alternative 466
Table 4-15. Estimated outputs by alternative 473
A. Direct and Indirect Impacts 473
Table 4-16. Average annual employment by program by alternative (full and part-time jobs) 476
Table 4-17. Average annual labor income by program by alternative (thousands of 2008 dollars)..... 476
Table 5-1. Formal scoping meetings held 493
Table 5-2. Draft RMP/EIS open-house meetings held 498

List of Figures

Figure 1-1. Location of planning area 14
Figure 1-2. Location of planning units 15
Figure 1-3. BLM planning process 25
Figure 3-1. Rock units within the planning area 223
Figure 3-2. Major tectonic elements of north-central New Mexico (from Baltz [1978]) 224
Figure 3-3. Age class distribution of inventoried pinon-juniper woodlands 272
Figure 3-4. Visitation to recreation areas in 2006 314
Figure 3-5. Number of guided boating passengers, 2001–2005 315
Figure 3-7. Employment history of nine county planning area (*Source:* EPS [2007]) 346
Figure 3-8. Unemployment rate of the nine counties within the analysis area (*Source*: EPS [2007]) 348
Figure 3-9. Analysis area labor income distribution (IMPLAN 2006) 349
Figure 3-10. Relative county dependence on PILT payments (Source: New Mexico Taxation and Revenue Department, 2006) 357
Figure 3-11. Payments in lieu of taxes (*Source:* USDI PILT database, 2008) 357
Figure 3-12. Percent of county population below poverty level (2005) (*Source:* U.S. Census Bureau SAIPE, 2005) 367

Executive Summary

Introduction

The Federal Land Policy and Management Act (FLPMA) of 1976, commonly referred to as the "organic act" for the Bureau of Land Management (BLM), establishes public land policy and sets forth the requirement for the BLM to develop, maintain, and, when appropriate, revise comprehensive plans for the management of public lands for present and future generations. These management plans are to incorporate the principles of multiple use and sustained yield, as mandated by the provisions of FLPMA.

The purpose of the Taos Resource Management Plan (RMP) is to provide broad-scale guidance for the management of public lands and resources administered by the Taos Field Office of the BLM in accordance with FLPMA. The RMP would identify desired outcomes, expressed in terms of goals and objectives, for resource conditions and uses, and establish the allowable uses, management actions, and special designations that would enable the BLM to achieve the desired outcomes. When completed, the RMP will guide the Taos Field Office in the implementation of all its subsequent management actions and site-specific activities. BLM policy per FLPMA requires that current resource management plans be revised when necessary to address current resource conditions, evolving demands on resources, and new and revised national-level policy (43 CFR 1610.5-6). Current management direction for the Taos Field Office is contained in the 1988 Taos RMP and subsequent amendments. Since the RMP and amendments were completed, new information, revised laws and policies, emerging issues, and changed circumstances and resource conditions have generated the need for a revised RMP.

Planning Area

The BLM-administered public lands subject to the Taos RMP are within a planning area encompassing approximately 24,000 square miles of mixed ownership in northeastern New Mexico, including Union, Mora, Colfax, San Miguel, Los Alamos, Harding, Taos and Santa Fe counties, and the eastern half of Rio Arriba County. This planning area provides a regional context for analysis in the RMP and establishes a framework for collaborative planning with various governmental or tribal jurisdictions and the public.

Management decisions in the RMP will affect approximately 595,100 acres of public surface estate and approximately 1,517,850 acres of subsurface minerals. The distribution of the public lands has an important influence on land management options. The public lands are fairly well consolidated in Taos, Santa Fe, and Rio Arriba counties, while scattered or isolated ownership patterns are predominant over much of the remaining planning area.

It is important to note, however, that the RMP decisions will only apply to BLM-administered surface and mineral estate. No decisions generated by the RMP would change existing rights or authority of private land owners or other surface management agencies.

Planning Process

The BLM uses a multi-step process to develop and revise a resource management plan. The planning process is designed to help the BLM comply with provisions of both FLPMA and the National Environmental Policy Act of 1969 (NEPA). While FLPMA provides a charter for the

BLM's management of public lands, NEPA requires Federal agencies to prepare a detailed environmental impact statement (EIS) to evaluate the environmental consequences of major Federal actions. Approval of a resource management plan is considered by regulation to be a major Federal action significantly affecting the quality of the human environment. Therefore, an EIS is required as part of the planning process.

A Notice of Intent was published in the *Federal Register* on May 26, 2006 notifying the public of the BLM's intent to prepare an EIS for the RMP revision, initiating a 60-day public scoping period (which was extended to August 31, 2006). Following scoping, the BLM developed an appropriate range of management options, or alternatives, to address and resolve the planning issues identified by the public, local, state and tribal governments, and other Federal agencies. An analysis was then prepared which evaluated the environmental impacts of the alternatives, and released to the public as the Draft Taos RMP/EIS on June 11, 2010, for a 90-day public review and comment period.

The Proposed RMP/Final EIS is now prepared to addresses all substantive comments provided by the public on the draft plan and includes refinements to the Proposed RMP and the analysis of potential impacts. Release of this Proposed RMP/Final EIS initiates a 30-day protest period. Upon the resolution of any protests, the BLM New Mexico State Director will issue a Record of Decision for the Approved RMP, which will then be implemented by the Taos Field Office.

Planning Issues

The planning issues, identified through public scoping, include opportunities, conflicts, and problems associated with the management of public lands. These issues are the key issues to be resolved through the planning process.

Management concerns, a type of issue, are typically generated internally by the BLM and relate to any program-specific decision under consideration in the RMP to meet the BLM's goals and objectives.

The planning issues and management concerns help establish the decision framework for the RMP. Planning issues addressed in the RMP are associated with the management of the following programs:

- Visual Resources
- Land Tenure Adjustments
- Land Use Authorizations (including utility corridors, communication sites, roads, and other rights-of-way)
- Mineral Resources
- Recreation
- Renewable Energy
- Transportation and Access
- Special Designations

The RMP also addresses management concerns related to the following resources or programs:

- Air and Atmospheric Values
- Cultural Resources

- Fish and Wildlife
- Paleontological Resources
- Soils
- Special Status Species
- Vegetation –Terrestrial and Riparian
- Water
- Lands with Wilderness Characteristics
- Wildland Fire
- Forestry and Woodland Products
- Invasive Species / Noxious Weeds
- Livestock Grazing
- Withdrawals
- Socio-economics

Alternatives

Four alternative management options are considered as part of the planning process. These alternatives, developed with certain planning criteria, are designed to achieve the plan's goals and objectives, each with differing emphases. The alternatives represent a reasonable range of options for managing resources and resource uses within the planning area.

A summary of the four alternatives with their principle themes are discussed below.

No Action Alternative. The No Action Alternative, often referred to as the existing management situation, is required by NEPA and retains the current management under the 1988 Taos RMP, subsequent plan amendments, as well as current BLM policy and guidance. Resource uses and values would receive emphasis at present levels, and current management strategies would continue to be applied. Decisions from the 1988 RMP that have been implemented would continue, and those that have not been implemented would be carried forward for future implementation.

Alternative A (Proposed RMP). Alternative A, the Proposed RMP, represents the optimum combination of management decisions to meet the purpose and need for this land use plan in consideration of the planning issues and management concerns identified in section 1.3.1. Management under this alternative seeks to provide an overall balance between the protection, restoration, and enhancement of natural and cultural values, while allowing resource use and development.

This optimum combination of management decisions would be achieved within the limits of an ecosystem's sustainability and within the constraints of applicable laws and regulations. Measures to protect sensitive resources would be implemented, but they would be less restrictive than the management prescriptions under Alternative B.

Alternative B. Alternative B maximizes efforts to protect, maintain, restore, or improve components of the ecosystem using natural processes. This would be achieved primarily through increased management emphasis on protection of resource values associated with special designations, fish and wildlife habitat, and special status species. In certain areas, commodity production or resource uses would be excluded to protect sensitive resources.

Alternative C. Alternative C emphasizes resource uses and commodity production, and maximizes recreation opportunities in accordance with local economies and plans. Constraints on commodity production would be the least restrictive, while still complying with applicable laws, regulations, and BLM policies.

Allocations per alternative related to the key planning issues are presented in Table S-1.

Table S-1. Comparison of allocations

Planning Issue	No Action Alternative	Alternative A	Alternative B	Alternative C
Visual Resources				
Designated VRM Classes (acres)				
Class I	59,877	111,006	115,284	56,402
Class II	151,821	393,708	401,505	203,006
Class III	281,097	53,182	38,533	224,562
Class IV	102,646	37,546	40,119	111,473
Land Tenure Adjustments				
Disposal (acres)	60,000	69,729	64,078	67,451
Acquisition (acres)	34,351	140,269	140,269	34,351
Land Use Authorizations				
Rights-of Way Exclusions Areas	▪ Wild Rivers Recreation Area ▪ Rio Chama Special Management Area/Wilderness Study Area/Wild and Scenic River ▪ Copper Hill ACEC ▪ Lower Gorge ACEC ▪ Santa Cruz Lake Recreation Area ▪ Orilla Verde Recreation Area ▪ Rio Grande Wild and Scenic Rivers ▪ Sabinoso Wilderness	Those identified under the No Action Alternative plus: ▪ Chama Canyon ACEC ▪ Galisteo Basin ACEC ▪ Sabinoso Wilderness and ACEC ▪ Within the Wild Rivers, San Antonio, and Ute Mountain Zones of the Taos Plateau ACEC ▪ Cerro Colorado and Rincon del Cuervo areas of Ojo Caliente ACEC	Exclusion areas would be the same as those under as Alternative A, except an additional portion of the Riparian/Aquatic ACEC would also impose an exclusion	Exclusion areas would be the same as those under as the No Action Alternative, with exception to a smaller exclusion areas along the Rio Chama
Mineral Resources				
Leasables				
Closed (acres)	65,710	525,740	594,220	99,510
Nondiscretionary Closure (acres)	35,590	35,590	35,590	35,590
Open with Standard Terms and Conditions (acres)	1,277,770	648,660	658,430	1,302,920
Open to Leasing with Constraints (acres)	138,780	343,450	227,090	115,420
Locatables				
Withdrawn (acres)	100,800	268,100	340,700	100,800
Salable				
Closed (acres)	133,100	511,100	579,600	133,100
Recreation				

The Rio Grande corridor, including Orilla Verde Recreation Area and Wild Rivers Recreation Area, would be managed according to the 2000 Rio Grande Corridor Final Plan. The Chama Wild and Scenic River would be managed according to the 1990 Rio Chama Plan.				
SRMAs	Wild Rivers, Santa Cruz Lake, and Orilla Verde Recreation Areas, and the Rio Chama and Rio Grande Corridors	11 SRMAs, totaling 185,405 acres; Public lands would be allocated to SRMAs as follows: ▪ Primitive: 44,854 ▪ Back Country: 19,473 ▪ Middle Country: 109,683 ▪ Front Country: 7,638 ▪ Rural: 3,777 ▪ Urban: 0	Same as Alternative A	Similar to Alternative A, except the allocations would be adjusted
ERMAs	Remaining areas	Remaining areas	Remaining areas	Remaining areas
Renewable Energy				
Excluded (acres)	142,439	413,360, plus the following limitations: ▪Wind excluded, solar avoided: 72,982 acres ▪Wind excluded, solar open: 13,414 acres ▪Wind and solar avoided: 41,513 acres	Same as Alternative A	Similar to the No Action Alternative, except wind and solar energy rights-of-way would be excluded from all riparian areas
Open	474,708	61,092	474,708	
Transportation and Access				
Closed (acres)	21,180	75,425	75,425	64,065
Open (acres)	64,605	0	0	53,165
Limited to Designated Routes (acres)	316,525	519,675	519,675	477,870
Limited to Existing Routes (acres)	192,790	0	0	0
Special Designations				
ACECs [(#)/acres]	(8) 66,590	(11) 407,855	(12) 410,105	(6) 115,770
SMAs	(12) 131,350			

Environmental Consequences

A summary of the environmental consequences projected to result from implementation of each alternative include direct, indirect, and cumulative effects. A summary of the effects anticipated to occur to the key planning issues are presented in Table S-2.

Table S-2. Comparison of effects

Planning Issue	No Action Alternative	Alternative A	Alternative B	Alternative C
Visual Resources	One-third of the planning area would be either VRM class I or class II, which provides protection of areas with higher scenic quality.	Approximately two-third of the planning area would be class II, which largely protects scenic quality. Much of the remaining area would be class I. These areas generally coincide with Special Designations.	Similar to Alternative A, except some class II areas would be class I under this alternative.	The planning area would be predominantly managed as class II and III, which would largely protect and preserve the quality of scenic resources while providing for development opportunities.
Land Tenure Adjustments	Disposal of all of the parcels in the East Side planning unit, except for the Sabinoso Wilderness Study Area, would improve the effective and efficient management of larger blocks of lands. Acquisition of lands within or adjacent to Special Designations and areas with significant cultural resources would provide for greater protection of resources and provide for greater opportunities for public enjoyment of those lands and resources.	This alternative provides the greatest opportunity to acquire and dispose of lands for more improved manageability and resource protective purposes, while meeting the needs of local communities.	Very similar to the No Action Alternative, except additional lands are identified for disposal.	Very similar to the No Action Alternative, except additional lands are identified for disposal.
Land Use Authorizations	Rights-of-ways would be excluded from the Wild Rivers Recreation Area, Rio Chama Special Management Area/Wilderness Study Area/Wild and Scenic River, Copper Hill ACEC, Lower Gorge ACEC, Santa Cruz Lake Recreation Area, Orilla Verde Recreation Area, Rio Grande Wild and Scenic Rivers.	In addition to those areas identified under the No Action, rights-of-ways would also be excluded from Chama Canyon ACEC, Galisteo Basin ACEC, Sabinoso ACEC/WSA, within the Wild Rivers, San Antonio, and Ute Mountain Zones of the Taos Plateau ACEC, and the Cerro Colorado and Rincon del Cuervo areas of the Ojo Caliente ACEC.	Exclusion areas would be the same as those under as Alternative A.	Exclusion areas would be the same as those under as the No Action Alternative.

Mineral Resources	Only a small percentage of the Federal mineral estate would be closed to leasing while approximately 93 percent would be available. A similar percentage would be open to locatable and salable mine development.	About two-thirds of the mineral estate would be open to leasable, locatable, and salable minerals. The greater unavailability of Federal minerals could lead to a possible increase in potential for mineral development on private lands. In addition to a loss of use of the resources and consequential loss of Federal royalties, potential drainage of Federal oil and gas could occur.	Approximately 58 percent of the mineral estate would be open to leasing, while over half the estate would be open to locatable and salable minerals. As with Alternative A, the primary potential impact would be to make Federal minerals unavailable leading to a possible increase in potential for mineral development on private lands. In addition to a loss of use of the resources and consequent loss of Federal royalties, potential drainage of Federal oil and gas could occur.	Similar to the No Action Alternative.
Recreation	The focus of management of recreation would remain limited to the developed Wild Rivers, Santa Cruz Lake, and Orilla Verde Recreation Areas, along with the Rio Chama and Rio Grande Corridors.	With about 31 percent of the public lands in planning area managed as a SRMA, this alternative would provide the greatest variety and opportunity for recreation, including developed, dispersed, or primitive experiences.	Same as Alternative A.	Similar to Alternative A, except with allocations adjusted, the public would have greater opportunities for developed recreation and motorized use.
Renewable Energy	Approximately 78 percent of the planning area would be open to renewable energy development.	About one-third of the planning area would be available for renewable energy development.	Same as Alternative A.	Similar to the No Action Alternative, except wind and solar energy rights-of-way would be excluded from all riparian areas.
Transportation and Access	Approximately 3 percent of the planning area would be closed. Ten percent of the area would be open, while the remaining 87 percent would be limited to designated and existing routes. Opportunities for OHV travel and access would be unchanged.	Approximately 12 percent of the planning area would be closed, while the remaining 88 percent would be limited to designated routes. Certain special designations, including Sabinoso Wilderness, WSAs, and the Wild and Scenic River corridors, would preclude OHV opportunities. While fewer routes would likely be available to OHV travel, access to areas would still be provided for throughout most of the planning area.	Same as Alternative A.	About 10 percent of the planning area would be closed, while approximately 90 percent of the area would be limited to designated routes. While more restrictive than the no action alternatives, areas limited to designated routes could have a greater density of routes and, thus, more travel opportunities than under Alternative A.

Special Designations	Eight ACECs totaling 66,590 acres would provide special management to the areas' relevant and important values. Twelve Special Management Areas totaling 131,350 acres would continue also provide special management prescriptions to special values.	Eleven ACECs designated totaling 407,855 acres would provide special management to the areas' relevant and important values.	Twelve ACECs designated totaling 409,425 acres would provide special management to the areas' relevant and important values.	Six ACEC totaling 115, 770 would provide special management to the areas' relevant and important values.

Changes from the Draft RMP/EIS

Changes in the Proposed RMP/Final EIS are largely made in response to public comment on the Draft RMP/EIS. Responses provided in Appendix J indicate which public comments led to changes in the document and where those changes can be found. The extensive internal reviews of the Final EIS have also led to corrections, revisions, and other improvements to the document. Acreage figures and associated quantifications have also been revised throughout the document, in some cases to reflect the changes described below while in other cases based on updated GIS information.

Noteworthy new or revised content prepared in response to both external and internal input is highlighted throughout the Final EIS. Note, however, that any text removed from the Final EIS in response input is not indicated unless specified in a response to a public comment in Appendix J.

The more substantial changes made to the Proposed RMP are presented below, while a complete description of changes throughout the Final EIS is presented in Appendix K.

Proposed RMP

- Some spatial and timing limitations associated with wildlife management are changed under section 2.6.2.3. The buffer to protect bighorn sheep populations vulnerable to diseases potentially carried by domestic sheep or goats is changed from five miles to nine. Likewise, spatial and seasonal limitations associated with raptor and migratory species of birds are modified to match best available recommendations. The buffer to protect significant bat populations is also changed under this alternative for clarification.
- The Visual Resource Management classification for the western end of San Pedro Mountain in the Galisteo planning unit is changed to class II under the Proposed RMP to help protect the visual corridor along the Turquoise Trail National Scenic Byway (see section 2.6.2.8).
- The Cerro Colorado area within the Ojo Caliente planning unit would be added to the areas where wilderness characteristics would be afforded protective management under the Proposed RMP. Management for these characteristics in the 31,221-acre area would complement the prescriptions applied to the area under the Ojo Caliente ACEC designation (see section 2.6.2.10).
- Under section 2.6.3.2, lands identified for disposal within the El Palacio planning unit immediately east of and adjacent to Ohkay Owingeh Pueblo lands are updated to include up to 3,200 acres.
- Certain opportunities and restrictions are revised under section 2.6.3.3 to clarify or update decisions regarding land use authorizations, utility corridors, and communications sites.

- The Taos Plateau ACEC would be closed to mineral leasing in order to provide greater protection to the resource values associated with the ACEC, particularly big game wildlife habitat and migration corridors (see section 2.6.3.5).
- The 380-acres originally proposed to remain open to OHV travel are changed to limited to designated routes (see section 2.6.3.8). The three areas that make up this acreage, which were primarily intended to accommodate staging, are recognized as having sensitive resource values, and opportunities for staging can still be provided for under the limited designation.
- Though the area designation for travel management—limited to designated routes—is unchanged, the Proposed RMP now recognizes to opportunity for trials riding events to occur off Hwy 75, straddling the Lower Rio Grande/Copper Hill and El Palacio transportation areas. This activity would be provided for under special recreation permits (see sections 2.6.3.8 and 2.6.3.6).
- In light of new information regarding the occurrence of important paleontological resources, the 680-acre block of public lands near La Puebla in the El Palacio planning unit, proposed as a special recreation management area, would be added to the Sombrillo ACEC. Though the proposed management of this area would not substantially change with its inclusion into the ACEC, it is appropriate that the Proposed RMP recognize its significant paleontological values.

Collaboration

The BLM uses community-based collaboration to facilitate public involvement in the planning process. Collaboration involves interested groups and people, often with varied or opposing interests, to work together to devise solutions with broad public support for managing BLM-administered lands. Local, state, tribal, and other Federal agencies are invited to remain fully engaged with the Taos Field Office throughout the planning process.

Any Federal, state, tribal, or local agency with jurisdiction by law or special expertise may become a formal cooperating agency by agreement with the lead agency. Of the entities invited to participate in this formal capacity, Santa Fe County, State of New Mexico Department of Game and Fish, and Ohkay Owingeh Pueblo chose to enter an agreement with the BLM as a cooperating agency.

Eleven tribes have lands located within the boundaries of the Taos Field Office. These include the northern Tiwa Pueblos of Taos and Picuris; the Tewa Pueblos of Nambe, Pojoaque, San Ildefonso, Ohkay Owingeh, Santa Clara and Tesuque; the Keresan Pueblos of Cochiti and Santo Domingo; and the Jicarilla Apache Nation. All of these tribes were among those invited to participate in the planning process. A scoping presentation was also made at an Eight Northern Pueblos Council meeting to update the Governors of the eight Pueblos on the planning issues and schedule. On the Draft RMP/EIS, only Ohkay Owingeh provided written comments.

Other New Mexico Tribes with lands located outside of the Taos Field Office boundaries were also contacted. They include:

The Navajo Nation	Acoma Pueblo	Isleta Pueblo
Jemez Pueblo	Laguna Pueblo	San Felipe Pueblo
Sandia Pueblo	Santa Ana Pueblo	Zia Pueblo
Zuni Pueblo	Hopi Pueblo	Southern Ute Tribe

The Taos Field Office will continue to consult with the Native American tribes on a government-to-government basis throughout the planning process and will seek opportunities to develop cooperative management partnerships with tribes when appropriate.

The Fish and Wildlife Coordination Act of 1934, as amended, and the Endangered Species Act of 1973 require consultation with the US Fish and Wildlife Service (USFWS) prior to initiation of any BLM project that has the potential to affect any federally listed special status species or its habitat. Since approval of the Taos RMP is considered a major Federal action, consultation with USFWS was initiated by the Taos Field Office, and a biological assessment was prepared on the Preferred Alternative in the Draft RMP/EIS, evaluating the potential for the proposed management decisions to impact federally listed species and their habitat. By memorandum dated June 17, 2010, USFWS provided their concurrence with the BLM's determination in the biological assessment of "may affect, not likely to adversely affect" particularly regarding the Southwestern willow flycatcher.

The New Mexico/Oklahoma/Texas BLM Resource Advisory Council also helped to identify issues and consider management options.

Chapter 1 Introduction

1.1 Purpose and Need

The purpose of the Taos Resource Management Plan (RMP) is to provide broad-scale direction for the management of public lands and resources administered by the Taos Field Office of the Bureau of Land Management (BLM). The RMP would identify desired outcomes, expressed in terms of goals and objectives for resource conditions and uses, and establish the allowable uses, management actions, and special designations that would enable the BLM to achieve the desired outcomes. These management decisions would be in accordance with principles of multiple use and sustained yield, as mandated by the provisions of the Federal Land Policy and Management Act (FLPMA) of 1976, which establishes public land policy and sets forth the requirement for the BLM to develop, maintain, and, when appropriate, revise or amend land use plans (RMPs) for the management of public lands. When completed, the RMP would guide the Taos Field Office in the implementation of all its subsequent management actions and site-specific activities.

This RMP is needed because BLM regulations require that current resource management plans be revised when necessary to address current resource conditions, evolving demands on resources, and new and revised national-level policy (43 CFR 1610.5-6). Current management direction for the Taos Field Office is contained in the 1988 Taos RMP and subsequent amendments. Since the RMP and amendments were completed, new information, revised laws and policies, emerging issues, and changed circumstances and resource conditions have generated the need for this revised RMP.

Some of the more relevant law, policy, and guidance changes that have occurred since 1988 and need to be considered in the revised RMP include:

- Manual 8351, Wild and Scenic River Policy and Program Direction for Identification, Evaluation, and Management (USDI-BLM 1992)
- Handbook H-8550-1, Interim Management Policy and Guidelines for Lands Under Wilderness Review (BLM 1995a)
- National Fire Plan (DOI and USDA 2000)
- New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (BLM 2001a)
- National Management Strategy for Motorized Off-Highway Vehicle (OHV) Use on Public Lands (BLM 2001b)
- Manual 6840, Special Status Species (BLM 2001c)
- Healthy Forests Restoration Act of 2003
- Manual H-8410-1, BLM Visual Resource Inventory, Section V. Visual Resource Classes and Objectives (USDI-BLM 2003)
- Manual 8100, The Foundations for Managing Cultural Resources (revised 2004)
- Energy Policy Act of 2005
- Handbook H-1601-1, Land Use Planning Handbook
    - BLM Instruction Memoranda and Executive Orders (see Appendix D)
    - Omnibus Public Land Management Act of 2009

In addition, many demographic and resource changes have also occurred. Population growth and the concurrent development of "bedroom" communities have been a major factor affecting public land resources and BLM programs managed by the Taos Field Office. During the past 15 years, population growth in portions of the planning area has exceeded the rest of the State. Most notably, this includes the vicinity of Santa Fe, Espanola, and Taos. Consequently, the Taos Field Office has experienced increased demand for recreational use (both motorized and nonmotorized), as well as an increase in requests for land tenure decisions or adjustments and land use permits and authorizations—the latter of which are often made to accommodate the needs of local communities.

Increased community growth leads to the need to adjust or increase management activities to provide for the use of public lands while ensuring impacts to natural and cultural resources are minimized. Examples of management challenges spawned by these trends include:

- Managing public land access within 25 miles of community growth areas;
- Resolving conflict among visitors;
- Preventing loss of cultural heritage resources;
- Preventing wildlife habitat fragmentation and weed infestations;
- Maintaining and managing recreation facilities;
- Reducing hazardous fuels;
- Addressing public health, safety, and liability concerns, including crime and illegal activities; and
- Providing rights-of-way for roads, utilities, communication sites, and energy production and distribution.

In addition to the needs of local communities, the BLM must also manage public lands to address national needs for natural resources. In particular, demand for energy resources is expected to grow. With increased demand and the rise in energy prices, industry will continue to seek new sources of nonrenewable energy including coal, oil, gas, and uranium. Since the RMP scoping meetings were held in 2006, the opportunity for oil and gas exploration and development in the Galisteo Basin has become an issue of public concern. Although the BLM has been approached about the possibility of leasing Federal mineral rights in the area, that decision, and what development controls would be appropriate if leasing is allowed, has been deferred until the completion of this RMP. Since this issue could arise elsewhere in the area, the revised RMP would use updated information on oil and gas development potential across the planning area.

The BLM also has new policy on considering and providing for renewable energy development as a means to supplement traditional fossil fuel sources. The policy includes guidance on best management practices and measures to mitigate potential impacts on visual resources, migratory birds, wildlife habitat, and other resource values.

The State of New Mexico has passed legislation to encourage production of renewable energy (NM Senate Bill 463) and increase the State's renewable energy portfolio to 20 percent by 2020 (NM Senate Bill 418). In addition, New Mexico House Bill 118 established a Renewable Energy Transmission authority to help facilitate the export of solar, wind, and other renewable energy from the State. Based on this growing State and national emphasis, the Taos Field Office is anticipating new requests for nonconventional energy development projects, including wind, solar, biofuel, and geothermal projects.

Management of visual resources is increasingly important given trends of recreational use, expanding communities, and population growth in general, all of which drive the need for additional infrastructure. Visual resource management (VRM) classifications were applied only to areas specially designated in the 1988 RMP, but not across the entire planning area.

Management consideration must also be given to open space preservation, conflicting recreational opportunities, infrastructure development (e.g., power lines, communication facilities, and roads) and other issues, biological and social, predominantly where public lands interface with expanding communities.

Since 1988, the composition of certain natural vegetation communities has also changed. These communities have become threatened by the encroachment of piñon and juniper into sagebrush-grasslands and from the invasion of annual exotic grasses and noxious weeds. These ecological resource concerns, including watershed and ecosystem health, are best addressed at a landscape level in the RMP.

In 2006, BLM New Mexico initiated a statewide "Restore New Mexico" initiative to try to reverse the effects of exotic and invasive species. The program focuses on large scale restoration efforts to repair ecosystems. Restore New Mexico provides new opportunities for the Taos Field Office to plan and implement ecosystem-level restoration projects in the planning area.

The RMP also responds to new or revised laws and agency policies regarding a variety of natural and cultural environment. For example, the New Mexico Department of Game and Fish (NMDGF) has developed a Comprehensive Wildlife Conservation Strategy for New Mexico which identifies long-term conservation actions for high priority wildlife species and habitats. National BLM guidance (WO IM 2006-114) encourages implementation of such plans whenever practicable and consistent with its land use planning process. Likewise, new protocol agreements between the BLM and the State Historic Preservation Offices of New Mexico have been developed to guide the inventory, protection, and conservation of cultural resources as they relate to other resources and land uses. Emphasis is now being placed on locating and protecting traditional cultural properties in accordance with local tribal interests. This RMP would serve as a reference document which consolidates the latest guidance and summarizes the most recent information needed to guide BLM management of public resources in the Taos Field Office planning area.

1.2 Planning Area

The planning area encompasses approximately 15.5 million acres (24,000 square miles) of mixed ownership in northeastern New Mexico. It includes Union, Mora, Colfax, San Miguel, Los Alamos, Harding, Taos, and Santa Fe counties, and the eastern half of Rio Arriba County. The planning area provides a regional context for analysis in the RMP and establishes a framework for collaborative planning with various governmental or tribal jurisdictions and the public.

The decisions generated by the RMP would affect approximately 595,100 acres of public surface estate and approximately 1,517,850 acres of BLM-administered subsurface minerals. RMP decisions would only apply to BLM-administered surface and mineral estate. No decisions generated by the RMP would change existing rights or authority of private land owners or other surface management agencies. Figure 1-1 shows the planning area and its location within New Mexico. Major population centers include the areas around Santa Fe, Espanola, Taos, and Las Vegas.

The distribution of the public lands has an important influence on land management options. The public lands are fairly well consolidated in Taos, Santa Fe, and Rio Arriba counties, while scattered or isolated ownership patterns predominate over much of the remaining planning area.

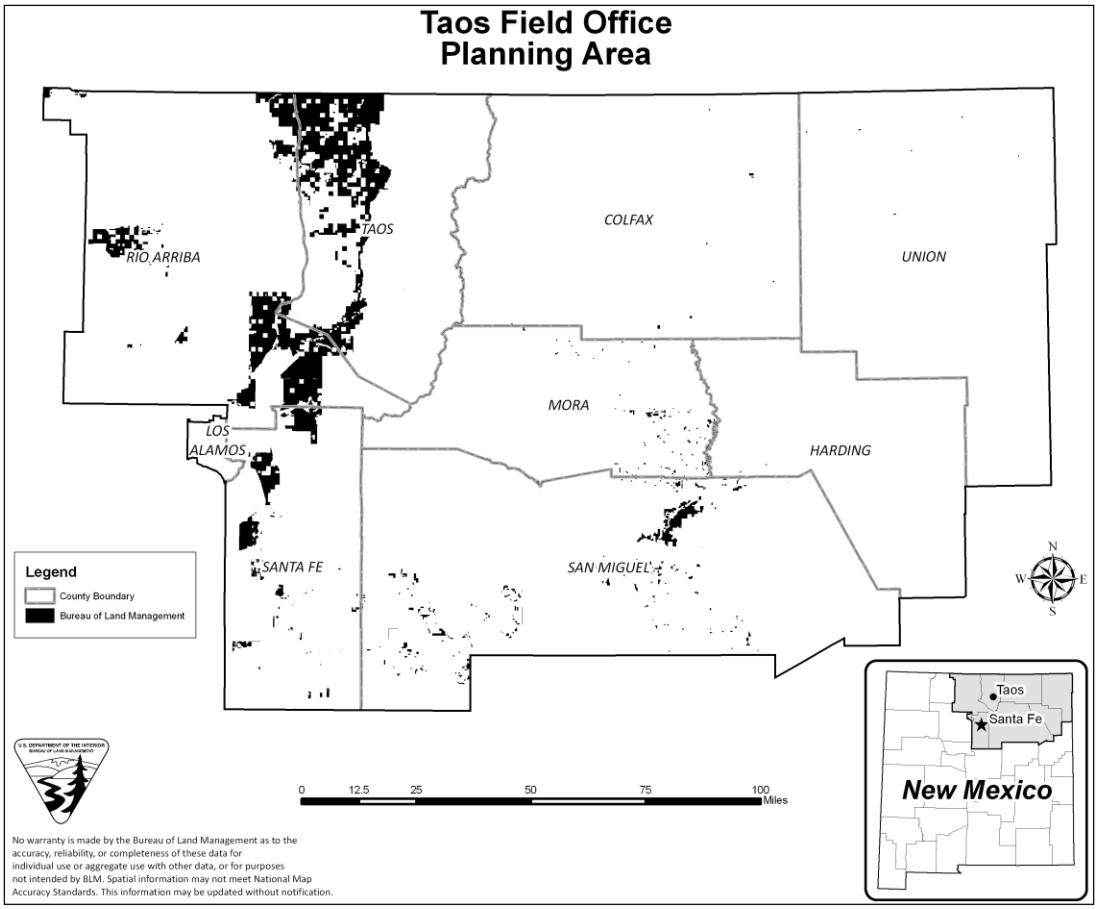


Figure 1-1. Location of planning area

Table 1-1 provides the acreage of Federal, State, tribal, and private surface acres in the planning area as well as Federal minerals.

To assist in describing a range of alternative management actions for resources, resource uses, and special designations, the planning area was divided into eight distinct planning units (see Figure 1-2 and Map 3-1).

Table 1-1. Land and mineral ownership within the Taos planning area

Surface and Mineral Owner	Surface Acres	Mineral Acres
BLM	595,100	1,517,850
Forest Service	2,600,500	2,374,060
Other Federal minerals/Federal surface		5,590
Total Federal minerals		3,897,500
Tribal	394,830	
State	1,472,360	

Other agencies	165,930	
Private	10,292,260	
Total area (Taos planning area)	15,520,980	

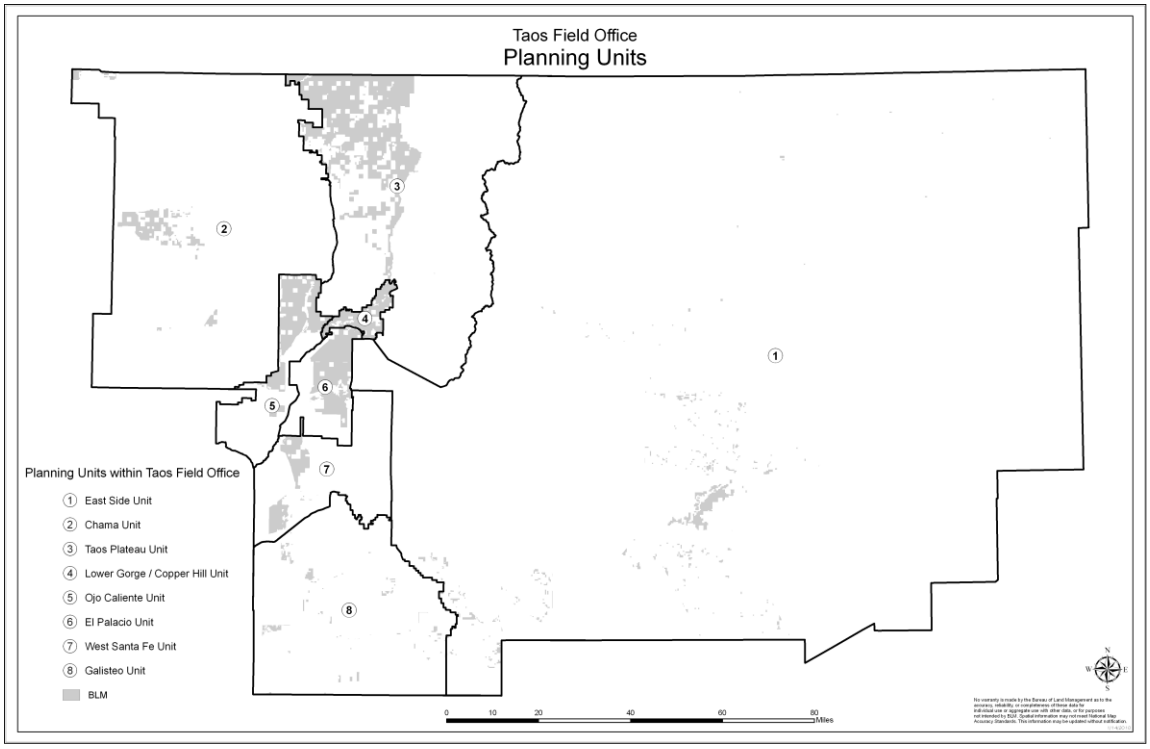


Figure 1-2. Location of planning units

1.3 Scoping

Scoping is the process by which the BLM solicits both internal and external input to identify relevant issues and concerns that need to be addressed within the scope of the RMP revision. These issues and concerns are analyzed in detail in an environmental impact statement (EIS), as required by the National Environmental Policy Act of 1969 (NEPA). During scoping, the Taos Field Office sought to engage the public, local, and State governments, Native American Tribes, and other Federal agencies to identify these issues and concerns, which enabled the Taos Field Office to narrow the focus of the RMP to an appropriate scope.

On May 26, 2006, a Notice of Intent was published in the *Federal Register* (Volume 71, Number 102, Page 30446) notifying the public of the Taos Field Office's initiation of a 60-day formal scoping period to solicit public involvement the planning process.

Four formal scoping meetings were held in June 2006 in Taos, Las Vegas, Espanola, and Santa Fe. A scoping presentation was also made at an Eight Northern Pueblos Council meeting to engage the Governors of the eight Northern Pueblos. In addition, two Economic Profile System workshops were held in July 2006 to work with local citizens and community leaders to develop a common understanding of the local economies and the ways in which RMP decisions might affect them.

The New Mexico/Oklahoma/Texas BLM Resource Advisory Council (RAC) also helped to identify issues and reviewed proposed plan goals, objectives, and management alternatives.

In late July 2006, the Taos Field Office received a number of requests to extend the formal scoping period, during which the BLM accepts comments, input, and other relevant information. An extension was granted and the period was extended until August 31, 2006. Notification of the extension was posted through various media.

During the interim since scoping was initiated in 2006, no new issues have been identified, while those presented below remain relevant.

1.3.1 *Issues*

Planning issues are opportunities, conflicts, and problems associated with the management of public lands, and generally include issues identified externally by the public during scoping. Management concerns are typically generated internally by the BLM and relate to any program-specific decision under consideration in the RMP to meet the BLM's goals and objectives. Planning issues and management concerns, along with the purpose and need for the plan revision, are essentially what drive the RMP decisions and the range of management alternatives being considered.

The planning issues and management concerns identified below will help establish the decision framework for the RMP. The issues, presented in the form of questions to be resolved, are identified by resource, resource use, special designation, or other affected elements of the human environment.

1.3.1.1 Planning Issues Addressed

1. Visual Resources

- How should the BLM manage public lands uses while maintaining or enhancing scenic quality, particularly in areas with high visual sensitivity?

2. Land Tenure Adjustments

Disposal

- Are there public lands without significant resources that would be more suited to non-Federal ownership?
- What criteria, including needs of local communities, should be established to identify public lands recommended for disposal?

Acquisition

- What criteria and strategies should be used to prioritize future acquisition of non-Federal lands from willing sellers?

3. Land Use Authorizations (private or commercial uses on BLM land for utility, communication, or other rights-of-way)

- What criteria should the BLM use to determine the best location of infrastructure, such as roads, utilities, or communications sites needed by individuals or communities, while safeguarding important resources?
- Where should rights-of-way corridors and avoidance or exclusion areas be established?

4. Mineral Resources

- Considering community needs and growth in the planning area, where is it most appropriate to allow development of mineral resources, and what scale of development is appropriate?
- Under what conditions, if any, would it be appropriate to lease oil and gas resources, and where may it be appropriate to develop these resources in economic quantities?

5. Recreation

- What types of recreation should be provided for in suitable areas, while considering potential impacts to resources, recreational demand, and the needs of local communities?
- Where should special management providing for recreation be applied?

6. Renewable Energy

- Where and under what conditions, if any, could wind and solar energy be developed on public lands?
- Can the BLM help offset regional emissions by providing for renewable energy development?

7. Transportation and Access

- How should the BLM manage public access and motorized/nonmotorized recreation opportunities while protecting natural, scenic and cultural resources?

8. Special Designations

- What BLM public lands have significant or unique resources or resource uses that warrant special management through designations such as areas of critical environmental concern (ACEC), wild and scenic rivers (WSRs), or other special designations?

1.3.1.2 Management Concerns Addressed

1. Air and Atmospheric Values

- How would implementation of planning decisions help the BLM maintain or improve air quality and comply with the Clean Air Act?
- How could implementation of the planning decisions affect the climate?

2. Cultural Resources

- What is the most appropriate way to manage for the protection of cultural resources?
- Where and under what conditions might cultural resources be enjoyed by the public through interpretations and other appropriate management?
- Under what conditions might cultural resources be studied?

3. Fish and Wildlife

Fish

- What planning decisions, when implemented, would help the BLM manage game species?
- What planning decisions, when implemented, would help the BLM improve the status of native nongame fish species?

Wildlife

- What actions are needed to ensure natural abundance and diversity of wildlife for healthy watersheds and sustained biological communities?

4. Paleontological Resources

- What is the most appropriate way to manage for the protection of paleontological resources?
- Under what conditions might paleontological resources be studied?

5. Soils

- How would implementation of planning decisions help the BLM protect soils from degradation and erosion?

6. Special Status Species

- How can the Taos Field Office manage public lands and resources such that it contributes to the conservation of listed species and the ecosystems on which they depend?

7. Vegetation

Riparian

- Where are the opportunities to leverage on wildlife habitat management actions to benefit riparian ecosystems and provide for healthy watersheds and sustained biological communities?
- What actions would stabilize riparian areas and provide habitat for a range of wildlife species?

Terrestrial

- How should the BLM manage for the health of terrestrial vegetation communities while providing for uses of this resource?

8. Water

- How would implementation of planning decisions help the BLM maintain or improve water quality and comply with the Clean Water Act?
- How would implementation of planning decisions help the BLM maintain flows for wetland and aquatic ecosystems in order to meet management objectives?

9. Lands with Wilderness Characteristics

- What management prescriptions for lands with wilderness characteristics might be appropriate given other management opportunities?

10. Wildland Fire

- How should the BLM manage for ecosystem health through fire management activities while providing for public safety and private property protection through suppression and fuels management?

11. Forestry and Woodland Products

- What opportunities for forest products should be available to the public while providing for the sustainable management of woodlands?

12. Invasive Species / Noxious Weeds

- What parameters should be applied to the BLM's control of invasive species and noxious weeds in the planning area?

13. Livestock Grazing

- How should the BLM provide for opportunities for livestock grazing considering rangeland health, the protection of resource values, and accommodation of permittees when environmental circumstances might change (e.g., through drought or fire)?

14. Withdrawals

- Where would withdrawals from certain land and resource uses be appropriate for the protection of other resources?

15. Socioeconomics

- How would the BLM's management of resources, resource uses, and special designations affect the area's socioeconomic environment?
- How would implementation of the planning decisions be consistent with the components of environmental justice?

1.3.2 *Issues Considered but Not Further Analyzed*

Several issues were raised during scoping that were considered by the BLM, but determined to be beyond the scope of the RMP. For the reasons explained below, the following issues are not further analyzed:

- The transfer of public lands for public uses such as housing to reduce pressure for conversion of agricultural lands to housing. No qualified applicant has expressed any interest in the conveyance of public lands for this purpose. While this particular land tenure action is too speculative to be meaningfully analyzed, any future interest would be considered within the parameters of BLM authority and the provisions of the revised RMP.
- The transfer of public lands back to the original land grants. Solving land grant issues is not within the BLM's jurisdiction. Legal claims were adjudicated and resolved in the 1800's, first by Congress and the Surveyor General of the United States (the General Land Office), and then by the Federal Court of Private Land Claims starting in the 1890's. The BLM has no legal standing to adjudicate or otherwise act on any claims that were rejected by Congress or the Courts. This includes managing public lands in a manner that gives consideration and legitimacy to potential outcomes of any land grant legislation that may be pending before Congress.
- The designation of new wilderness study areas. The BLM does not have the authority to designate new wilderness study areas per BLM Instruction Memorandum 2003-274.

1.3.3 *Other Elements Not Addressed in this RMP Revision*

Based on a preliminary evaluation by the BLM, the following elements are determined not present within the planning area or otherwise not relevant and are dismissed from further consideration in this analysis:

- Prime and Unique Farmlands—In accordance with the Farmland Protection Policy Act, the BLM determined that no prime or unique farmlands or farmland of statewide or local importance occur on public lands in the planning area. Nor would any of the actions proposed in this RMP revision disturb farmlands.
- Wild Horses and Burros—Herd areas are limited to areas of public lands identified as being habitat used by wild horses and burros at the time of passage of the 1971 Wild Free-Roaming Horse and Burro Act. A herd area was established in the Taos Plateau area shortly after the Act was passed. Seven horses were identified in the herd area; eight allotments comprised the herd

area in the 1979 Management Framework Plan. Since then, no horses or burros have been observed in the herd area, and the area is not currently managed for these species.

- There are no significant cave or karst resources within the planning area. Therefore, these resources are not addressed, except as they may relate to other resources.
- Hazardous materials management may be required as a result of historical uses, current uses, or illegal disposal of material. Currently, there are no known hazardous materials sites or regulated facilities on BLM-managed lands within the planning area, nor are hazardous materials actions anticipated to result from implementation of alternatives considered in the plan revision process. The BLM would comply with Federal laws, regulations, and Agency policy concerning storage or release of hazardous substances, and would also comply with Agency liability reduction policies related to hazardous substances during disposal or acquisition actions regardless of the plan revision.
- Abandoned mine lands (mining lands with potentially dangerous abandoned mine features) are present in the Cerrillos Hills, San Pedro Mountains, and Ojo Caliente area. The BLM and the New Mexico Energy, Minerals, and Natural Resources Department's Abandoned Mine Lands Program have identified and closed dangerous mine features, mostly shafts. Any additional mine features on BLM lands that are determined to be potentially dangerous would be submitted to the Abandoned Mines Land Program for remediation.

1.3.4 *Planning Criteria*

BLM planning regulations (43 CFR 1610.4-2) require the development of planning criteria to guide land use planning. Planning criteria are the parameters, standards or other guidelines developed by BLM managers and interdisciplinary team members, with public input, for use in forming judgments about plan-level decision making, analysis, and data collection. Planning criteria are designed to streamline and simplify planning actions, and may be adjusted during RMP development based upon management concerns and the results of public scoping.

The planning criteria for the Taos RMP are as follows:

- The BLM will develop the RMP in compliance with FLPMA, NEPA, and all other applicable laws, regulations, Executive and Secretarial orders, and policies.
- Land use decisions in the RMP will apply only to the surface and subsurface estate administered by the BLM.
- Land use decisions in the RMP will conform to the principles of multiple use and sustained yield.
- For program-specific guidance for decisions at the land use planning level, the RMP will follow the BLM Land Use Planning Handbook (H-1601-1) and related policies.
- Broad-based public participation and collaboration will be an integral part of the planning process.
- BLM will strive to make decisions in the plan compatible with the existing plans and policies of adjacent local, State, and Federal agencies and local Native American tribes, as long as the decisions are consistent with the purposes, policies, and programs of Federal law and regulations applicable to public lands.
- BLM will recognize in the RMP the State's responsibility and authority to manage wildlife. The BLM will also consult with the NMDGF.
- The RMP will recognize valid existing rights.

- The RMP will incorporate, where appropriate, management decisions brought forward from existing planning documents.
- The BLM will work cooperatively and collaboratively with cooperating agencies and all other interested groups, agencies, and individuals.
- The planning process will incorporate the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management.
- Any public land surface to be given further consideration for inclusion in the Wild and Scenic River System will be provided interim protective management.
- Wilderness study areas (WSAs) will continue to be managed under the BLM's Interim Management Policy and Guidelines for Lands under Wilderness Review (IMP) until Congress either designates lands within the WSA as wilderness or releases the lands from further consideration. The BLM no longer designates additional WSAs through the RMP process, or manages any lands other than existing WSAs in accordance with the Wilderness IMP. However, management of lands having wilderness characteristics will be considered in the RMP as described in Appendix C of the BLM Land Use Planning Handbook (H-1601-1).
- Forest management strategies will be consistent with the Healthy Forests Restoration Act.
- Fire management strategies will be consistent with the Resource Management Plan Amendment for Fire and Fuels Management on Public Land in New Mexico and Texas (2004).
- GIS and metadata information will meet Federal Geographic Data Committee (FGDC) standards.
- The planning process will provide for ongoing consultation with Native American tribal governments and strategies for protecting recognized traditional uses.
- Planning and management direction will focus on the relative values of resources and not the combination of uses that will give the greatest economic return or economic output.
- Where practicable and timely for the planning effort, the best available scientific information, research, and new technologies will be used.
- Actions must comply with all applicable regulations and must be reasonable, achievable, and allow for flexibility, while supporting adaptive management principles.

1.3.5 *Relationship to Statutes, Regulations, and other Plans*

The BLM's management of public lands and resources is subject to many varied statutes, regulations, and policies collectively establishing important management parameters. A complete compilation of these, including a brief description of each, is presented in Appendix D.

In addition, current management guidance comes from multiple programmatic and implementation-level plans, which served to amend the existing Taos RMP. The following plans will serve as a basis for the management prescriptions incorporated into the Taos RMP revision:

- The El Camino Real Tierra Adentro National Historic Trail Comprehensive Management Plan and Final EIS, published in 2004, provides guidance for administering the trail and establishes a trail corridor of approximately five miles on either side of the historic trail route.
- The New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (New Mexico Standards and Guidelines) also amended the 1988 RMP. The standards of land health are expressions of physical and biological condition or functions required for healthy and sustainable ecosystems on public lands, and define the minimum resource conditions that must be achieved. The process for assessing the condition of resources and evaluating attainment of standards and conformance to the guidelines is ongoing.

- The Fire and Fuels Management Plan Amendment and EA for BLM Lands in New Mexico and Texas. This document amended fire management in all BLM New Mexico RMPs and RMP amendments in September 2004. The Programmatic Emergency Stabilization and Rehabilitation Plan and EA were completed in 2005 to provide an integrated program for burned areas in New Mexico. The Plan includes descriptions of emergency stabilization and rehabilitation treatments that would be implemented under normal conditions in the event of a wildland fire.
- The Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States was published in June 2005. The applicable policies, best management practices, and programmatic mitigation identified in this document have been incorporated into this RMP.
- The Final Vegetation Treatments Herbicides Programmatic Environmental Impact Statement was published in June 2007. The Record of Decision was signed on September 29, 2007. The applicable policies, best management practices, and programmatic mitigation identified in this document have been incorporated into this RMP.
- The Albuquerque District Resource Management Plan Amendment for Oil and Gas Leasing applied to Taos Resource Area, and was published in December 1991. The plan provides leasing determinations on approximately 1.5 million acres within the planning area.
- The Rio Grande Corridor Final Plan, completed in 2000, provided updated management direction for the Rio Grande corridor, with changes to ACECs, recreation area boundaries, minerals, grazing, rights-of-way exclusions, transportation, and visual resource management.
- The La Cienega ACEC was designated in 1992 and added management prescriptions to protect cultural resources.
- The Orilla Verde Recreation Area was established in 1994, with management prescriptions to protect natural, cultural, and recreational values.
- The Rio Grande Wild and Scenic River was extended from Taos Junction Bridge to just below the Taos County line by Public Law 103-242 in 1994.

The decisions in the 1988 Taos RMP and subsequent amendments have been evaluated to identify the valid management guidance that requires no reconsideration in the revised plan. Those decisions still considered valid are presented in section 2.4 under the Continuing Management Guidance subheadings.

Two WSAs are located within the planning area. WSAs are designated under the authority of FLPMA and managed in accordance with the Interim Management Policy and Guidelines for Land Under Wilderness Review (BLM 1995). The BLM is mandated to manage WSAs so as not to impair their suitability for preservation as wilderness, subject to existing mining and grazing uses in the manner and degree they were being conducted on October 21, 1976.

If Congress chooses to add any of these WSAs to the National Wilderness Preservation System through an Act signed by the President, they would be managed in accordance with BLM regulations for wilderness management in 43 CFR 6300 and a Wilderness Management Plan prepared for the area. If, through an Act signed by the President, Congress releases a WSA from consideration for wilderness designation, the area would be managed in accordance with the underlying decisions of this RMP for the other applicable resources.

1.3.6 *Resource Management Plan Decisions and Implementation Decisions*

Resource management plan decisions and implementation decisions reflect two distinct steps in the planning process. Appendix C in the BLM Handbook H-1601-1 provides program specific guidance to separate land use plan decisions from implementation decisions.

This RMP provides broad decisions dealing with proposed management actions, special designations, and allowable uses. The decisions in the RMP are referred to as *plan decisions*. *Implementation decisions* deal with the subsequent implementation of site-specific activity plans or projects within the planning area. Implementation decisions must be consistent with the RMP, ESA, and other applicable Federal statutes and regulations. In most cases, these subsequent implementation plans and decisions include additional analysis under NEPA and associated public review. There would be no implementation decisions made as a result of the analysis in this RMP. Therefore, implementation decisions dealing with activity- and project-level plans are not considered further in this document.

This process of transitioning from plan decisions to implementation decisions is referred to as "tiering." Planning- and NEPA-related documents produced during each successive tier are progressively more focused in scope and more detailed in terms of their identification of specific measures to be undertaken to address potential impacts.

1.4 Planning Process

The BLM uses a multi-step process (see Figure 1-3) to develop and revise a RMP. The planning process is designed to help the BLM comply with provisions of both FLPMA, as amended, and NEPA.

FLPMA, considered to be the BLM's "organic act," mandates the BLM to prepare and maintain an inventory of public lands and their resources, as well as develop, maintain, and, as appropriate, revise plans by which public land uses and resources are managed. The approved RMP would meet the BLM's statutory requirement as mandated by section 202 of FLPMA, which specifies the need for a comprehensive land use plan consistent with the principles of multiple use and sustained-yield. Regulations specific to FLPMA (43 CFR 1600) provide a charter for BLM's management of public lands.

NEPA requires Federal agencies to prepare an EIS to evaluate the impacts proposed major Federal actions could have on the "human environment" (i.e., the physical, biological, social and economic environment in which humans live). Since implementation of a land use plan by the BLM is considered a major Federal action, the BLM must prepare an EIS as part of the RMP process.

Regulations on implementing NEPA require Federal agencies to consider a reasonable range of alternatives to a proposed action, a requirement designed to encourage an agency to identify alternative means—generally with lesser environmental consequences—to meeting its objectives. This EIS evaluates the potential environmental consequences of four alternatives identified to serve as the RMP for the Taos Field Office, including a "no action" alternative, under which the current management would continue. NEPA requires agencies to consider a no action alternative in part to provide a baseline for the comparison of alternatives. Ultimately, this EIS would ensure a well informed decision is made on the management of public lands and its resources.

Direction on the Taos RMP revision process is also provided in the BLM's Land Use Planning Handbook (H-1601-1, 2005), which discusses in detail the following basic steps:

Preparation Plan. In February 2006 a preparation plan was developed to identify the preliminary issues and management concerns, planning criteria, information and data needs, the cooperating agency and public involvement process, and the project schedule and budget.

Issue Notice of Intent. A notice of intent (NOI) was published in the *Federal Register* notifying the public of the BLM's intent to prepare an EIS for the RMP revision. As previously indicated, on May 26, 2006, a NOI was published in the *Federal Register* (Volume 71, Number 102, Page 30446) indicating the Taos Field Office's initiation of a formal 60-day public scoping period (later extended to August 31, 2006) to solicit public involvement in the planning process.

Scoping. As discussed in section 1.3, scoping is the process by which the BLM solicits both internal and external input to identify relevant issues and concerns that need to be addressed within the scope of the RMP. A formal scoping period was held between May 26 and August 31, 2006, to engage the public, local and State governments, Native American Tribes, and other Federal agencies in this planning process. The scoping process was also used to gather information relative to the planning issues and necessary to fill data gaps.

Analysis of the Management Situation. An analysis of the management situation was conducted to evaluate current management to identify management opportunities to improve resource conditions and resolve anticipated planning issues. This step considers in detail all the current decisions that affect the planning area, including local and State plans, and largely serves as a basis for the no action alternative. All current decisions were reviewed, and a determination was made as to whether or not decisions should be carried forward, modified, or rescinded. Non-Bureau plans were also reviewed to ensure any RMP revisions are consistent and compatible with their objectives to the extent possible.

Formulate Alternatives. During alternative development, the BLM collaborated with cooperating agencies to identify desired outcomes and objectives for resources and resource uses in the planning area. These desired outcomes are within the parameters of the planning criteria and incorporate the management opportunities identified by the BLM.

The details of the alternatives evolved through the development of management actions and allowable uses anticipated to achieve the goals and objectives in the RMP. The alternatives represent a reasonable range of options for managing resources and resource uses within the planning area. Chapter 2 describes these alternatives in detail.

Analyze Effect of Alternatives and Select a Preferred Alternative. An analysis of the environmental consequences anticipated to result from the implementation of each alternative was prepared and is discussed in Chapter 4. Following the analysis of effects, with input from cooperating agencies, the BLM selected a preferred alternative based on the purpose and need, goals and objectives, issues, and environmental effects identified in the RMP.

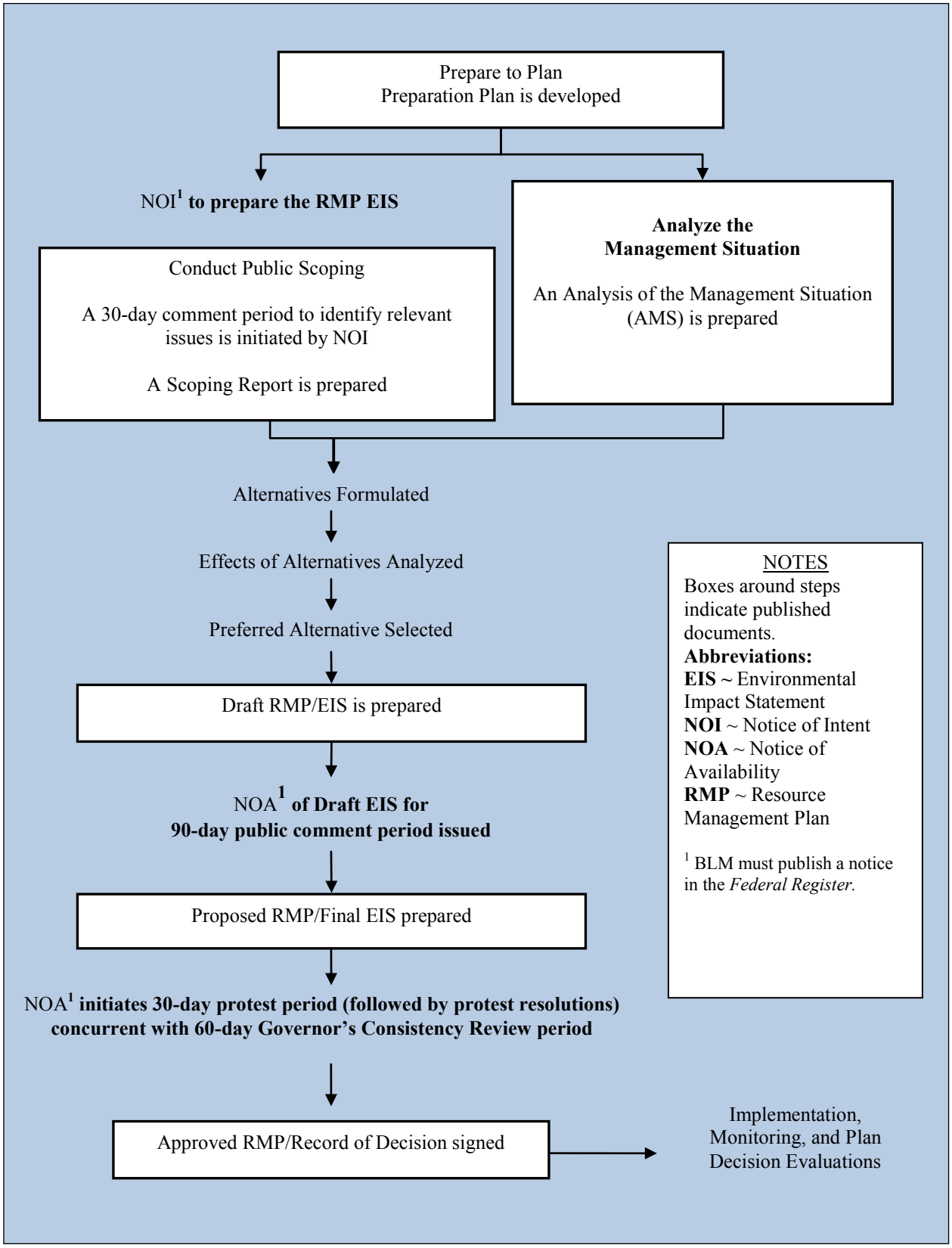


Figure 1-3. BLM planning process

Preparation of the Draft RMP/EIS. This draft RMP/ EIS was prepared for a 90-day public review and comment period. In addition to the release of the document, public meetings on the draft RMP/EIS will be held by the Taos Field Office in communities throughout the planning area.

Preparation of the Proposed RMP/Final EIS. A Proposed RMP/Final EIS will be prepared following the prior 90-day public comment period on the draft document with consideration to the public comments. Release of the proposed RMP/final EIS will initiate a 30-day protest period and concurrent 60-day Governor's Consistency Review.

Approval of the Record of Decision and Approved RMP. After protests on the proposed RMP/final EIS are resolved, the BLM New Mexico State Director will select an alternative (approved RMP) through publication of a record of decision. Implementation of the approved RMP will include procedures for monitoring and evaluation.

1.5 Collaboration

The BLM approaches planning with community-based collaboration in which interested groups and people, often with varied or opposing interests, work together to devise solutions with broad public support for managing BLM-administered lands. Local, State, tribal, and other Federal agencies are invited to remain fully engaged with the Taos Field Office throughout the planning process. The BLM strives to ensure consistency with their plans to the maximum extent consistent with Federal laws and the purposes of FLPMA. During plan implementation, the BLM would continue partnerships with these governments and agencies to select high priority projects and to resolve emerging issues.

The Council of Environmental Quality defines a cooperating agency as any agency that has jurisdiction by law or special expertise (40 CFR1501.6). Any Federal, State, tribal, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency.

The following entities were invited to participate as cooperating agencies:

Santa Fe County	City of Espanola	Carson National Forest
Rio Arriba County	City of Santa Fe	Taos County
Santa Fe National Forest	Town of Taos	

Of these, Santa Fe County and New Mexico Department of Game and Fish chose to enter into an agreement with the BLM as a formal cooperating agency. In addition, subsequent to the publication of the Draft RMP/EIS, Ohkay Owingeh Pueblo became a formal cooperating agency to better facilitate more active participation in the remainder of the planning process.

Eleven tribes have lands located within the boundaries of the Taos Field Office. These include the northern Tiwa Pueblos of Taos and Picuris; the Tewa Pueblos of Nambe, Pojoaque, San Ildefonso, Ohkay Owingeh, Santa Clara and Tesuque; the Keresan Pueblos of Cochiti and Santo Domingo; and the Jicarilla Apache Nation. All of these tribes were among those invited to participate in the planning process. A scoping presentation was also made at an Eight Northern Pueblos Council meeting to update the Governors of the eight Pueblos on the planning issues and schedule. On the Draft RMP/EIS, only Ohkay Owingeh provided written comments.

Other New Mexico tribes with lands located outside of the Taos Field Office boundaries were also contacted. They include:

The Navajo Nation	Laguna Pueblo	Zia Pueblo
Acoma Pueblo	San Felipe Pueblo	Zuni Pueblo
Isleta Pueblo	Sandia Pueblo	Hopi Pueblo
Jemez Pueblo	Santa Ana Pueblo	Southern Ute Tribe

The Taos Field Office would continue to consult with the Native American tribes on a government-to-government basis throughout the planning process and would seek opportunities to develop cooperative management partnerships with tribes when appropriate.

The Fish and Wildlife Coordination Act of 1934, as amended, and the Endangered Species Act of 1973 require consultation with the US Fish and Wildlife Service (USFWS) prior to initiation of any BLM project that has the potential to affect any federally listed special status species or its habitat. Since approval of the Taos RMP is considered a major Federal action, consultation with USFWS was initiated by the Taos Field Office, and a biological assessment was prepared on the Preferred Alternative in the Draft RMP/EIS, evaluating the potential for the proposed management decisions to impact federally listed species and their habitat. By memorandum dated June 17, 2010, USFWS provided their concurrence with the BLM's determination in the biological assessment of "may affect, not likely to adversely affect" particularly regarding the Southwestern willow flycatcher.

The New Mexico/Oklahoma/Texas BLM Resource Advisory Council (RAC) also helped to identify issues and consider management options.

For a thorough presentation of the Taos Field Office's coordination and consultation efforts, see Chapter 5.

1.6 Changes from Draft RMP/EIS

Changes in the Proposed RMP/Final EIS are largely made in response to public comment on the Draft RMP/EIS. Responses provided in Appendix J indicate which public comments led to changes in the document and where those changes can be found. The extensive internal reviews of the Final EIS have also led to corrections, revisions, and other improvements to the document. Acreage figures and associated quantifications have also been revised throughout the document, in some cases to reflect the changes described below while in other cases to provide updated GIS information.

Text is highlighted throughout the Final EIS to denote the more substantial new or revised content prepared in response to both external and internal input. Note, however, that any text removed from the Final EIS in response input is not indicated unless specified in a response to a public comment in Appendix J.

The more substantial changes made to the Proposed RMP are presented below, while a complete description of changes throughout the Final EIS is presented in Appendix K.

Proposed RMP

- Some spatial and timing limitations associated with wildlife management are changed under section 2.6.2.3. The buffer to protect bighorn sheep populations vulnerable to diseases potentially carried by domestic sheep or goats is changed from five miles to

nine. Likewise, spatial and seasonal limitations associated with raptor and migratory species of birds are modified to match best available recommendations. The buffer to protect significant bat populations is also changed under this alternative for clarification.

- The Visual Resource Management classification for the western end of San Pedro Mountain in the Galisteo planning unit is changed to class II under the Proposed RMP to help protect the visual corridor along the Turquoise Trail National Scenic Byway (see section 2.6.2.8).
- The Cerro Colorado area within the Ojo Caliente planning unit would be added to the areas where wilderness characteristics would be afforded protective management under the Proposed RMP. Management for these characteristics in the 31,221-acre area would complement the prescriptions applied to the area under the Ojo Caliente ACEC designation (see section 2.6.2.10).
- Under section 2.6.3.2, lands identified for disposal within the El Palacio planning unit immediately east of and adjacent to Ohkay Owingeh Pueblo lands are updated to include up to 3,200 acres.
- Certain opportunities and restrictions are revised under section 2.6.3.3 to clarify or update decisions regarding land use authorizations, utility corridors, and communications sites.
- The Taos Plateau ACEC would be closed to mineral leasing in order to provide greater protection to the resource values associated with the ACEC, particularly big game wildlife habitat and migration corridors (see section 2.6.3.5).
- The 380-acres originally proposed to remain open to OHV travel are changed to limited to designated routes (see section 2.6.3.8). The three areas that make up this acreage, which were primarily intended to accommodate staging, are recognized as having sensitive resource values, and opportunities for staging can still be provided for under the limited designation.
- Though the area designation for travel management—limited to designated routes—is unchanged, the Proposed RMP now recognizes to opportunity for trials riding events to occur off Hwy 75, straddling the Lower Rio Grande/Copper Hill and El Palacio transportation areas. This activity would be provided for under special recreation permits (see sections 2.6.3.8 and 2.6.3.6).
- In light of new information regarding the occurrence of important paleontological resources, the 680-acre block of public lands near La Puebla in the El Palacio planning unit, proposed as a special recreation management area, would be added to the Sombrillo ACEC. Though the proposed management of this area would not substantially change with its inclusion into the ACEC, it is appropriate that the Proposed RMP recognize its significant paleontological values.

Chapter 2 Alternatives

2.1 Introduction and General Description of Each Alternative

This chapter describes the alternatives analyzed as part of the planning process. It is arranged to provide a summary of the alternatives, alternatives considered but not analyzed in detail, management common to all alternatives, goals and objectives, continuing management guidance, a detailed description of the alternatives, summary of alternatives, and a summary of environmental consequences. Both NEPA and BLM regulations require the formulation of a reasonable range of alternatives that address the identified planning issues and management concerns.

The alternatives in this chapter are developed to meet the RMP's purpose and need as well as goals and objectives (with exception to the no action alternative—see the discussion below). They also establish the framework for evaluating the potential impacts of the proposed decisions in Chapter 4. All of the decisions in the alternatives are plan decisions. A summary of the four proposed alternatives with their principle themes are discussed below.

No Action Alternative. The no action alternative, often referred to as the existing management situation, is required by NEPA to serve as a baseline for comparison against the other alternatives. It retains the current management through guidance and direction from the 1988 Taos RMP, subsequent plan amendments, as well as current BLM policy and guidance. Resource uses and values would receive emphasis at present levels, and current management strategies would continue to be applied. Decisions from the 1988 RMP that have been implemented would continue, and those that have not been implemented would be carried forward in the future.

Since the need for the RMP revision (see section 1.1) includes updating the current resource management plan to address changed resource conditions, evolving demands on resources, and new and revised national-level policy, the no action alternative would not be expected to adequately meet the purpose and need for the plan. Also, some of the decisions presented under section 2.4, Common to All Alternatives, including the goals and objectives, may not be applicable to this alternative.

Alternative A (Proposed RMP). Alternative A, the Proposed RMP, represents the optimum combination of management decisions to meet the purpose and need for this land use plan in consideration of the planning issues and management concerns identified in section 1.3.1. Management under this alternative seeks to provide an overall balance between the protection, restoration, and enhancement of natural and cultural values, while allowing resource use and development. This optimum combination of management decisions would be achieved within the limits of an ecosystem's sustainability and within the constraints of applicable laws and regulations. Though measures to protect sensitive resources would be implemented, they would be less restrictive than those included under Alternative B.

The more substantial changes made to the Proposed RMP are presented above in section 1.6 and in Appendix K.

Alternative B. Alternative B maximizes efforts to protect, maintain, restore, or improve components of the ecosystem using natural processes. This alternative also provides for greater protection and preservation of cultural and heritage resources. This would be achieved primarily

through increased management emphasis on protection of resource values associated with special designations, fish and wildlife habitat, and special status species. In some areas, commodity production or resource uses would be excluded to protect sensitive resources.

Alternative C. Emphasizes resource uses and commodity production, and maximizes recreation opportunities in accordance with local economies and land use plans from local communities and counties. Constraints on commodity production would be the least restrictive, while still complying with applicable laws, regulations, and BLM policies.

Please note that acreage figures in Chapter 2 and throughout the document are based on geographical information system (GIS) data which is subject to constant refinement. Because the data is undergoing changes, however slight, there are potential discrepancies within the acreage figures. Despite these potential discrepancies, the acreages are adequate to provide for a detailed quantitative analysis and comparison of alternatives. Acreages may be further refined prior to and in preparation of the Approved RMP which may vary slightly from those presented in this document.

2.2 Alternative Development

The alternatives were developed to consider a range of management actions and allowable uses—the two types of land use planning decisions—that would achieve with varying emphases the BLM's goals and objectives. Goals are broad statements of desired outcomes that are usually not quantifiable, while objectives identify specific desired outcomes for resources and may be quantifiable, measurable, or establish timeframes for achievement. Goals and objectives were developed by an interdisciplinary teams of BLM resources specialists to address the planning issues and management concerns within the parameters of applicable laws, regulations, and guidance. Each alternative was designed to ensure the purpose and need for the RMP would be adequately met.

After the general themes of the alternatives were identified, they were further refined to respond to the planning issues and management concerns, while considering the planning criteria, Federal laws, regulations, and BLM policies. The reiterative process of alternatives development also took into account the need to resolve resource conflicts, improve consistency in the proposed decisions, and identify resource-specific decisions for the following categories in the RMP process: (1) resources, (2) resource uses, and (3) special designations.

Management actions are proactive measures or limitations intended to guide BLM activities on BLM-administered lands or subsurface estate in the planning area. Management actions include continuing management guidance that applies regardless of which alternative is selected. They also include management specific to each alternative, providing for a range of options considered across alternatives. An example of this type of management action is to restore riparian habitat to address issues of water quality and/or fish and wildlife habitat. In this example, the acreage or mileage identified for riparian habitat restoration varies by alternative, whereas the action (restore riparian habitat) is retained for all alternatives.

Allowable uses identify the types of uses and where they would be allowed, restricted, or prohibited on all BLM-administered surface and Federal mineral estate in the planning area. Alternatives may include specific land use restrictions to meet goals and objectives, and may exclude certain land uses to protect resource values. Because the alternatives identify whether particular land uses are allowed, restricted, or prohibited, the alternatives discussed in this chapter often include a spatial (map) component.

2.3 Alternatives Considered but not Analyzed in Detail

The Council on Environmental Quality (CEQ) regulations for implementing NEPA requires Federal agencies to analyze all “reasonable” alternatives that substantially meet the purpose and need for the proposed action. For alternatives considered but eliminated from detailed analysis, CEQ regulations require a brief explanation as to why they were eliminated (40 CFR 1502.14).

An alternative that proposes to make all BLM-administered lands within the planning area unavailable for livestock grazing was considered but dismissed from detailed analysis because it would not meet the purpose and need of the Taos RMP Draft EIS. The Federal Land Policy and Management Act (FLPMA) requires that public lands be managed on a "multiple use and sustained yield basis" (FLPMA Sec. 302 (a) and Sec. 102(7)) and includes livestock grazing as a principal or major use of public lands. While multiple use does not require that all lands be used for livestock grazing, complete removal of livestock grazing on the entire planning area would not meet the principle of multiple use and sustained yield.

In addition, the National Environmental Policy Act (NEPA) requires that agencies study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources. Since no issues or conflicts have been identified during this planning process which requires the complete elimination of grazing within the planning area for their resolution, this alternative would be arbitrary.

Where appropriate, the preclusion or adjustment of livestock use within an allotment or area has been incorporated into the alternatives to address specific issues identified through the planning process. Since the BLM has considerable discretion through its grazing regulations to determine and adjust stocking levels, seasons of use, and grazing management activities, and to allocate forage to uses of the public lands in RMPs, the analysis of an alternative that precludes grazing from the entire planning area is not necessary.

Livestock grazing is a principal use of the public lands, as it has been for many years, and will remain an important governmental program administered by the BLM. Although the CEQ guidelines for compliance with NEPA require the analysis of a no action alternative in all EISs, for purposes of this analysis, the no action alternative is to continue the status quo, which includes livestock grazing under the current land use plan (CEQ Forty Most Asked Questions, Question 3). For these reasons, the no grazing alternative for the entire planning area has been dismissed from further consideration in this EIS.

Aside from a no grazing alternative, no other alternatives were considered internally or submitted to the BLM for consideration but eliminated from detailed analysis.

2.4 Management Common to All Alternatives

2.4.1 *Resources*

2.4.1.1 Air and Atmospheric Values

Goals

- To protect, maintain, or improve the quality of air resources associated with public lands managed by the BLM.

- Prevent or minimize the threat to public health and safety, damages to natural resources or economic losses due to decreases in air quality.

Objectives

- Minimize air quality impacts from BLM management actions such that compliance with all National Ambient Air Quality Standards (NAAQS) established by the U.S. Environmental Protection Agency are consistently achieved.
- Identify potential greenhouse gas (GHG) sources for proposed actions.
- Identify potential sinks for GHG emissions.

Continuing Management Guidance

Guidance for air resource management is provided in BLM Manual 7300. Congressional direction in the Clean Air Act (CAA) requires Federal agencies to comply with all Federal, State, and local air pollution standards. The CAA also requires that each State develop an implementation plan to ensure that national ambient air quality standards are attained and maintained for criteria pollutants. Nonbinding New Mexico Environment Department air quality directives would be followed when considering allocations and implementing management activities. Best management practices for the alternatives would be used to ensure that air quality is not impaired onsite or in adjacent communities.

Over the life of the plan, permitting processes must comply with EPA and New Mexico air quality standards. Management actions and the allocation of resources would meet State air quality standards or result in reduced emissions of regulated air pollutants and greenhouse gasses.

2.4.1.2 Cultural

Goals

- Identify, preserve, and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations.
- Seek to reduce imminent threats and resolve potential conflicts from natural or human-caused deterioration or potential conflict with other resource uses by ensuring that all authorizations for land and resource use will comply with NHPA section 106.
- Identify and protect national historic trail routes and historic settings, remnants, and artifacts for public use and enjoyment.
- Promote stewardship, conservation, and appreciation of cultural resources through education and public outreach programs.
- Consult with Native American Tribes to identify any cultural values or religious beliefs that may be affected by BLM authorizations or actions. Provisions would be made for Native American use of traditional cultural properties.

Objectives

- Preserve and protect significant cultural resources through designation of ACECs with cultural management prescriptions.
- Support public awareness and interest in cultural resources through interpretive sites, archaeological tours, presentations, and literature.
- Encourage scientific research.

- Promote site stewardship.
- Identify traditional cultural properties and culturally significant resource sites through tribal consultation.
- National historic trails: Preserve the associated high-potential historic sites and high-potential historic route segments, physical remnants and contributing features; and interpret the historic aspects of the trails for the protection of the resource, and enhance understanding and enjoyment of these trails in cooperation with trail-administering agencies and nonprofit partners.

Continuing Management Guidance

Management actions on public lands, and on private land projects which are federally funded, permitted, or assisted, would comply with sections 106 and 110 of the National Historic Preservation Act (NHPA), Executive Order 13287, and the Protocol Agreement between New Mexico BLM and State Historic Preservation Office. The inventory, survey, classification, and preservation of cultural resources would proceed as directed under NHPA for BLM public lands and on private land projects where applicable. Known archaeological sites, and sites identified in the future, would be evaluated for placement in one of six use categories. These categories and their management actions are shown in Table 2-1.

Table 2-1. Cultural resource use allocation categories

Category	Allowable Uses	Management Actions	Desired Future Condition
Scientific Use	Research	Permit appropriate research, including data recovery	Preserved until research potential is realized
Conservation for Future Use	Research or public interpretation	Propose protective measures/designations	Preserved until conditions for use are met
Traditional Use	Native American activities	Consult with tribes, determine limitations	Long-term preservation
Public Use	Recreation, public interpretation/education	Determine limitations and permitted uses	Long-term preservation and on-site interpretation
Experimental Use	Research, followed by interpretation	Determine nature of experiment	Protected until used
Discharged from Management	All uses allowed	Remove protective measures	No use after recordation; not preserved

Native American tribes would be consulted on proposed projects that may affect traditional cultural properties or significant areas, and tribal access to BLM-managed public lands. They would also be consulted concerning heritage tourism projects.

Special attention would be directed to protecting and preserving cultural resources as called for in the Galisteo Basin Archaeological Sites Protection Act (GBASPA). Cultural resources would also be protected and preserved within the Ojo Caliente and La Cienega ACECs, areas currently designated as cultural special management areas (SMAs), and El Camino Real de Tierra Adentro and the Old Spanish National Historic Trails.

The BLM would continue to carry out research through partnerships with students and professors from academic institutions. These projects add a great deal to our knowledge of cultural resources on public lands, and help the BLM to develop strategies for the management and interpretation of these resources.

Livestock grazing allotments would be evaluated for significant cultural sites. Conflicts with cultural resources would be eliminated or minimized.

BLM law-enforcement would regularly monitor and patrol listed, eligible, and potential National Register of Historic Places (NRHP) sites and other areas of high cultural significance to discourage illegal artifact collecting and site disturbance. The Site Stewards Program would continue to monitor site condition, and increase BLM presence at sites.

The BLM would educate the public through heritage tourism projects as outlined in Executive Order 13287. Interpretive projects would be developed and expanded in the Ojo Caliente and La Cienega ACECs, within the Galisteo Basin sites, along historic roads and trails, within BLM recreation areas, and where other opportunities arise. Ward Ranch, La Cieneguilla Petroglyphs, and Posi Pueblo would continue to be interpreted to the public. Archaeology of the Galisteo Basin would be interpreted to the public as part of the implementation of the Galisteo Basin Archaeological Sites Protection Act. Trails, roads and battle sites, including national historic trails, would be interpreted to the public and recreational opportunities would be developed. Archaeology field trips and presentations with school groups and interested publics would continue. Work with the Ojo Caliente Hot Springs Resort would continue to develop an educational display interpreting the prehistory of the Ojo Caliente Valley. The publication of other educational materials would continue. A sign plan would be developed and implemented field office-wide, consistent with the RMP and subsequent activity-level plans, which would incorporate the objectives of cultural resource interpretation and protection.

The BLM would continue to work with the Taos Archaeological Society on archaeological projects including petroglyph recording, site mapping and recording, and archaeological inventory. The BLM would also continue the partnership with the Vecinos del Rio on the Mesa Prieta Petroglyph recording project.

2.4.1.3 Fish and Wildlife

Goals—Fish

- Manage streams within the planning area to ensure that the natural diversity of aquatic biota is consistent with habitat.
- Manage streams within the planning area to ensure that the natural integrity of aquatic ecosystems are protected, restored and/or managed in an ecologically sound manner.
- Expand recreational fisheries while protecting native fish populations and their habitat by developing and enhancing partnerships.
- Protect aquatic habitats and manage BLM-affected streams to meet water quality standards established by the New Mexico Environment Department and from impairment or degradation.
- Ensure aquatic habitats will support a diversity of self-sustaining biotic communities that are appropriate to the given environment.

Goals—Wildlife

- Manage public lands to achieve healthy watersheds and landscapes, sustained biological communities, and an improved understanding of ecosystems and resources through integrated, multi-party and interdisciplinary assessment.
- Ensure optimum populations and a natural abundance and diversity of wildlife resources on public lands by restoring, maintaining, and enhancing habitat conditions.

- Determine the status and trends in selected indicators of the condition of BLM lands to allow managers to make informed decisions and to work more effectively with other agencies and individuals for the benefit of wildlife resources.
- Provide early warning of abnormal conditions of selected resources to help develop effective mitigation measures and reduce costs of management.
- Provide data to better understand the dynamic nature and condition of BLM lands and to provide reference points for comparisons with other, altered environments.
- Provide data to meet certain legal and congressional mandates related to natural resource protection and public enjoyment.
- Provide a means of measuring progress towards performance goals.

Objectives—Fish

- Manage all BLM perennial stream reaches to have at a minimum fish populations consisting of 50 percent native fish species as measured by catch per unit effort (e.g., number per minute).
- Eliminate or control populations of undesirable nonnative fish species in all waters managed by the BLM.
- Continue to work with New Mexico Department of Game and Fish (NMDGF) to stock trout species in BLM-managed waters for recreational fishing opportunities.
- Complete fish habitat quality and quantity surveys on all streams within the Taos Field Office on a 10 year rotating cycle.
- Develop and/or implement one project per year to conserve, enhance, or restore fish populations and habitats (based on survey results).

Objectives—Wildlife

- Restore, protect, and enhance the resources necessary to support native wildlife species and their associated habitats, including monitoring and maintenance of wildlife water developments to improve design and/or retire/relocate to appropriate sites.
- Management priorities focus on (a) big game winter ranges by protecting and improving approximately 50,000 acres in the Taos Plateau and Chama planning units, and (b) nongame animals by mapping and assessing priority habitats for migratory birds in the West Santa Fe, Ojo Caliente, Lower Gorge/Copper Hill, Chama, and Taos Plateau planning units, with development of habitat management recommendations within 7 years after approval of the RMP.
- Manage sagebrush habitat, including mapping of current condition and extent of habitat for sagebrush-obligate species, to provide a range of self-sustaining sagebrush cover containing a variety of age classes and structures.
- Map and assess priority habitats for migratory birds in the Chama, Taos Plateau, Lower Gorge/Copper Hill, Ojo Caliente and West Santa Fe planning units, and develop habitat management recommendations and/or plans within 7 years after approval of the RMP.
- Protect and improve big game winter range in the Taos Plateau, Chama and Ojo Caliente planning units by managing for low road density in transportation plans, implementing vegetation treatments to increase structural and compositional diversity, and construction of projects to improve water availability and wildlife movement inside migratory corridors.
- Obtain scientifically sound biological information in order to properly assess potential impacts to wildlife and wildlife habitat in relation to wind or solar energy development, gathering both pre- and post-construction data according to current industry and scientific protocols, as it affects wildlife in general and birds and bats in particular.

- Determine long-term trends in vegetation species composition, distribution, abundance and community structure (e.g., cover, density by height class of woody species) of selected plant communities for focal wildlife species.
- Determine long-term trends in species composition and abundance of native and nonnative migratory birds.
- Improve understanding of breeding bird-habitat relationships and the effects of management actions, such as invasive plant and animal control, by compiling existing data and/or researching the effects of these management actions on changes in bird species composition and abundance in relation to changes in specific habitat variables.
- Determine long-term trends in the distribution and abundance of bats in the Chama, Taos Plateau, West Santa Fe, and Lower Gorge/Copper Hill planning units.
- Determine long-term trends in the distribution and abundance of prairie dogs in the Chama and Taos Plateau planning units.
- Determine long-term trends in the distribution and abundance of river otters in the Rio Grande or any other areas of relocation, as appropriate.
- Use imagery or other techniques to estimate trends in the areal extent and configuration of land-cover types in the planning area.
- Determine annual nesting success of breeding raptors on BLM lands as measured by territories occupied, number of chicks produced, and number of chicks fledged.
- Determine annual status and trends in prey base for raptor species in the Taos Plateau, as measured by abundance and species composition of small mammals and rodents.

Continuing Management Guidance—Fish

BLM guidance for aquatic resource management is in BLM Manual 6720. Congressional and presidential direction that guides management includes the Fish and Wildlife Coordination Act of 1958, the Sikes Act, Fish and Wildlife Act of 1956, the Fish and Wildlife Conservation Act of 1980, Executive Order (EO) 12962 (June 7, 1995) and EO 13112 (February 3, 1999). Collectively, these actions direct the BLM to conserve game and nongame aquatic species and their associated habitat as well as control introduced nuisance species. EO 13352 (August 26, 2004) directs the Agency to promote cooperative conservation allowing for local input into Federal decisions.

Implementation is directed at conserving populations of native aquatic species, providing angling opportunities for game fish, and identifying aquatic habitat conservation and restoration opportunities. The program works closely with NMDGF to attain goals and is developing a cooperative network through affiliation with Western Native Trout Initiative and Desert Fish Habitat Initiative.

Management activities focus in order of importance on native game species, native nongame species, and nonnative game species. Activities include monitoring, habitat restoration and conservation, stocking to enhance existing populations, and removal of nonnative nongame species. Nonnative refers to species that were introduced to a river or stream system, where they were not historically present, through human activities such as stocking. The program also monitors native species to prevent population declines that could result in listing under the Endangered Species Act.

Management guidance from the Standards for Public Land Health and Guidelines for Livestock Grazing Management in New Mexico affecting fisheries is also consistent with current program

direction and provide direct and indirect management guidance. The Biotic Communities Standard is directly relevant to fish and other aquatic species and provides specific direction to manage ecological processes for species. The Riparian Site Standard is directly relevant to aquatic habitat and provides stream channel indicators related to physical aspects of aquatic resources. The Upland Sites Standard is indirectly relevant to aquatic resources through minimization of upland damage that could result in not meeting the two standards above.

Continuing Management Guidance—Wildlife

Primary guidance for the wildlife program is presented in BLM Manual 6500. In addition to those listed above under Fish, major laws (including pertinent amendments) affecting the BLM wildlife program include: the Migratory Bird Treaty Acts of 1918 and 1929, Neotropical Migratory Bird Conservation Act, Bald Eagle Protection Act of 1940, Endangered Species Act of 1973, Federal Cave Resources Protection Act of 1988, Federal Insecticide, Fungicide, and Rodenticide Act (Federal Environmental Pesticide Control Act) of 1947, Federal Land Policy and Management Act of 1976, Federal Noxious Weed Act of 1974, Federal Water Pollution Control Act (Clean Water Act) of 1972, Fish and Wildlife Act of 1956, Fish and Wildlife Conservation Act of 1980, Fish and Wildlife Coordination Act of 1958, Lacey Act of 1900, Lacey Act Amendments of 1981, Public Rangelands Improvement Act of 1978, Sikes Act of 1960, and the Taylor Grazing Act of 1934.

Key Executive Orders include: EO 13186, Conservation of Migratory Birds; EO 13443, Facilitation of Hunting Heritage and Wildlife Conservation; EO 13112, Prevention and Control of Invasive Species; and EO 11990 Protection of Wetlands. Summaries of the major provisions of laws and executive orders are presented in Appendix D.

The BLM would continue to cooperate and collaborate with Federal, tribal, and State wildlife management agencies, as well as private landowners, to improve habitat for wildlife and would continue to implement existing activity-level plans to improve wildlife habitat including: the San Antonio/Pot Mountain Habitat Management Plan (USDI-BLM 1992b), the Final Rio Grande Corridor Plan (USDI-BLM 2000a), and the Riparian and Aquatic Habitat Management Plan (USDI-BLM 2000b).

While the BLM is responsible for protecting and improving wildlife habitat on public land, population management of resident fish and wildlife species (with the exception of migratory birds and threatened and endangered species) is under the authority of NMDGF. Where ever practicable, the BLM would coordinate and cooperate with the NMDGF to implement the Comprehensive Wildlife Conservation Strategy for New Mexico (CWCS).

The BLM would avoid, reduce, or mitigate adverse impacts on the habitats of migratory bird species of conservation concern to the extent feasible, and in a manner consistent with regional or statewide bird conservation priorities, such as those identified in the New Mexico Bird Conservation Plan. Management of habitat for species of conservation concern (as defined in BLM IM 2008-050) would emphasize avoidance or minimizing negative impacts and restoring and enhancing habitat quality to implement EO 13186.

BLM Manual 1745 outlines how the BLM coordinates with NMDGF to determine whether habitat conditions exist that would allow successful introduction, transplant, augmentation or re-establishment of locally or regionally absent species.

Fish and wildlife habitat would be protected or enhanced by conforming to the Standards for Public Land Health and Guidelines for Livestock Grazing Management, allotment management

plans, and cooperative agreements. The BLM, working with the permittee and other governmental agencies, would adjust grazing practices where necessary.

In compliance with EO 13443, under all alternatives the BLM would continue to work with NMDGF and interest groups to maintain and enhance game species habitat and support hunting opportunities on public lands.

Animal damage control on BLM-administered land is conducted by the U.S. Department of Agriculture Animal Plant Health Inspection Services-Wildlife Services (APHIS-WS) in accordance with a national-level memorandum of understanding (1987) between the agencies. The APHIS-WS has overall responsibility for the program and supervises all control activities.

As part of the NEPA process, wildlife habitat would continue to be evaluated and measures to reduce impacts would be identified to assure compatibility of projects with management objectives for wildlife habitat, including seasonal restrictions and appropriate best management practices (see Appendix C for BMPs).

2.4.1.4 Paleontology

Goals

- Preserve and protect paleontological resources to ensure their availability for appropriate uses by present and future generations in accordance with existing laws, regulations, and Executive orders.
- Manage paleontological resources for their scientific, education, and recreational values, and mitigate any potential adverse impacts to them.

Objectives

- Evaluate and identify potential areas that contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils.
- Develop strategies to monitor public lands where important paleontological localities have been identified.
- Develop volunteer or cooperative management agreements with associations, professional paleontologists, local organizations, universities, museums, and governmental entities to facilitate the management and protection of paleontological resources.
- Promote awareness among users of the BLM public lands of the importance of paleontological resources.

Continuing Management Guidance

It is the policy of the BLM to manage and protect paleontological resources according to existing BLM handbook guidance (BLM Manual 8270, Paleontological Resource Management and H-8270-1) and under the provisions of the Paleontological Resources Preservation Subtitle (16 USC 470aaa) of the Omnibus Public Land Management Act of 2009. The New Mexico BLM State Office has an assistance agreement with the New Mexico Museum of Natural History and Science and the New Mexico Museum of Natural History Foundation to ensure the care, protection, and storage of paleontological resources collected from public lands in New Mexico. The BLM would continue to use existing partnerships and information collected from paleontological collection permits to evaluate the importance of specific areas on public lands within the planning area. In the BLM's management of paleontological resources, it would

continue to apply mitigation measures in specific locations where these resources could occur based on the potential fossil yield and paleo-sensitivity map developed for the Taos Field Office.

2.4.1.5 Soils

Goals

- Maintain or improve soil health by preventing or minimizing soil erosion and compaction.
- Prevent or minimize threats to public health and safety, damages to natural site characteristics or economic losses due to accelerated runoff and erosion.
- Prevent impairment of soil productivity due to accelerated loss or physical/chemical degradation.

Objectives

- Over the life of the plan, begin restoration of all areas identified as having impaired soils within 5 years of assessment.
- Over the life of the plan, prevent any increases in acreage of impaired soils due to management activities.
- Manage all projects and authorized activities to maintain or improve soil condition.

Continuing Management Guidance

Many Federal laws and Executive orders impact soil management because soil resources are fundamental to all other resources and resource uses. Guidance for management of soil resources is published in BLM Manuals 7000-7100. Primary authority for management includes the Taylor Grazing Act and the Public Rangelands Improvement Act, both of which address use of Federal rangelands including assessment, conservation, and improvement of soil resources. The Clean Water Act indirectly affects soil management by controlling the release of nonpoint sources of pollution such as sedimentation caused by erosion. The USDA is responsible for development of soil surveys, which are used by the BLM to determine soil types and characteristics when assessing management actions.

The Taos Field Office monitors and assesses soil resource condition primarily through the range program during reauthorization of leases. Project-level impacts to soils are assessed during the development of EISs or EAs for projects and use authorizations. The soil program works to reduce impacts to soil and associated vegetation resources through allocation of uses such as transportation and grazing, and mitigation of project impacts. The soil program also works with other programs to implement restoration projects.

2.4.1.6 Special Status Species

Goals

- Prevent the Federal listing of federally proposed and Bureau sensitive species, which include both Federal candidate species and delisted species within 5 years of delisting, through management prescriptions that would conserve, enhance, or restore habitat, and minimize adverse effects from actions.
- Facilitate the delisting of existing special status species so that their populations and the habitat on which they depend are restored to the point that the provisions of the Endangered Species Act are no longer necessary.

- Minimize or eliminate threats affecting BLM Sensitive species and improve condition of the species habitat, including ecosystem management and conservation of native biodiversity to reduce the chance of native species requiring BLM sensitive species status.

Objectives

- Achieve "no net loss" of special status species habitats.
- Determine long-term trends in distribution, abundance, and threats or other limiting factors of selected special status species on BLM lands and evaluate the significance of those lands in the conservation of the species.
- Ensure compliance with the statutory requirements of the Endangered Species Act.
- Incorporate BMPs, standard operating procedures, conservation strategies and measures, and design criteria to mitigate specific threats during planning and implementation, including the use of Guidelines for Livestock Grazing Management until site-specific management plans or conservation strategies are developed.
- Assist in the preparation and implementation of recovery or other special status species management plans.
- Monitor populations and habitats to ensure that objectives for special status species habitat development and protection are being met, including additional surveys for southwestern willow flycatcher.
- Incorporate objectives and actions identified by the U.S. Fish and Wildlife Service in authorized recovery plans into BLM plans and documents as appropriate.
- Conduct special status species habitat inventories and studies to provide data for multiple-use planning, habitat management plans, and resolution of conflicts involving resource development and protection activities.
- Prepare and implement habitat management plans to address special status species habitat development and protection needs, including riparian, giving priority to the Rio Grande corridor.
- Monitor habitat management plans and/or cooperative agreements with other state, local or non-governmental entities to determine if positive changes in trend for habitat development and protection are being met in such plans or agreements.
- Where feasible, acquire lands containing habitat for special status species.
- Cooperate with other Federal agencies to foster positive working relationships that promote the conservation of listed species.
- Participate in regional and national working groups to help coordinate agency actions and create opportunities to overcome barriers to special status species and the ecosystems upon which they depend, and to develop species-specific or ecosystem-based conservation strategies.
- Cooperate with state and local agencies, including participation on watershed councils and weed management areas and coordination with state natural heritage programs and state wildlife agency strategic plans, providing technical assistance where possible.
- Provide data to the New Mexico State Office to assist with maintaining a current BLM Sensitive Species List.

Continuing Management Guidance

Guidance for implementation of the Endangered Species Act, as amended, is contained in BLM Manual 6840. Field offices are directed to maintain current inventories of special status species (defined under section 3.2.7), to implement recovery plans for listed species, and to ensure all BLM authorized actions comply with the ESA and other directives related to special status

species. Manual 6840 also requires that BLM authorized actions do not contribute to the need to list any special status species under the provision of the ESA or contribute to the designation of additional critical habitat.

The BLM would protect federally listed species by requiring site-specific evaluations and clearances and by applying more stringent management prescriptions in areas that have been specially designated to protect target species. Any action that may affect federally listed species requires consultation with the U.S. Fish and Wildlife Service (USFWS) under section 7 of the ESA. Commitments to avoid adverse impacts to special status species are met by applying appropriate stipulations (e.g., timing or seasonal restriction or site-specific limitations) or by not authorizing the action altogether.

The BLM would continue to collaborate with Federal, state, and local governments, tribal governments, and landowners to manage special status species habitats. Management prescriptions would be attached to authorized actions to minimize negative effects. Where possible, habitats for species listed as proposed, threatened or endangered by the USFWS, habitat designated as critical by the USFWS, and species listed by the BLM state director or BLM Manual 6840 as sensitive species would be enhanced.

All alternatives in this RMP would ensure that actions are consistent with the conservation needs of federally listed species, while meeting the requirements of the Endangered Species Act and BLM policy. The BLM would implement recovery activities for listed species by complying with and adopting current and future recovery plans developed by USFWS, such as the plan for the southwestern willow flycatcher (2002), and manage habitat for BLM sensitive terrestrial and aquatic species in a manner consistent with future restoration and conservation agreements.

Populations of special status species would be monitored to assess their abundance and trend. Field inspections would be conducted to identify special status species habitat prior to authorizing surface disturbing activities. Waivers for on-the-ground inventory may be granted in areas determined to have low potential based on previous research.

Presented below, continuing management guidance is provided for most special status species, while the remaining listed species would be subject to the guidelines presented above.

Southwestern Willow Flycatcher. The Southwestern willow flycatcher is listed as a Federal endangered species and BLM sensitive species. To protect Southwestern willow flycatcher habitat, the BLM would continue to implement the following management plans: The Southwestern Willow Flycatcher Management Plan for the Taos Field Office (BLM 1998), the USFWS Recovery Plan for the Southwestern Willow Flycatcher (USFS 2002), the Final EIS for Riparian and Aquatic Habitat Management in the Taos Field Office (USDI-BLM 2000b), and the Rio Grande Corridor Final Plan (USDI-BLM 2000a). BLM management actions would incorporate those recovery actions for the Southwestern willow flycatcher that would increase and improve occupied, suitable, and potential breeding habitat; increase metapopulation stability; and minimize threats to migration habitat; while the BLM would continue to survey and monitor populations and provide public education and outreach.

As needed, seasonal restrictions on BLM authorized activities would be applied in Southwestern willow flycatcher habitat from April 15 through September 15. These dates could be revised if new data becomes available. The following management prescriptions for the Southwestern willow flycatcher apply to all alternatives:

- Presence/absence surveys would be conducted annually for the species in potential habitat areas where project activity is expected; and
- A 0.25-mile buffer would be established around any known Southwestern willow flycatcher nests that are being defended as a territory, typically during the breeding season from April through September, and project activity would be excluded from this buffer zone.

Gunnison's Prairie Dog. The Gunnison's prairie dog (montane population) is listed as a Federal candidate species and BLM sensitive species and is known to have active populations in the planning area. To protect Gunnison's prairie dog habitat, the BLM would continue surveying and mapping of colonies and monitoring for plague, the main threat to existing populations (*Federal Register*, Volume 73, Number 24, February 5, 2008). The Draft Conservation Plan for Gunnison's Prairie Dog (NMDGF 2008c) outlines a conservation approach for this species, and Taos Field Office would, wherever feasible, employ the strategies and actions outlined therein to promote conservation and minimize disturbance to the Gunnison's prairie dogs where they occur or have potential habitat within the planning area. Focal populations occur in the Taos Plateau planning unit and would be managed for the protection of the metapopulation dynamics required for sustainability of the species. Potential areas for introduction, transplant or augmentation may be considered in cooperation with the NMDGF.

Black-Footed Ferret. The black-footed ferret is a federally listed endangered and BLM sensitive species. In 1998, Vermejo Park Ranch and the Ted Turner Endangered Species Fund partnered with the USFWS to restore the species to the wild. Beginning with pen-based breeding facilities, the project evolved into an experimental release site and after 10 years resulted in permanent release on the Vermejo Park Ranch. Although the black-footed ferret has been extirpated from the state of New Mexico for some time, alerts beginning in 2006 have been issued by the USFWS to action agencies to survey for this species where projects are proposed in prairie dog towns or complexes. In the planning area, this would include those prairie dog colonies located in the Taos Plateau (see description for Gunnison's prairie dog below). To date, there have been no documented sightings of black-footed ferret on BLM land in the planning area, nor does potential habitat currently exist for the species.

Bald Eagle. The bald eagle is a BLM sensitive species. According to the BLM 6840 Manual, because it was removed from the Federal threatened and endangered species list in 2007, it will remain a BLM sensitive species until 2012. There are no known roost sites in the planning area; however, activities during the migratory season when the eagle may be present or actions in eagle habitat that might occur when the species is not present would be conducted in a manner according to the National Bald Eagle Management Guidelines (USFWS 2007) to avoid or minimize disturbance to the species.

Northern Goshawk. The northern goshawk is a BLM sensitive species, with only one known location on BLM lands in the Taos Plateau planning unit. The specific nest site is currently unknown, and, until determined, management activities where forestry or fire is employed would be conducted in a manner to minimize disturbance and enhance habitat features for this species. As landbird surveys are conducted at this site, data regarding northern goshawk would inform management where this species occurs and the effects of land use decisions.

Ferruginous Hawk. The ferruginous hawk is a BLM sensitive species, and there is one location in the Taos Plateau planning unit where this species has been documented. Retention of roost trees and range management would ensure protection of habitat and enhancement of forage opportunities for this species. As surveys and monitoring of raptors throughout the planning area

occur, data regarding ferruginous hawk would inform management where this species occurs and the effects of land use decisions.

Mountain Plover. The mountain plover is a Federal proposed and BLM sensitive species. A small breeding population of mountain plovers exists in the Taos Plateau planning unit. Monitoring of active grazing allotments where the species is known to breed informs management of the effects of land use decisions to avoid or minimize disturbance to the species.

Burrowing Owl. The burrowing owl is a BLM sensitive species, and there are known populations in the Taos Plateau and Santa Fe planning units. Timing restrictions for range management, rights-of-way and other projects that could disturb habitat would include measures to prevent impacts during the breeding season when the rearing and fledging of young occur. As projects occur within occupied or potential habitat, surveys and monitoring of burrowing owl would inform management where this species occurs and the effects of land use decisions. A statewide interagency conservation plan is not yet in place; however, once completed it would inform the BLM of conservation strategies recommended to promote enhancement of habitat for the species.

Loggerhead shrike. The loggerhead shrike is a BLM sensitive species. There have been documented occurrences of this species in the Taos Plateau and West Santa Fe planning units. It is quite possible they occur throughout the planning area during the migratory bird breeding season. As breeding bird surveys are conducted or project-level site visits attended by qualified wildlife biologists occur, data regarding loggerhead shrike would inform management where this species occurs and the effects of land use decisions.

Long-eared myotis. The long-eared myotis bat is listed as a BLM sensitive species and there have been documented reports of this species in the Taos Plateau and Chama planning units. Continued development of wildlife waters accessible to bats, proper siting and mitigation for bats where wind development may occur, and project-related surveys for this species would allow for proper management decisions and conservation of this species.

Pale Townsend's big-eared bat. The Pale Townsend's big-eared bat is a BLM sensitive species. This species occurs in semi-desert shrub lands, pinyon-juniper woodlands, and open montane forests. The species may occupy caves, mine tunnels, or large rock shelters ranging from low desert to mixed conifer woodland. Townsend's big-eared bat has occurred on BLM lands in Taos and Los Alamos counties (Gannon 1997). Continued development of wildlife waters accessible to bats, proper siting and mitigation for bats where wind development may occur, proper protection of cave and underground mine habitat, and project-related surveys for this species would allow for proper management decisions and conservation of this species.

Small-footed myotis. The small-footed myotis is a BLM sensitive species and occurs in deserts, chaparral, riparian zones, and coniferous forest. It is most common above piñon-juniper forest. Individuals are known to roost singly or in small groups in cliff and rock crevices, buildings, concrete overpasses, caves, and mines. Small-footed myotis has been documented in Rio Arriba, Taos, and Los Alamos counties on BLM lands (Gannon 1997). Continued development of wildlife waters accessible to bats, proper siting and mitigation for bats where wind development may occur, proper protection of cave and underground mine habitat, and project-related surveys for this species would allow for proper management decisions and conservation of this species.

Fringed myotis. The fringed myotis bat is a BLM sensitive species and appears to be most common in drier woodlands (oak, pinyon-juniper, ponderosa pine), but is found in a wide variety of habitats including desert scrub, mesic coniferous forest, grassland, and sage-grass steppe. The fringed myotis has been documented in Taos County on BLM lands (Gannon 1997). Continued development of wildlife waters accessible to bats, proper siting and mitigation for bats where wind development may occur, and project-related surveys for this species would allow for proper management decisions and conservation of this species.

Long-legged myotis. The long-legged myotis bat is a BLM sensitive species and uses abandoned buildings, cracks in the ground, cliff crevices, exfoliating tree bark, hollows within snags as summer day roosts, and caves and mine tunnels as hibernacula. The long-legged myotis has been documented in Taos and Los Alamos counties on BLM lands (Gannon 1997). Continued development of wildlife waters accessible to bats, proper siting and mitigation for bats where wind development may occur, proper protection of cave and underground mine habitat, and project-related surveys for this species would allow for proper management decisions and conservation of this species.

Yuma myotis. The Yuma myotis bat is a BLM sensitive species and is usually associated with permanent sources of water, typically rivers and streams. It occurs in a variety of habitats including riparian, scrublands, deserts and forests. The species roosts in bridges, buildings, cliff crevices, caves, mines, and trees. The Yuma myotis has been documented on BLM lands in Taos County (Gannon 1997). Continued development of wildlife waters accessible to bats, proper siting and mitigation for bats where wind development may occur, proper protection of cave and underground mine habitat, and project-related surveys for this species would allow for proper management decisions and conservation of this species.

Big free-tailed bat. The big-free tailed bat is a BLM sensitive species and appears to be mainly an inhabitant of rugged, rocky habitats in arid landscapes. It has been found in a variety of plant associations, including desert shrub, woodlands, and evergreen forests. It appears to be associated with lowlands, but has been documented at around 8,000 feet in New Mexico (WBWG 2009). This species is a seasonal migrant and roosts mainly in the crevices of rocks in cliff situations, although there is some documentation of roosting in buildings, caves, and tree cavities. The big free-tailed bat has been documented on BLM lands in Rio Arriba County (Gannon 1997). Continued development of wildlife waters accessible to bats, proper siting and mitigation for bats where wind development may occur, proper protection of cave and underground mine habitat, and project-related surveys for this species would allow for proper management decisions and conservation of this species.

Arkansas River shiner. The Arkansas River basin population of the Arkansas River shiner is a BLM sensitive species and federally listed as threatened and occurs in the Canadian River near the New Mexico/Texas border. The Taos Field Office will monitor for habitat condition and presence of this species as necessary for projects on BLM parcels on the Canadian River.

Rio Grande cutthroat trout. Rio Grande cutthroat trout (RGCT) is a BLM sensitive species and listed as a Federal candidate species and occurs in perennial streams within the planning area. The BLM is a signatory on a multi-state, multi-agency conservation agreement for RGCT and participates in conservation planning and activities. The BLM will continue this participation and work to protect and enhance RGCT habitat and populations.

Flathead chub. The Flathead chub is listed as a BLM sensitive species and occurs in perennial streams in the planning area. The BLM has not created any conservation plans for this species,

and there are no regional conservation plans. The BLM will continue to monitor the species population and habitats, but the Taos Field Office would support the removal of this species from the sensitive list as populations appear to be stable.

Plains minnow. The plains minnow is listed as a BLM sensitive species and occurs in perennial streams on the east side of the planning area. The BLM has not created any conservation plans for this species and there are no regional conservation plans. The BLM will continue to monitor the species population and habitats, but the Taos Field Office would support removal of this species from the sensitive list as populations appear to be stable.

Santa Fe Cholla. The Santa Fe cholla is a BLM sensitive species. There is one known population on BLM lands within the planning area. Retention of these lands, along with site-specific surveys in areas known to contain other populations of the species, and, if found, monitoring, and protection from disturbance, would allow this population to continue and perhaps expand onto adjacent BLM lands.

Grama Grass Cactus. The grama grass cactus is a BLM sensitive species. There have been documented reports of this species in the Rio Arriba and Santa Fe counties. Habitat for this species consists of grama grasslands and pinyon-juniper woodlands, and is located in the Chama, Lower Gorge/Copperhill, Ojo Caliente, El Palacio, West Santa Fe, and Galisteo planning units. Site-specific surveys for the species would continue as projects are proposed on BLM lands. Management strategies would be developed for the species as locations are determined and guidance provided.

Ripley's milkvetch. The Ripley's milkvetch is a BLM sensitive species. It is known in the planning area from a 600-square mile area along the southwestern perimeter of the San Luis Valley in southern Colorado and northern New Mexico. Ripley's milkvetch was reported on BLM and Forest Service lands in the Taos Plateau planning unit in 1990; however, no known populations exist today. Management strategies would be developed for the species as locations are determined and guidance provided.

Management prescriptions and restrictions described in the Final Rio Grande Corridor Plan (USDI-BLM 2000a) and the Riparian and Aquatic Habitat Management Plan (USDI-BLM 2000b) that improve or protect habitat for other species would continue to be implemented under all alternatives.

2.4.1.7 Vegetative Communities (Riparian and Terrestrial)

Goals—Riparian

- To provide for healthy watersheds and landscapes, sustained biological communities, and an improved understanding of ecosystems and resources through integrated interdisciplinary assessments (DOI Strategic Plan 2007–2012).
- To provide for proper functioning condition (PFC) of vegetative communities by managing for viable and resilient native wildlife species and their associated habitats.
- For riparian and wetland communities to move toward and/or remain in PFC such that riparian communities would be sustainable, provide physical stability and adequate habitat for a wide range of wildlife species, and support healthy, diverse, and abundant populations of fish and associated aquatic and riparian dependent species.

Objectives—Riparian

- Manage all riparian zones that have hydrophilic plant species as priority habitats.
- Manage riparian areas with an emphasis on protection and restoration, and focus treatments on reestablishment of willows and cottonwoods, as well as other riparian vegetation, to stabilize stream banks and promote sinuosity and width/depth ratios appropriate to the site.
- To give consideration to the restoration and protection of riparian areas as part of the BLM's decision making process for land use authorizations.
- Monitor riparian areas and conduct rangeland health assessments to document progress toward achieving and maintaining PFC.

Continuing Management Guidance—Riparian

The BLM management decisions in riparian areas throughout the planning area would be guided by the Riparian and Aquatic Habitat Management Plan (2000b), the Rio Grande Corridor Final Plan (2000a), the Southwestern Willow Flycatcher Management Plan for the Taos Field Office (1998), and the USFWS Recovery Plan (2002) for the Southwestern Willow Flycatcher.

The Southwestern Willow Flycatcher Management Plan (1998) provides management objectives and planned actions for riparian habitat improvement projects for willow flycatcher population enhancement. The USFWS Southwestern Willow Flycatcher Recovery Plan (2002) outlines specific recovery actions and population goals to allow delisting of the species, including actions that would benefit riparian habitat by increasing and improving occupied, suitable, and potential breeding habitat and minimizing threats to migration habitat.

Under the Riparian and Aquatic HMP, the BLM cooperates with Federal, tribal, and State wildlife management agencies, as well as private landowners, to identify activities that prevent riparian areas from meeting standards and to design projects to minimize impacts. Riparian and wetland areas would be assessed and monitored for PFC and other specific objectives by using appropriate stream survey methodologies and protocols.

Riparian areas functioning at risk would be high priority for restoration. Restoration priorities include invasive vegetation species control and active restoration to allow native plants to reestablish and prosper, as well as restoring functionality to impaired riparian areas.

Projects identified within riparian areas—not related to conservation, restoration or recreation—that may have a detrimental effect on riparian function shall not be authorized. When projects cannot be located outside of riparian areas, short-term effects will be minimized by the use of BMPs, and long-term effects will be mitigated to recover the riparian function lost.

Using the Standards for Public Land Health and Guidelines for Livestock Grazing Management along with ecological site descriptions, functionality would be assessed to determine if goals are being met. Site-specific objectives and management strategies would be developed and applied through activity plans to meet the land health standards and move toward riparian PFC.

To achieve desired vegetative conditions, the Rio Grande Corridor Final Plan (USDI-BLM 2000a) outlines actions and restrictions for BLM authorized activities in riparian areas. Existing livestock exclosures along streams, wetlands, and riparian areas would be maintained per the terms and conditions of existing cooperative agreements as long as necessary to meet management objectives and accomplish PFC.

Implementation actions that address riparian ecosystem function would continue to be applied. All proposed actions would continue to comply with EOs 11988 and 11990 to protect floodplains and wetlands.

Goals—Terrestrial

- Restore and/or maintain the health and productivity of public forests, including the support of watershed, wildlife, and other values, while providing for the use of forest and woodland resources.
- Maintain and/or improve ecological site potential of woodland communities for sustainability and diversity.
- Manage upland vegetation communities to move toward or remain in PFC, including a full range of herbaceous and shrub species.
- Manage forest resources to provide a sustained flow of local economic benefits and protect nonmarket economic values.

Objectives—Terrestrial

- Manage forest types to contain healthy stands that combine for a diversity of age classes, densities, and structure (including dead and down material).
- Inventory and manage old-growth structures in a sustainable manner.
- Manage forest types to contain healthy stands of site-appropriate species.
- Maintain or enhance communities of priority species or habitats to provide desired ecological functions and values.

Continuing Management Guidance—Terrestrial

Current and continuing terrestrial vegetation management is described in the Taos Field Office Fire Management Plan (2005) and the Fire and Fuels Management Plan Amendment and Environmental Assessment for Public Land in New Mexico and Texas (2004). All terrestrial vegetation management would conform to the Standards for Public Land Health and comply with the Rangeland Health Standards Handbook H-4180-1 (USDI-BLM 2001).

The Taos Field Office would continue to support the Restore New Mexico Partnership, a partnership of government, ranchers, industry, non-profit organizations and others to restore New Mexico's grasslands, woodlands, and riparian areas to a healthy and productive condition. Under this partnership all BLM field offices in New Mexico works through this partnership to treat lands, regardless of ownership, across a landscape or watershed to defragment and improve the ecological health and habitat. The goal is to restore desert grasslands and woodlands to their natural states, where possible. This would be accomplished by treating those areas where encroachment by invasive shrubs has occurred and to reclaim disturbances from past permitted actions that have fragmented the habitat. The BLM would coordinate with adjacent land owners and other agencies to assure that this work is accomplished over a landscape or watershed. Field offices would choose from the various treatment methods, including fire, herbicides, and mechanical, or a combination of the three, to accomplish this work.

Natural disturbance regimes would be maintained or mimicked so that plant communities are resilient when periodic outbreaks of insects, disease, and wildland fire occur. Vegetation planning would be coordinated with managers/owners of private, Federal or State lands adjacent to site-specific proposals for a collaborative approach.

Vegetation manipulation projects would be designed to minimize impacts to wildlife habitat and improve habitat when possible. Existing and developing old-growth forests would be retained and managed to reduce the potential effects of uncharacteristically severe natural disturbances such as stand-replacing wildland fire and insect and disease epidemics.

The BLM would design fire restoration/rehabilitation standards on a case-by-case basis, compatible with landscape resource management objectives and long-term vegetation health protection and fuel management.

Where restoration, rehabilitation, or reclamation efforts (including Bureau authorized actions such as rights-of way) require reseeding activities, or use of other plant materials (such as potted plants and poles, etc.), nonnative plant species would be used only if native species are not readily available in sufficient quantities. Care would be taken in selecting nonnative species that are not likely to become invasive. If nonnative plant species are used or identified for use in restoration, rehabilitation, or reclamation projects, the BLM, through the Bureau Plant Conservation Program and partner organizations, would work to identify and develop native replacements for the nonnative species. Additionally, seed mixes used in these actions would use the closest locally adapted selections, varieties, or cultivars of native species available to improve success of the seeding effort.

Prescribed burning would be used to treat forest, grassland, or shrubland vegetation types to move communities toward desired ecological conditions and PFC. If these habitat types are not in PFC due to management activities, management would be modified to improve conditions.

Changes to grazing management or prescription grazing would also be used as a vegetative treatment. Management may include changing the season of use, the intensity of the use, or the kind of livestock.

2.4.1.8 Visual Resources

Goals

- Manage BLM-administered public lands in a manner that would maintain the overall visual quality of the region, select open-space landscapes, undisturbed views, and other high-quality visual resources.

Objectives

- Visual resources would be managed according to the following objectives per visual resource management (VRM) class (Visual Resource Inventory Handbook H-8410-1):

  Class I: Preserve the existing character of the landscape. Level of change should be very low and must not attract attention.
  Class II: Retain the existing character of the landscape. The level of change should be low. Management activities may be seen, but should not attract the attention of the casual observer.
  Class III: Partially retain the existing character of the landscape. The level of change should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer.
  Class IV: Allow management activities requiring major modifications to the existing character of the landscape. The level of change may be high. Management activities may dominate the view. However, every attempt would be made to minimize the impact and aim to repeat the basic elements in the landscape.

Continuing Management Guidance

The visual resource program manages landscape views based on indicators defined in the Visual Resource Inventory Handbook H-8410-1. The handbook would continue to be used regarding all guidance and activities related to management of visual resources.

Projects such as construction of campgrounds, energy and mineral development, vegetation treatments, and rights-of-ways would be evaluated for design to ensure consistency with the VRM classes. All permitted actions on public land would be evaluated to minimize impacts on visual contrast with the landscape, including impacts on the night sky.

VRM classes acknowledge existing visual contrasts, and more restrictive requirements would not be retroactively applied to existing projects. For example, many maintenance activities within existing power transmission rights-of-way are generally unlikely to cause changes to the characteristic landscape. Such maintenance activities include travel along access routes adjacent to and under lines for repair and inspection, replacement of insulators and conductors or lines, and replacement of braces or support structures. However, upgrades such as installation of larger diameter or taller poles, additional supports, or substations may cause contrasts. The degree of impact depends on the scale, location, and height of potential upgrades or new projects. New projects must be analyzed using the BLM's Visual Resource Management Handbook (H-8431-1) and every effort must be made to mitigate contrasts and meet VRM objectives.

Steps in the contrast rating process for projects adjacent to the Old Spanish National Historic Trail should include the following to determine visibility of a project from the trail: selection of a key observation point from the trail and preparation of a viewshed analysis using GIS.

2.4.1.9 Water

Goals

- For water resources to be highly functioning and in good condition, as measured by physical, chemical, and biological parameters in the planning area.
- To provide for the physical and legal availability of water to facilitate authorized use on public lands, including potable water at recreation facilities.
- Restore, maintain, and preserve the natural functions of floodplains to reduce the risk of flood loss or damage to property, and minimize the impact of floods on human health and safety.
- Restore, maintain and preserve water quality in surface waters that flow through BLM-administered lands.
- Develop and maintain partnerships with other agencies, organizations, and individual stakeholders to develop and implement watershed restoration projects and pursue funding opportunities to complete projects.

Objectives

- Assess water quality and establish management objectives for perennial streams using the Standards for Public Land Health.
- Over the life of the plan, reduce channel instability across the planning area by 50 percent in ephemeral, intermittent, and perennial stream channels through a combination of resource management and active restoration or rehabilitation.
- Manage projects and activities to reduce water runoff and soil loss.

- Update water resource inventories and maintain water quality monitoring data necessary to make management decisions.
- Submit documentation to support Federal water rights to the New Mexico State Engineer for all waters on BLM lands that have not been previously claimed.
- The Taos Field Office will continue to participate in local watershed planning efforts for streams that cross BLM jurisdiction.
- Manage all projects and authorized activities so that they will not contribute to surface or ground water quality degradation.

Continuing Management Guidance

Guidance for the water program is detailed in BLM Manual sections 7000 and 7200-7320. These manual sections cover a broad variety of water management issues including watershed management, water rights, water resource inventory, monitoring and improvements. Authorities for this program include the Safe Drinking Water Act, requiring the BLM to comply with all statutes for safe drinking water; the Clean Water Act, requiring the BLM to participate with State and Federal agencies in water quality planning and permitting activities; Executive Orders 11988 and 121148, directing agencies to avoid impacts to floodplain function; Pickett Act, reserving springs and waterholes for the Federal government; Public Water Reserve No. 107, reserving important springs and waterholes for public use; Wild and Scenic Rivers Act and the Wilderness Act, reserving water rights for management in areas designated under those acts; and the Taylor Grazing Act, Federal Land Policy and Management Act, and Public Rangelands Improvement Act that allow authority for appropriative water rights through State agencies.

Ongoing management would provide for mitigation and monitoring of land use activities to ensure that BLM public lands are not contributing to surface or groundwater water quality impairments. The BLM would continue to monitor water quality and quantity on public lands within the planning area. Water resources monitoring data would be assessed to guide water resource restoration, conservation, and acquisition of water rights on public lands. The Taos Field Office would continue to participate in and provide expertise for public lands water resources to work groups developing watershed restoration plans that address water quality impairments. The water program would work with other BLM programs to meet water resource goals.

2.4.1.10 Lands with Wilderness Characteristics

Goals

Manage lands with wilderness characteristics (as defined in section 3.2.11) identified for protection through the RMP to maintain those characteristics.

Objectives

Where decisions are made to maintain wilderness characteristics:

- Minimize surface disturbing activities such that the natural quality of the area is maintained.
- Maintain opportunities for solitude and primitive recreation where they occur in these areas.

Continuing Management Guidance

Management to protect wilderness characteristics (i.e., naturalness, solitude, opportunities for primitive recreation) outside of designated wilderness or wilderness study areas may be applied

administratively in one or more of the following ways: withdrawal of lands from mineral entry; close to mineral leasing or place no surface occupancy restrictions on such lands; designate as right-of-way exclusion areas; close to new roads; close or limit motor vehicle use and/or mechanized use; close to mineral material sales; exclude or restrict with conditions certain commercial uses or other activities; designate as VRM class I or II; restrict construction of new structures and facilities unrelated to the preservation or enhancement of wilderness characteristics; and/or retain public lands in Federal ownership.

2.4.1.11 Wildland Fire

Goals

- Suppress wildland fires where they threaten human health and safety, natural resource values, and private property.
- Restore fire frequency and intensity regimes to pre-European settlement levels by reducing fuel loads.
- Reestablish appropriate vegetation communities to maintain natural fire regimes.
- Reduce the need for wildfire suppression through restoration activities.

Objectives

- Prevent the loss of life or property from wildland fire.
- Manage wildfire with minimal damage to other resources.
- Use prescribed fire and mechanical fuels treatments to reduce hazardous fuels while achieving the objectives of the wildlife habitat, livestock grazing, visual quality, vegetation, watershed quality, and weed control programs.
- Follow fire management actions delineated for each fire management unit throughout the planning area while employing multiple strategies to meet resource objectives.
- When possible, allow for wildland fire to be managed for resource objectives or limited suppression tactics, enabling fire to act in its natural role as a disturbance.
- Maintain a landscape of diverse plant communities and successional stages similar to those created by historic fire regimes.
- Implement wildfire rehabilitation efforts to protect and sustain ecosystems, protect public health and safety, and help communities protect infrastructure.
- Cooperate with adjacent landowners (Federal, State, tribal, and private) in fire management activities across jurisdictional boundaries.

Continuing Management Guidance

The planning area is divided into 20 fire management units (FMUs), each which is assigned a management category of "A," "B," "C," or "D." These categories are based on factors which dictate the appropriate management response to wildfire such as special resource values, special designations, wildland-urban interface, land use and ownership, and topography within and around each unit. For each FMU, objectives are established to reduce hazardous fuels and determine the appropriate management response to any wildland fires, decide whether prescribed fire is an appropriate tool, and establish goals for non-fire fuels treatments.

FMUs in fire management category "A" are where wildland fire is not desired and prescribed fire treatments are limited. Mechanical treatments are the preferred fuels management alternative

in this category. The sole FMU in this category is A9, Rio Grande Corridor Well-Developed Riparian.

FMUs in fire management category "B" are where unplanned wildland fire is not desired because of current conditions. Prescribed fire and mechanical treatments are used. These FMUs include B5, Cerro del Aire; B6, Wild Rivers; B8, Black Mesa/Ojo Caliente; B11, Copper Hill wildland urban interface (WUI); B12, 31 Mile Block; B14, Sombrillo SMA/Santa Cruz Lake; B15, Chimayo Scout Camp; B16, Buckman; and B18, La Cienega.

FMUs in fire management category "C" are where wildland fire is desired, but there are significant restraints that must be considered for its use. Prescribed fire can be widely used in this category, in addition to mechanical treatments. These FMUs include C1, Taos Field Office; C2, North Unit/Pot Mountain; C3, Rio Grande Corridor; C4, San Antonio Gorge WSA and ACEC; C7, Cebolla/Abiquiu; C10, Copper Hill/Sebastian Martin Grant; C13, Fun Valley/Chimayo; and C19, Archuleta Mesa.

FMUs in fire management category "D" are where wildland fire is desired, and there are few or no constraints for its use. Management of wildland fire to meet multiple objectives and prescribed fire are permitted in this category. FMUs in this category include D17, which is now Sabinoso Wilderness, and D20, Ute Mountain.

The full range of fire management activities would continue to help achieve ecosystem sustainability, including its interrelated ecological, economic, and social components. The field office fire staff would conduct fuels treatments, community assistance, education/mitigation programs, and rehabilitation/restoration actions to implement management plan direction.

Response to wildland fire should be based on the ecological, social, and legal consequences of the fire. The circumstances by which the fire occur, and the resulting consequences, dictate the appropriate response to it.

2.4.1.12 Invasive Species/Noxious Weeds

Goals

- Maintain plant communities free of noxious weeds and invasive species where possible.
- Isolate and control populations by an appropriate method.
- Immediately control and eliminate newly discovered outlier occurrences of noxious or invasive species.

Objectives

- Inventory and control weed populations through an integrated pest management (IPM) program implemented through integrated weed management (IWM) and coordinated weed management areas (CWMAs).
- Reduce the area and density of existing populations to acceptable levels.
- Monitor and reevaluate populations at suitable intervals through the use of surveys to identify new infestations.

Continuing Management Guidance

Guidance is provided to the weeds program by Departmental Manual 517 and a number of laws and Executive orders which require the development of a weed management programs:

Executive Order 13112, Invasive Species; the Federal Noxious Weed At of 1974; the New Mexico Noxious Weed Management Act of 1978; the Noxious Weed Control Act of 2004; and the Federal Plant Protection Act of 2000 (Public Law 106-224).

Other laws providing guidance to the weeds program include: FLPMA, the Taylor Grazing Act of 1934, the Carlson-Foley Act of 1968, the Public Rangelands Improvement Act of 1978, the Federal Insecticide, Fungicide and Rodenticide Act as amended (Public Law 92-516), the Federal Environmental Pesticide Control Act of 1972, Invasive Species; the New Mexico Noxious Weed Management Act of 1978, and the Tamarisk Control and Riparian Restoration Act of 2003.

Executive Order 13112 defines an invasive species as "an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health." The definition includes many types of invasive species such as animals, plants and micro-organisms. It focuses upon invasive species which are harmful, rather than focusing on nonnative species, most of which are not harmful. Several different terms have been used to describe invasive species, such as "alien," "aquatic nuisance species," "injurious wildlife," and "noxious" (National Invasive Species Council 2008).

The Taos Field Office will focus on the five "Strategic Goals," as presented in the National Invasive Species Management Plan. These goals are:

1. **Prevention:** Prevent introduction and establishment of invasive species to reduce their impact on the environment, economy, and health of the United States.

2. **Early Detection and Rapid Response:** Develop and enhance the capacity to identify, report, and effectively respond to newly discovered/localized invasive species.

3. **Control and Management:** Contain and reduce the spread and populations of established invasive species to minimize their harmful impacts.

4. **Restoration:** Restore native species and habitat conditions and rehabilitate high-value ecosystems and key ecological processes that have been impacted by invasive species to meet desired future conditions.

5. **Organizational Collaboration:** Maximize organizational effectiveness and collaboration on invasive species issues among international, Federal, State, local and tribal governments, private organizations and individuals (National Invasive Species Council 2008).

Detailed information for the Strategic Goals and Objectives are available in the National Invasive Species Management Plan, 2008–2012.

The Record of Decision on the Final Vegetation Treatments Herbicides Programmatic Environmental Impact Statement, signed on September 29, 2007, provides programmatic policy and guidance to which subsequent field office-specific vegetation treatment plans can be tiered. Subsequent programmatic or site-specific plans could address the application of herbicides on noxious or invasive weed species.

Integrated weed management would continue to be practiced throughout the planning area to control the introduction and proliferation of noxious weeds and other undesirable invasive plants and the other objectives stated above. Emphasis would be on identification of existing

populations on and off public lands, with a priority on noxious weed inventories in plant communities that are critical for wildlife habitat, in plant communities that are at-risk, in high-use areas, and at recreation sites.

Any fill, mulch, seed, or hay or other livestock feed used on public lands administered by the Taos Field Office must be certified "weed free." Stipulations would be attached to use permits and emergency stabilization and rehabilitation plans to reduce the spread of noxious or invasive weeds through contaminated hay, straw, fill, and mulch. Education and prevention measures would include community education conducted by the BLM and others.

2.4.2 *Resource Uses*

2.4.2.1 Forestry and Woodland Products

Goals

- Restore forest and woodlands structure, composition, and processes on public lands to maximize the ecosystem's resilience to the natural disturbance regimes, using the best available information as a basis for decisions on how much restoration is feasible.
- Manage forest and woodland resources to provide a sustained flow of products to benefit local populations and support economic opportunities in the local communities.

Objectives

- Reduce fuels around communities to lessen the potential for a catastrophic wildfire to impact these communities.
- Salvage dead and dying timber, focusing on areas with hazardous fuels, considering wildlife habitats, watershed health, and forest management concerns, while providing opportunities for fuelwood gathering.
- Improve forest health as measured by stand density index through management actions such as mechanical treatments, prescribed fire, and fuelwood gathering.
- Preserve old and large trees, while maintaining the structural diversity and resilience of the forest and woodland stands.
- Follow protocols to monitor forest health treatments (i.e., the Taos Field Office Monitoring Protocol for Prescribed Fire and Fuels Treatments 2005).

Continuing Management Guidance

As with other programs, Congress has mandated through FLPMA that the forestry and woodland program be managed on the basis of multiple use and sustained yield. The Material Disposal Act of 1947, as amended, establishes the authority under which the BLM disposes of timber and other forest products.

Further guidance is provided in the DOI Departmental Manual Part 135, section 1.2, which directs the BLM to "sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations . . . ."

Departmental Manual Part 586, Forest Management, section 1.3 states, "Forest lands are to be managed to yield the highest combination of products and benefits consistent with the purposes specified by Congress. All Forest management activities are directed in accordance with sound silvicultural practices, multiple use, and environmental enhancement. The protection of streams,

wildlife, and other forest values are taken into account in developing a forest management plan. Prompt regeneration after fire is also required as are reasonable efforts to protect forest values from fire, insects, diseases, and other destructive agents." Regulations guiding the forest program are found at 43 CFR 5000.

All forest management activities would be in accordance with sound silvicultural practices, multiple use mandates, and environmental regulations. The forests and woodlands managed by the Taos Field Office must be managed to restore the historic tree species composition and structure. Since fire suppression and other past management activities have allowed fire sensitive and shade tolerant species to become more prevalent, forest and woodlands would be managed to re-establish the composition and structure approximating the natural (historic) range of variability, based on established reference conditions.

2.4.2.2 Land Tenure

Goals

- Develop a deliberate and well-considered combination of public and private land ownership patterns to provide for more efficient and effective resource management actions.
- To provide for reasonable access to public lands, resources, and facilities for the use and enjoyment of the public, as well as for administrative purposes.

Objectives

- Retain public lands with high resource values in public ownership.
- Adjust land ownership to consolidate public land holdings, acquire lands with high public resource values, and meet public and community needs.
- Facilitate the acquisition, exchange, or disposal of public lands to provide the most efficient management of public resources.
- Acquire and maintain access to public lands where needed to improve management efficiency and facilitate multiple use and the public's enjoyment of these lands in coordination with other Federal agencies, State and local governments, and private landowners.

Continuing Management Guidance

Land generally would remain in Federal ownership unless it meets specific criteria for disposal as outlined in FLPMA and existing land use plans. The acquisition of land that would enhance and protect important resources is an established priority for the Taos Field Office. Land would be acquired only from willing sellers.

Lands identified for disposal prior to July 2000, approximately 84,518 acres, may be sold in accordance with the Federal Land Transaction Facilitation Act. This Act allows the BLM to retain the receipts from land sales that would be used to cover administrative costs and to acquire properties that would improve the Nation's land management pattern. Land identified for disposal in the 1988 RMP would be subject to the Act.

Lands acquired within special management areas with specific congressional mandates, such as national trails, wild and scenic rivers, and wilderness areas, would be managed in conformance with established guidelines for those areas. Lands supporting special values acquired within or adjacent to administrative special designations, such as ACECs and SRMAs, would be incorporated into and managed according to the prescriptions for the special designation. Lands

and interests in land obtained with Land and Water Conservation Fund appropriations would not be available for disposal by any means.

Acquired lands may not be leased or conveyed under the Recreation and Public Purposes (R&PP) Act. Bankhead-Jones lands (which are technically acquired lands—lands purchased by the Federal government under the Bankhead-Jones Farm Tenant Act of 1937 for the purpose of rehabilitation and conservation) are subject to the following: (a) they are not "public lands" as that term is used in the R&PP Act and, therefore, are not subject to lease or sale under that act; and (b) they are not public lands as that term is used in the State indemnity selection laws and, therefore, they may not be conveyed to a State under those laws. They may be conveyed through FLPMA exchange or sale, or use authorized under that Act.

2.4.2.3 Land Use Authorizations, Utility Corridors, Communication Sites

Goals

- Provide land use authorizations in support of public needs, to be done in consideration of and in compliance with the various management decisions, goals, objectives, and resource restrictions required to protect or maintain multiple uses and resource values.
- Establish an efficient system of utility corridors and communication sites to meet the energy and communication needs of the public with minimum negative impacts on visual, biological, cultural, and physical resources.

Objectives

- Identify areas that are suitable and available to meet public needs for use authorizations such as rights-of-way, leases, and permits, while minimizing adverse impacts to other resource values.
- Process rights-of-way applications in a timely manner, applying appropriate mitigation to protect resource values.
- Issue land-use authorizations based on RMP decisions, BLM policy, and other Federal mandates to support the public need for uses such as utilities, renewable energy, and telecommunications.

Continuing Management Guidance

Land use authorizations include various authorizations and agreements to use BLM lands such as right-of-way grants and temporary use permits; various leases, permits, and easements; and Recreation and Public Purposes (R&PP) leases, pursuant to regulations found at 43 CFR 2740, 2800, 2900, 2911, and 2920. R&PP transfers are addressed under Land Tenure (section 2.4.2.2).

Requests for land use authorizations would be analyzed and mitigation measures applied on a case-by-case basis in compliance with the NEPA process. Avoidance or exclusion areas may be applied to lands to be avoided but may be available to the location of rights-of-way with special stipulations and areas where location is not available under any conditions, respectively. BLM interim management policy and guidelines would be applied to land use authorizations in WSAs. In accordance with current policy, land use authorizations would not be issued for uses which would involve the disposal or storage of materials which could contaminate the lands (hazardous waste disposal sites, landfills, rifle ranges, etc.).

Rights-of-way, leases, permits, or easement would not be required for those activities that are considered casual use of public lands. Maximum use of existing rights-of-way is encouraged, including joint use whenever possible. All right-of-way actions would be coordinated with Federal, State and local government agencies, adjacent landowners, and interested individuals

and groups. Potential new communication site users would be encouraged to locate within existing communication site locations to reduce impacts and expedite application processing, while new facilities could be built as co-locatable facilities.

The use of certain rights-of-way constructed on public lands prior to FLPMA would be recognized as a valid use even though the authorizing legislation has since been repealed (i.e., ditches and canals under the Act of July 26, 1866 and highways, roads, and trails under R.S. 2477, etc.). Changes in use, location, or size of such pre-FLPMA rights-of-ways would require authorization under existing law. No regulations currently exist to either assert or recognize R.S. 2477 rights-of-way.

Maintenance or improvement of acequias (irrigation ditches) are considered to be grandfathered uses. The following structures or improvements in the Rio Grande Gorge are also considered to be grandfathered uses, provided that they are consistent with protection of the outstandingly remarkable values of the wild and scenic river: power line at Bear Crossing; John Dunn Bridge; High Bridge; powerline at Powerline Falls; Taos Junction Bridge; Pilar Bridge; Glen Woody Bridge; and Embudo Station Bridge. Realty-related unauthorized use would be abated through prevention, detection, and resolution of such uses.

Permits to use the public lands for commercial film production are issued by the BLM under section 302(b) of FLPMA. Regulations governing filming on public lands are covered in 43 Code of Federal Regulations (CFR) part 2920, Leases Permits, and Easements.

2.4.2.4 Livestock Grazing

Goals

- Manage the public rangelands to provide for a sustainable level of livestock grazing consistent with the principles of multiple use and sustained yield.
- Manage livestock grazing on the public rangelands to provide maintenance or enhancement of the natural resources.

Objectives

- Maintain existing desirable rangeland conditions and improve rangeland health utilizing best grazing management practices, meeting or exceeding New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (2001).
- Avoid net loss of AUMs (animal unit months) within the planning area where practical.
- Identify and implement vegetation improvements on a landscape scale to increase forage quality and quantity for both livestock and wildlife, and to support and sustain local communities.
- Establish reserve common allotments to provide forage reserves for conservation benefits and management flexibility.

Continuing Management Guidance

Primary guidance for the grazing program is provided by: the Taylor Grazing Act of 1934; the Federal Land Policy Management Act of 1976; the Public Rangelands Improvement Act of 1978; 43 CFR, Subchapter D- Range Management 4000-4180; and BLM Manual Handbooks H-4010-1 Grazing Administration, Range Management Records, Qualifications and Preference; H-4120-1 Grazing Management; H-4150-1 Unauthorized Grazing Use; H-4160-1 Administrative Remedies; 4180-Rangeland Health Standards; H-1740-1 Renewable Resources Improvement

and Treatment Guidelines and Procedures; H-1741-1 Fencing; H-1741-2 Water developments; H-1745 Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants; and H-9011-1 Chemical Pest Control.

Long-term monitoring, subject to staffing and the availability of funding, would continue on high priority allotments, typically those not meeting rangeland health standards or having sensitive resources, to determine the effectiveness of current management, the need for allocation changes, and establishment of future objectives. Monitoring would be conducted on areas not meeting standards if existing information is not adequate to determine causal factors. If current livestock grazing is determined to be significant factor for not meeting standards, appropriate action would be taken as required by regulation. Appropriate action would be taken as funds become available for significant other causal factors.

Monitoring would be used, as necessary, for the following activity-level decisions (i.e., decisions based on subsequent allotment-specific analyses, typically in an environmental assessment, tiered to the RMP):

- Any increase or decrease in the allocation of AUMs would be approved by the authorized officer. An interdisciplinary team would follow the guidance provided in 43 CFR 4110 when making recommendations to the authorized officer. The actual percentages of forage allocation between wildlife and livestock would be determined on a case-by-case basis through allotment management plans, or other activity plans intended to serve as the functional equivalent, prepared in compliance with NEPA and in consultation, cooperation, and coordination with affected permittees or lessees, landowners, State agencies, and other interested publics.
- Livestock grazing adjustments to meet requirements of sensitive species and protect cultural and archeological sites and areas.

In addition, as discussed in section 2.4.1.2, livestock grazing allotments would be evaluated for significant cultural sites, and conflicts with cultural resources would be eliminated or minimized.

After a disturbance event (e.g., wildland fire, prescribed fire, fuels treatments, thinnings, and seedings) livestock would not be allowed to graze until directed by the authorized officer. This period of time is usually two years to allow for grasses to establish sufficient root growth to sustain grazing, but may fluctuate based on climatic conditions. Permitted or prescribed livestock use may be used as a tool at any time after disturbances in pastures if an interdisciplinary team designs and monitors the grazing to accomplish resource objectives (e.g., to control noxious and invasive weeds or assist in getting broadcast seed worked into the ground). A drought management policy would be implemented when conditions warrant, with emphasis placed on monitoring for the drought conditions.

Allotments are placed in either the *improve* (I), *maintain* (M), or *custodial* (C) category based on their need for management attention (see section 3.3.4), with I-category allotments being the highest priority and C-category allotments the lowest. These categories are assigned through an evaluation process which includes multiple factors such as resource conditions and values, allotment location, social concerns, and resource conflicts. Changes to categories would be made in consultation and coordination with permittees, interested and affected parties, and the public.

Management plans would be completed or revised for all priority allotments, followed by lower category allotments as budget and time constraints allow. The BLM would consult with grazing

permittees, other government agencies (such as the Natural Resources Conservation Service [NRCS] and State Lands), and other interested parties.

2.4.2.5 Mineral Resources (Leasable, Locatable, and Saleable)

The Taos Field Office is responsible for administering approximately 1.5 million acres of Federal mineral estate in the planning area. The leasable minerals are carbon dioxide, coal, geothermal, and oil and gas. Locatable minerals that occur or may occur on or adjacent to BLM land include mica, pumice, diatomite, perlite, gold, silver, copper, lead, zinc, molybdenum, turquoise, silica sand, and uranium. Salable minerals, or mineral materials, include common varieties of sand, gravel, stone, pumice, pumicite, clay, rock, and petrified wood.

Goals—Leasable Minerals

- Make mineral resources available in order to provide stable, abundant, and affordable sources of energy while maintaining, restoring, and promoting a healthy, sustainable ecosystem.

Objectives—Leasable Minerals

- Ensure that all energy exploration, operations, and reclamation are conducted in an environmentally responsible manner through the application of improved protection practices referred to as best management practices (BMPs).
- Provide leasing opportunities for oil, natural gas, geothermal energy, and solid mineral resource development.
- Mitigate resource impacts caused by the exploration and development of leasable minerals in a manner which provides for the rehabilitation of the affected lands.
- Provide guidance and standards for ensuring compliance with Agency policies and operating requirements governing oil and gas in Code of Federal Regulations, Onshore Oil and Gas Orders, and Notice to Lessees.
- Manage mineral resources in the public interest by maximizing the recovery of those resources, wherever appropriate, while minimizing their waste and protecting correlative rights (rights of various mineral interest owners).

Continuing Management Guidance—Leasable Minerals

The leasable minerals in the planning area include carbon dioxide, coal, geothermal, and oil and natural gas. Of the approximately 1.5 million acres of Federal mineral estate administered by the Taos Field Office, about 909,000 acres underlies private or State lands or lands managed by another Federal agency. The BLM coordinates closely with surface owners to ensure surface resource issues are considered before Federal mineral development occurs on split estate land. For split estate mineral leasing, the BLM would notify surface owners of interest to lease and would review parcels to identify any resources that need protection by attaching stipulations prior to leasing (see Appendix B).

Where appropriate, it is BLM policy to make mineral resources obtainable and to support mineral resource exploration and development. Geophysical exploration would be considered on a case-by-case basis. In addition, the BLM regulates mineral development to reduce environmental impacts in accordance with applicable law, many of which are summarized in Appendix B.

Policy guidance for managing mineral resources is provided in several pieces of legislation such as the 2005 Energy and Policy Act, as well as BLM Manuals and Handbooks, the Code of

Federal Regulations, Onshore Oil and Gas Orders, and Notice to Lessees. The key directives are that (1) public land is to be managed for multiple use and (2) if it is determined to be necessary to place certain areas under special management, then that management must be the least restrictive necessary to protect the resource of concern to ensure that the area remains open to other uses.

Geothermal leasing and development would be subject to the procedures and BMPs selected as part of the Record of Decision, signed December 17, 2009, for the Final Programmatic Environmental Impact Statement for Geothermal Leasing in the Western United States, prepared jointly by the BLM and U. S. Forest Service.

For all mineral operations ensure that there are no "likely to adversely affect" occurrences for threatened and endangered species or disturbance of cultural resources. Coal leasing would occur in accordance with applicable laws subject to surface owner consultation and additional NEPA analysis, as appropriate.

Goals—Locatable Minerals

- Allow for exploration and production of locatable minerals to contribute to a stable local and domestic mineral supply while minimizing effects to other resources and resource uses.

Objectives—Locatable Minerals

- Ensure that all locatable minerals exploration and development is conducted in an environmentally responsible manner through the application of BMPs.

Continuing Management Guidance—Locatable Minerals

Continuing management would provide for locatable mineral exploration and development where consistent with management objectives. The BLM would continue to regulate surface-disturbing activities under the Mining Law under 43 CFR 3809 and 43 CFR 3802 to protect the environment and other resources and resource uses. For split estate, mining claimants and/or operators would coordinate with surface owners as required by 43 CFR 3809.31 and 43 CFR 3838.

Activities on public land under the mining law (mineral entry) can be prohibited only by a formal withdrawal under the provisions of Section 204 of FLPMA, such as a public law or a public land order (i.e., a nondiscretionary closure).

The BLM would ensure that there would be no "likely to adversely affect" occurrences for threatened and endangered species or disturbance of cultural resources.

Goals—Saleable Minerals

- Allow for exploration and production of saleable minerals to contribute to a stable local and domestic mineral supply while minimizing effects to other resources and resource uses.

Objectives—Saleable Minerals

- Ensure that all saleable minerals exploration and development is conducted in an environmentally responsible manner through the application of BMPs.

Continuing Management Guidance—Saleable Minerals

Continuing management would provide for saleable mineral exploration and development where consistent with management objectives. Management of saleable minerals would be according

to 43 CFR 3600, Mineral Materials Disposal. It is the BLM's policy to make mineral materials available unless it is detrimental to the public interest to do so. The BLM would not dispose of mineral materials if it is determined that the aggregate damage to public lands and resources would exceed the public benefits that the BLM expects from the proposed disposition.

The BLM would not dispose of mineral materials from wilderness areas or other areas where it is expressly prohibited by law, including national parks and monuments. The BLM would not dispose of mineral materials from areas identified in land use plans as not appropriate for mineral materials disposal.

While not expressly prohibited by law or regulation, sale and free use of mineral materials in WSAs would not be allowed in most instances because it would not be compatible with the nonimpairment criteria. The nonimpairment criteria require the BLM to manage lands under wilderness review in such a manner so as not to impair the suitability of such areas for preservation as wilderness. For the purposes of this plan, WSAs are considered closed to mineral material disposal.

The BLM would ensure that there would be no "likely to adversely affect" occurrences for threatened and endangered species or disturbance of cultural resources.

2.4.2.6 Recreation

Goals

- Provide a diversity of settings where visitors may have the opportunity to realize their personal expectations or goals while engaging in a variety of activities in the outdoors.
- Provide high quality recreation opportunities and experiences.
- Manage for appropriate levels of use, facilities, management and services, and administrative controls in each recreation area. Balance public demand, protection of resources, setting objectives, and fiscal responsibility.
- Issue special recreation permits in an equitable manner for specific recreational uses of public lands and related waters as a means to minimize user conflicts, control visitor use, protect recreation resources, and provide for private and commercial recreation use.
- Develop and maintain cooperative relationships with national, State, and local recreation providers, tourism entities, and local recreational groups.
- Improve and expand collaboration with the State of New Mexico on boating safety.

Objectives

- Strive to achieve the objectives of each Special Recreation Management Area (SRMA) or Extensive Recreation Management Area (ERMA).
- Enhance recreation access, opportunities, and experiences by increasing the level of management presence through signs and basic onsite controls.
- Increase the BLM's identity, enhance visitor services, and promote appropriate behavior by providing clear and consistent signing, information, maps, interpretation and environmental education at recreation sites and facilities.
- Collaborate with communities to provide trail links and access to public land.
- Manage and maintain recreation sites and facilities for quality experiences and enjoyment. Design for function and aesthetics, with design standards that are appropriate for the setting and enjoyed by the public.

Continuing Management Guidance

The BLM has shifted the emphasis of the recreation program from an activity-based approach to one which focuses on recreation experiences and benefits. The BLM's Priorities for Recreation and Visitor Services (May 2003) which outlines seven primary objectives would be consulted for future planning and management. Furthermore, the Unified Strategy (2007) would be used to coordinate actions along a hierarchy of those objectives. Ongoing or future projects or administrative actions would be consistent with the assigned physical, social, and administrative setting character, experiences, and benefits that are unique to each unit.

A sign plan would be developed and implemented field office-wide, consistent with the RMP and subsequent activity-level plans, which would incorporate the objectives for recreational management.

The entire planning area would remain open to dispersed recreation. The camping limit on public lands is set by BLM policy and is currently limited to 14 days. Emphasis would be placed on providing interpretive and information signs and materials for public land visitors and maintaining existing facilities to a high standard consistent with the recreational setting.

Special recreation permits would be considered for commercial, noncommercial, and competitive events on a case-by-case basis. Business plans would be developed where fees (i.e., those associated with recreation use permits) are required or special recreation permits are issued.

Installation of new rock climbing routes or hardware would require pre-approval.

2.4.2.7 Renewable Energy

Goals

- Facilitate environmentally responsible commercial development of renewable energy projects on public lands.
- Use renewable energy systems on BLM facilities where feasible.
- Issue rights-of-ways for development of solar and wind energy facilities where consistent with resource management objectives.

Objectives

- Reduce the analysis time for solar and wind project authorizations by identifying appropriate use areas.
- Promote the development of small, local solar and wind projects that benefit adjacent communities.

Continuing Management Guidance

Policy and guidance for processing right-of-way applications for renewable energy development on public lands administered by the BLM are provided in Instruction Memorandums No. 2011-003 and 2009-043 for solar and wind, respectively, along with Secretarial Order 3285A1. Geothermal energy development is addressed in section 2.4.2.5, Mineral Resources, and subsequent mineral resource sections. For the purposes of this plan, biomass utilization refers to use of forest products as addressed in section 2.4.2.1, Forestry and Woodland Products, and subsequent forestry and woodland product sections.

Best management practices, as presented in the Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States (USDI-BLM 2005a), would be required as part of any authorizations for wind energy development unless new policy directs otherwise.

The Departments of Energy and Interior, led by the BLM, are currently preparing the Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (Solar Energy PEIS), which will provide programmatic guidance on solar energy development projects within the planning area. The draft plan was release for public review and comment on December 17, 2010, and once signed would identify best management practices and other applicable parameters for solar energy development to which future projects may be tiered. The Taos RMP management decisions are intended to be consistent with the Solar Energy PEIS; however, if necessary, the final Solar Energy PEIS may also amend the Taos RMP with its guidance and parameters.

2.4.2.8 Transportation and Access

Goals

- Provide reasonable access to public lands for multiple uses in a manner consistent with the goals and objectives of all resources, uses, and other opportunities.
- Work collaboratively with the public, including tribal, State and local governments, special interest groups, and individuals to develop an appropriate transportation system on BLM-administered public lands, including motorized and nonmotorized recreational trails.

Objectives

- Establish nine transportation areas to facilitate travel management.
- Inventory all transportation areas within 3 years following completion of the RMP in preparation for area-specific travel management plans, to be finalized within 5 years of the RMP's completion.
- Use criteria to guide the designation of routes in areas limited to designated roads, or use of roads in areas limited to existing roads, which would consider:
    1. The desired future condition for access (if different from the planning unit as a whole).
    2. Whether or not the road provides access to an important destination, to private, State or other Federal lands, or is critical for particular activities.
    3. Road and trail density to support goals related to conservation of scenic quality or sensitive habitat management; or to accommodate certain uses. For sensitive habitat, limit roads and trails to an average of 0.5 mile of road per square mile. In areas identified for motorized recreation use, a high density might exceed 2 miles of road per square mile.
    4. Reclamation of redundant roads or roads that no longer serve their intended purpose to achieve road density objectives and reduce habitat fragmentation, while maintaining road network connectivity.
    5. Conditions to be identified in the road inventory process that would require mitigation. An example would be routes that are alongside or are in riparian areas. Possible mitigation would be rerouting the road, or redesign of the crossing to minimize downstream sedimentation. Another would be routes in an

area with cultural or paleontological resources. Mitigation could include fencing of the resource or a short reroute.

6. Maintenance standards to determine where work is needed to reduce damage to the land, such as installing culverts where flood damage recurs or filling in low-lying areas to eliminate the need for users to create new routes to avoid the area.

- Monitor use to determine if the road network requires modification to improve access or protect resources.

Continuing Management Guidance

Planning for OHV use and mountain biking would be consistent with the guidance in BLM's National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands (2001) and the National Mountain Bicycling Strategic Action Plan (2002) and in accordance with 43 CFR 8342.1.

During the interim while area-specific travel management plans are being developed (but no more than five years from completion of the RMP), the BLM would allow the use of existing routes where route designations have not been completed. Where necessary, temporary closures subject to *Federal Register* notice (43 CFR Subpart 8341) would be implemented to prevent resource damage until the formal route designation process is completed.

Maps would be made available that depict the current approved travel network. These maps would be updated on a yearly basis until the designation process is completed. Thereafter, updates to the maps would be made available online as changes are made to the network, and new maps published periodically, as needed.

Portal signs would be installed at main entry points to the travel management areas. All designated roads would be mapped, and some signed on the ground. All closed areas would be posted as closed, and fencing installed depending on resource protection needs. Open areas would receive priority monitoring to assure that boundary fencing is intact and use of the open area is contained to the designated area.

In all areas, emergency access would be allowed. Authorized administrative access would include vehicular access for rescue purposes, law enforcement or firefighting, to provide reasonable access for permitted activities or for the exercise of valid existing rights (e.g., mining claims), for restoration work required after a fire, or to remove unneeded structures such as fences.

The following transportation areas would be established for all alternatives:

1. Taos Plateau/Upper Rio Grande (northwest Taos, and northeast Rio Arriba counties)
2. Lower Rio Grande/Copper Hill (using NM 75 as the southern boundary)
3. Chama (western Rio Arriba County)
4. Ojo Caliente (southeast Rio Arriba County)
5. El Palacio (southeast Rio Arriba County)
6. Sombrillo (northern Santa Fe County)
7. West of Santa Fe (northwest Santa Fe County)
8. Galisteo Basin (south Santa Fe County and the western third of San Miguel)
9. East Side (Colfax, Union, Mora, Harding and eastern San Miguel counties)

These areas provide a context for developing plans that may focus on more specific travel management areas. While area-specific travel management plans are being developed, the transportation planning and management strategy would include the following components:

- The Taos Field Office would develop and implement a public involvement strategy that includes education of the inventory, planning, and designation processes, and the solicitation of involvement by local tribes and governments, user groups, and other interested members of the public in route inventorying, monitoring, and designation planning and enforcement. This strategy would also include a volunteer program to engage user groups and other interested participants in route inventories and other data collection.
- Complete comprehensive route inventories to be carried out by BLM crews and volunteers such as user groups and other interested publics.
- Create and maintain current maps of travel management areas based on an up-to-date, comprehensive GIS database of transportation routes.
- Implement a signing program as appropriate when preliminary travel networks are defined.
- Define use patterns of routes and travel networks.
- The BLM would continue to maintain roads identified as facility assets through the Facility Asset Management System.

Travel management planning and implementation would be prioritized accordingly:

High:

- El Palacio: Complete inventory to define the network of routes in what is currently the Fun Valley Special Management Area, sign the area, and provide a site map. Mitigate access north of Highway 76 in the Chimayo area. Complete a rights-of-way assessment.
- West Side of Santa Fe: Complete inventories and rights-of-way assessment with special attention given to the Buckman area.
- Sombrillo: Mitigate access north of Highway 76 in the Chimayo area and define the transportation system in the proposed ACEC north of Chimayo. Complete a rights-of-way assessment.

Medium:

- Lower Rio Grande/Copper Hill: Re-evaluate the existing transportation plan due to the inaccuracy of existing data and route proliferation.
- Chama: Complete inventories and rights-of-way assessment.
- Ojo Caliente: Complete inventories and rights-of-way assessment.
- Galisteo Basin: Complete inventories and rights-of-way assessment, with special consideration given to appropriate access to sites protected by the Galisteo Basin Archaeological Sites Protection Act.
- Taos Plateau: Re-evaluate the existing transportation plan due to the inaccuracy of existing data and route proliferation, and define the current route network. Enforce seasonal closures for the protection of wildlife habitat and migration corridors. Complete a rights-of-way assessment.

Low:

- East Side: Complete inventories and rights-of-way assessment.

2.4.2.9 Withdrawals

Goals

- Utilize withdrawal actions with the least restrictive measures and minimum size necessary to accomplish the required purposes.
- Identify areas requiring protection from mineral entry through withdrawal, including the minimum area necessary to protect the sensitive lands or resources.

Objectives

- Review existing withdrawals on a case-by-case basis prior to the end of the withdrawal period or as otherwise required by law to determine whether they should be extended, revoked, or modified.
- Consider requests for new withdrawals and withdrawal relinquishments, extension or modifications on a case-by-case basis.
- Lands with particularly sensitive resources would be protected from mineral entry through the use of withdrawals.

Continuing Management Guidance

Approximately 78,245 acres of land have been withdrawn from entry under all or some of the land or mining laws pursuant to regulations at 43 CFR 2300. In some cases withdrawals may transfer jurisdiction to another Federal agency. Under all alternatives additional land with rare or sensitive resources may be identified for withdrawal if criteria are met.

Existing withdrawals would be reviewed on a case-by-case basis prior to the end of the withdrawal period or as otherwise required by law to determine whether they should be extended, revoked, or modified. Other agency requests for withdrawal relinquishments, extension or modifications would be considered on a case-by-case basis.

2.4.3 *Special Designations*

Special landscapes and resources in the planning area have been singled out for additional management attention. Some have been congressionally authorized and include WSRs, national scenic or historic trails, or other designations such as cultural protection areas or national heritage areas. Other designations have been made administratively by the BLM or the Department of the Interior, and include areas of critical environmental concern (ACECs), wilderness study areas (WSAs), and back country or scenic byways. Other designations can include national recreation trails, and watchable wildlife viewing sites.

Areas with exceptional natural beauty, nationally significant cultural or historic resources, sensitive plant and animal habitat and/or other resources requiring special attention are recognized by some form of special designation. These landscapes or resources are protected and preserved through limitations on surface disturbance and careful implementation of any uses so that each area's special qualities are retained.

A sign plan would be developed and implemented field office-wide, consistent with the RMP and subsequent activity-level plans, which would incorporate the management objectives for special designations.

2.4.3.1 Areas of Critical Environmental Concern

Goals

- Provide special management attention to areas with relevant and important values to ensure such values are protected and preserved from irreparable harm.

Objectives

- Inventory, protect, and monitor ACECs consistent with special management prescriptions to ensure their relevant and important values may be preserved.

Continuing Management Guidance

As part of the BLM's implementation of FLPMA, Manual 1613 and 43 CFR 1610.7-2 require that areas meeting the relevance and importance criteria for ACECs be considered during the planning process, with special management considered to (1) the protection of the area and prevention of irreparable damage to the resources or natural systems identified during the inventory, and (2) the protection of life and the promotion of safety in areas where natural hazards exist. Areas qualifying for consideration as ACECs must have substantial significance and value including qualities of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern. The values for which ACECs are designated are considered the highest and best use for those lands, and protection of those values would take precedence over multiple uses.

2.4.3.2 Byways

Goals

- Provide for the promotion and enhancement of designated scenic and backcountry byways.

Objectives

- Partner with interested governments and special interest groups to provide for interpretation and marketing of the byways.
- Expose visitors to the byway's recreational resources, and interpret natural, cultural, geological, and scenic features.
- Provide interconnectivity between local communities and a working partnership for regional development of eco- and recreational tourism.

Continuing Management Guidance

There are several byways located in the planning area, but only five cross public lands or have viewsheds that include BLM-managed lands. These byways are El Camino Real, Enchanted Circle, High Road to Taos, Turquoise Trail, and Wild Rivers Back Country. The BLM would collaborate with groups that have been established to manage these byways, and would notify them of any actions within the byway viewshed that might impact the purposes for which the byway is managed. The Wild Rivers Back Country Byway is the only one managed by the BLM in the planning area; the BLM would consult with local groups in the Questa area to determine the best way to market this opportunity, and would continue to collaborate with the groups involved with the Enchanted Circle.

Wild Rivers Back Country Byway would be managed as part of Wild Rivers Recreation Area in the no action alternative and as part of the proposed Taos Plateau ACEC and Rio Grande Gorge

Recreation Area in Alternatives A, B, and C. In all cases, the viewshed would be managed to maintain scenic quality and provide historic and natural resource interpretation for byway users.

2.4.3.3 National Historic or Scenic Trails

Goals

- Provide for effective and accessible orientation, interpretation, and education programs and activities on the trails, enabling visitors of all abilities to understand and appreciate their history, significance, and enduring legacy.

Objectives

- Provide for the safe enjoyment of cultural resource and recreational opportunities related to the trails' history and resources.
- Establish and support partnerships to provide visitor experiences and to conserve and preserve resources related to the historic trails' period of use.
- Use current management practices and technologies to implement the National Trails System Act, and administer the national historic trails to protect their setting, visual integrity, archaeological resources, and physical traces.

Continuing Management Guidance

Manage four National Scenic or Historic Trails, including the Santa Fe, Camino Real de Tierra Adentro and Old Spanish National Historic Trails; and the Continental Divide National Scenic Trail under guidance of the National Trails System Act of 1968, the enabling legislation for each trail, and activity plan guidance. (Only two of these trails cross public lands in the planning area—the Camino Real and the Old Spanish trails. Management for each trail is summarized in Appendix A.)

Evaluate trail resources present (found through survey or other means) and determine which values they possess. Trail resources include physical traces of the trail (e.g., ruts, swales, campsites, artifact scatters, etc.) or may be associated with visitor uses and research, so that the evaluation would include an analysis of the opportunities for interpretation, opportunities for recreational use, and opportunities for research.

Within five years after approval of the RMP, a management plan would be developed to layout goals for the trail including inventory, changing VRM classes, and resource development to provide visitor opportunities.

Within five years after approval of the RMP, carry out archaeological inventory to help define the cultural and temporal settings of trail segments. Collect, analyze, and curate important artifacts associated with the trails. Use these resources along with historic information to interpret these national historic trails.

2.4.3.4 Special Management Areas

Goal

- Provide for special management of important resources where other management designations would not be applicable.

Objectives

- Identify and delineate areas not included in other special designations where special prescriptions would be appropriate to manage important resources or provide for certain opportunities.

Continuing Management Guidance

To comply with current land use planning guidance, this designation would not be carried forward under Alternatives A, B, and C, but may be included in other special designations under these alternatives. The twelve current special management areas would only remain under the no action alternative, and management prescriptions that currently guide day-to-day management would continue.

2.4.3.5 Watchable Wildlife Areas

Objectives

- Provide wildlife viewing opportunities at sites which are accessible by vehicle and have a high likelihood that species of interest can be seen.

Continuing Management Guidance

The two watchable wildlife areas identified in the planning area—Wild Rivers and San Antonio—would have interpretive plans completed, with appropriate highway signing and parking/viewing areas provided for visitors. These areas would be developed in a manner that would be least intrusive on the habitat. The opportunity to view wildlife would be marketed at a regional or national level. Interpretation may include information provided in guidebooks, onsite signing, and written materials.

2.4.3.6 Wild and Scenic Rivers

Goals

- Continue to manage designated wild and scenic river segments consistent with the intent of their designations.
- To the extent of the BLM's authority, maintain the free-flowing character, preserve or enhance the outstandingly remarkable values, and allow no activities within the river corridor that would alter the tentative classification of those segments determined suitable for congressional designation for inclusion in the National Wild and Scenic River System.

Goals/Objectives

- Review all eligible rivers to determine suitability for congressional designation into the National Wild and Scenic Rivers System.

Continuing Management Guidance

The National Wild and Scenic River System includes three river segments in the planning area—32 miles of the Rio Chama, the lower 4 miles of the Red River, and 68 miles of the Rio Grande from the Colorado state line south to Rinconada, New Mexico. An additional 7.6 miles of the Rio Grande from Rinconada to Velarde was designated by Congress as a study segment. In the 2000 Rio Grande Corridor Plan, the BLM identified seven river segments as eligible, of which two were determined suitable for designation. An inventory completed in January 2008 identified an additional 11 segments as eligible. Two of these are evaluated for their suitability

as part of this planning process, while suitability determinations on the remaining nine, as well as the remaining five identified by the 2000 Rio Grande Corridor Plan, are being deferred until the Carson National Forest undergoes its land use planning, when coordination between the BLM and Forest Service on the suitability of streams crossing jurisdictional boundaries can be more affectively evaluated. Regardless, if the Forest Service is unable to participate in a suitability study within five years of the completion of the RMP revision process, the BLM will move forward with a study.

All eligible and suitable segments would be managed to protect their identified outstandingly remarkable values, tentative classification, and free-flowing character (see Appendix F). The designated wild and scenic rivers, as well as river segments which have been found eligible or suitable for designation, would be managed per guidance on the National Wild and Scenic Rivers Act, as amended. Other management direction is provided by the enabling legislation for the Rio Grande and Rio Chama, subsequent river management plans prepared for the Rio Chama and Rio Grande in 1990 and 2000, respectively, and guidance contained in BLM Manual 8351 (Wild and Scenic Rivers-Policy and Program Direction for Identification, Evaluation, and Management, 1992).

2.4.3.7 Wilderness

Goals

- Provide for the long-term protection and preservation of designated wilderness under the principles of non-degradation. A wilderness area's naturalness and untrammeled condition, opportunities for solitude, opportunities for primitive and unconfined types of recreation, and any ecological, geological, or other features of scientific, educational, scenic, or historic value would be managed such that they remain unimpaired.

Objectives

- Manage uses permitted by the Wilderness Act's special provisions and subsequent laws in a manner that would prevent degradation of the area's wilderness character. In managing these uses, emphasis would be placed on maintaining wilderness character.
- Prepare a management plan for a wilderness area within two years of its designation by Congress.

Continuing Management Guidance

The planning area contains one wilderness area, the Sabinoso Wilderness, which was designated by Congress in 2009 (The Omnibus Public Lands Management Act of 2009, Section G, P.L. 111-11). The 16,030-acre Sabinoso Wilderness will be managed under guidelines in the Wilderness Act of 1964, the enabling legislation, regulations for wilderness management at 43 CFR 6300, BLM *Manuals* 8560 and 8561, BLM *Handbook* H-8560-1 and a wilderness management plan which would be prepared by the BLM.

2.4.3.8 Wilderness Study Area

Goals

- Wilderness study areas (WSAs) would be managed to protect wilderness characteristics until designated or released from further consideration by Congress.

Objectives

- Manage WSAs to ensure wilderness characteristics would not be impaired.
- Identify appropriate management prescriptions if Congress were to release these areas from further consideration.

Continuing Management Guidance

The two WSAs in the planning area (Rio Chama and San Antonio) (Table 2-2) would be managed under the Interim Management Policy for Lands Under Wilderness Review (BLM Manual H-8550-1). If either are designated wilderness, it would be managed under guidelines in the Wilderness Act of 1964, the enabling legislation, and a wilderness management plan which would be prepared by the BLM. If either of these WSAs is released from further consideration as wilderness, it would be managed as part of proposed ACECs—Taos Plateau ACEC (San Antonio WSA) and Chama Canyons ACEC (Rio Chama WSA). Proposed management guidance for these ACECs are in Tables 2-31 and 2-32.

Table 2-2. Wilderness study areas

Name	Acres	BLM Recommendation
San Antonio	7,760	Nonsuitable–all If released, it would be managed for wildlife and riparian values as part of the Taos Plateau ACEC (Alternatives A and B). In those alternatives, protective measures would be in place to maintain the wilderness character of the area. In the no action alternative and Alternative C, it would be managed under guidelines for the San Antonio Special Management Area.
Rio Chama	11,150	Suitable–5,190 acres Nonsuitable–5,960 acres Suitable, not in WSA–680 acres In the no action alternative and Alternative C, the suitable portion would be managed for wilderness character and primitive recreation as part of the Rio Chama Special Management Area; the nonsuitable portion would be managed under general guidance of the RMP. In Alternatives A and B, both sections would be managed under prescriptions identified for the Chama Canyons ACEC, which would maintain the area's wilderness character.

Note: The original wilderness inventory acreages reported to Congress were not accurate; the acreage in this table is based on updated mapping. Original acreages reported were: San Antonio–7, 050, and Rio Chama total–11,985 (suitable–5,232, nonsuitable–6,753).

2.4.3.9 Other Congressional/Secretarial Designations

Objectives

- Areas or resources in the planning area which are designated by Congress or the Secretary of the Interior for special attention would be managed according to guidelines in the enabling legislation and agency or departmental guidelines.
- Where appropriate, the BLM would develop partnerships to assist in carrying out the purposes of the designations.

Continuing Management Guidance

The Galisteo Basin Archaeological Sites Protection Act of 2004 designated 24 sites containing pueblos, rock art, and Spanish colonial settlements. The purpose of the Act is to provide for the preservation, protection, and interpretation of the nationally significant archaeological resources

in the Galisteo Basin. It also encourages research on these or other sites that might warrant inclusion. This plan would propose management actions only on those sites which are on BLM-managed lands, or for which the BLM has a signed cooperative management agreement with the owner(s). The Act allows private property within the boundary of any site to be excluded, if the owner so requests. Nine sites are at least in part on BLM-managed land, and management guidance is described in the proposed Galisteo Basin Cultural ACEC, or the existing La Cienega ACEC.

The enabling legislation contains the following nondiscretionary guidance for the BLM-managed sites, which would be common to all alternatives:

- The Act requires the preparation of a management plan, to be completed within 3 years after funds are available to cover the sites on BLM land, or for which the BLM has a signed cooperative management agreement with the landowner, if non-Federal.
- Land acquisition is authorized from willing sellers (unless State Trust land, in which case acquisition is allowed by exchange only).
- All Federal lands are withdrawn from all forms of entry, appropriation, or disposal under the public land laws.
- All Federal lands are withdrawn from location, entry and patent under the mining law.
- All Federal lands are withdrawn from mineral leasing or material sales.

Congress designated the Northern Rio Grande National Heritage Area in 2006, which includes the counties of Santa Fe, Rio Arriba and Taos. It encompasses a mosaic of cultures and history, including eight pueblos and the descendants of Spanish ancestors who settled in the area as early as 1598. Within its boundaries are many significant historic sites and a cultural landscape that reflects long settlement of the region. The Taos Pueblo has been recognized as a World Heritage Site.

The heritage area is proposed for management by a nonprofit corporation. The Northern Rio Grande National Heritage Area, in partnership with the National Park Service and participating pueblos, agencies, and community organizations, would plan, coordinate, and implement programs and services that recognize, respect, and preserve the multicultural people and the landscape of the area. BLM staff has attended several meetings with local supporters of this legislation and would collaborate on any initiatives affecting public lands in the three-county area.

Table 2-3. Special designations by alternative

Type of Designation	Alternative(s) for which the Designation Applies			
	No Action	**Alternative A**	**Alternative B**	**Alternative C**
Wild and Scenic Rivers [1]				
Rio Grande, Rio Chama; see Appendix F for eligible segments	Two designated rivers, and 16 eligible/suitable segments are managed under guidelines in the Wild and Scenic Rivers Act, the enabling legislation, if applicable, and activity level plans. See Tables A-12 and A-13 in Appendix A for an overview of management prescriptions for the Rio Chama and Rio Grande.			
National Historic or Scenic Trails [1]				
Continental Divide National Scenic Trail	All designated national trails would be managed under guidelines in the National Trails Act, enabling legislation, and the activity plan prepared for the trail. Management would be the same in all alternatives.			
El Camino Real de Tierra Adentro National Historic Trail				
Old Spanish National Historic Trail				
Santa Fe Trail				
Other Congressional Designations [1]				
Galisteo Basin Archaeological Sites Protection Act	Managed under guidelines in the Act.	BLM sites would be included in the proposed Galisteo Basin ACEC.		
Northern Rio Grande National Heritage Area	The BLM would collaborate with the Heritage Area Board.			
Areas of Critical Environmental Concern [2]				
Black Mesa	Designated	Rescind; would be part of expanded Ojo Caliente ACEC		Rescind
Chama Canyons		Designate; would replace Rio Chama SMA		
La Cienega	Designated	Designate; expand		Designate
Copper Hill	Designated	Designate; expand	Designate	Designate
Galisteo Basin Cultural Sites		Designate	Designate	
Lower Gorge	Designated	Designate; expanded to include Orilla Verde Recreation Area		Designate
Ojo Caliente	Designated	Designate; expanded		Designate
Pueblos		Designate; replaces SMAs from 1988 RMP		
Sabinoso		Designate; replaces the Sabinoso SMA		
San Antonio				Designate; replaces San Antonio Gorge and Winter Range SMAs
San Antonio Gorge	Designated	Rescind; included in Taos Plateau ACEC		Rescind; included in San Antonio ACEC
Santa Fe Ranch		Designate	Designate	
Sombrillo	Designated; no change in boundary			

Taos Plateau		Designate	Designate	Designate; would have same boundary as San Antonio SMA
Winter Range	Designated	Rescind; in Taos Plateau ACEC		Rescind; included in San Antonio ACEC
Back Country or Scenic Byways [2]				
Enchanted Circle	BLM manages public lands within the viewshed of the first three byways, and would coordinate management with the goals/objectives of the byways' managing organizations; Wild Rivers is a BLM-managed byway			
High Road to Taos				
Turquoise Trail				
Wild Rivers Back Country Byway				
Special Management Areas [2]				
La Caja Pueblo	Designated	Rescind; included in Pueblos ACEC		Rescind
Fun Valley	Designated	Rescind; replaced by el Palacio Recreation Area		Rescind
Ku Pueblo	Designated	Rescind; included in expanded Ojo Caliente ACEC		Rescind
Ojo del Zorro Pueblo	Designated	Rescind; included in Pueblos ACEC		Rescind
Pueblo Quemado	Designated	Rescind; included in Pueblos ACEC		Rescind
Pueblo Sarco	Designated	Rescind; included in Pueblos ACEC		Rescind
Rio Chama	Designated	Rescind; included in Chama Canyons ACEC		Rescind
Riparian/Aquatic	Designated	Rescind; would be in a riparian habitat management area		Rescind
Sabinoso	Designated	Rescind; replaced by Sabinoso ACEC		Rescind
Sahiu Pueblo	Designated	Rescind; included in Pueblos ACEC		Rescind
San Antonio	Designated	Rescind; replaced by Taos Plateau ACEC		Rescind; replaced by San Antonio ACEC
San Lazaro	Designated	Rescind; replaced by Galisteo Basin ACEC		
Wilderness[1]				
Sabinoso	Managed according to the provisions of the Wilderness Act of 1964, enabling legislation, and an activity plan prepared for the wilderness. Management would be the same under all alternatives.			
Wilderness Study Areas [2]				
Rio Chama	Managed under Interim Management Policy and Guidelines for Wilderness Study Areas for all alternatives. All of the San Antonio WSA and the suitable portion of the Rio Chama WSA would be included in one of two ACECs or SMAs—if any portion is released from wilderness review—and would be managed under guidelines approved for the SMA or ACEC.			
San Antonio				

[1] Congressional designation.
[2] Administrative designation.

2.5 No Action Alternative

2.5.1 *Overview of the Alternative*

Under the no action alternative, management would continue in accordance with the 1988 Taos RMP and any plan amendments completed and approved since 1988. The continuing management guidance and management common to all alternatives described under section 2.4 would apply. Additional resource-specific land allocations and management strategies under the no action alternative are provided below.

As required by NEPA, this alternative provides a baseline for comparison with other alternatives, and may not adequately resolve the issues identified in section 1.3.1 or meet the purpose and need described under section 1.1.

2.5.2 *Resources*

2.5.2.1 Air and Atmospheric Values

There is no current management specific to the allocation of air resources. The BLM would continue to follow existing State and Federal laws and policies regarding air quality and climate change.

2.5.2.2 Cultural

Under present management, the Taos Field Office would adhere to procedures outlined in BLM New Mexico's protocol agreement with the New Mexico State Historic Preservation Officer to meet section 106 requirements of the NHPA. Class III inventory is performed as necessary for proposed projects. Archaeological sites are recorded and evaluated as to their eligibility to the national register of historic places. Sites determined eligible for the NRHPs would be avoided or mitigated. Management activities are designed or modified to eliminate or minimize adverse impacts on identified cultural resources.

The following special designations would continue to be managed for the protection of cultural and historic values:

- Ojo Caliente ACEC (17,700 acres)
- La Cienega ACEC (3,556 acres)
- La Caja Pueblo SMA (85 acres)
- Ku Pueblo SMA (65 acres)
- Ojo del Zorro Pueblo SMA (24 acres)
- Pueblo Quemado SMA (160 acres)
- Pueblo Sarco SMA (10 acres)
- Sahiu Pueblo SMA (5 acres)
- San Lazaro Pueblo SMA (80 acres)
- El Camino Real de Tierra Adentro National Historic Trail (Congressional designation)
- Old Spanish National Historic Trail (Congressional designation)
- Galisteo Basin Archaeological Sites (Congressional designation)

See Appendix A for a description of how these sites and areas are managed.

2.5.2.3 Fish and Wildlife

Fisheries

Designate the Rio Grande cutthroat trout as a BLM sensitive species in New Mexico. Work with the NMDFG to restore Rio Grande cutthroat trout to 5 miles of the Rio Agua Caliente. Continue to work with NMDGF to stock trout species in BLM-managed waters for recreational fishing opportunities. Prevent channelization/dredging along riparian stream areas to preserve fishery habitat.

Wildlife

Biotic and other public land health standards would be attained through management emphasis placed on key habitats identified in existing ACECs and SMAs and through continued implementation of HMPs and CRMPs. Habitat management emphasis would be placed on native species using methods consistent with vegetation management decisions.

2.5.2.4 Paleontology

No actions specific to allocation of paleontological resources are provided under this alternative aside from the management of Sombrillo ACEC for the protection of paleontological resources (see Appendix A).

2.5.2.5 Soils

Under the existing Riparian and Aquatic HMP and standards and guidelines for grazing, soils would be provided protection through vegetation management.

2.5.2.6 Special Status Species

To protect southwestern willow flycatcher habitat, shoreline access is restricted in designated areas and closed on selected side channels in the BLM Orilla Verde Recreation Area. In addition, approximately 1.5 miles of riparian habitat is closed (totaling 1.4 acres) to vehicle use, while the recreation area is closed to new rights-of-way (except for underground utilities and NM State Highway and Transportation Department road maintenance activities), livestock grazing, and mineral material development and mining.

2.5.2.7 Vegetative Communities

Riparian

Management actions within floodplains and wetlands would include measures to preserve, protect, and, if necessary, restore their natural functions.

To protect riparian areas, water for livestock would be provided elsewhere and/or grazing would be limited or closed in some areas (see Table 4-2). Additional areas may be determined in activity-level planning and follow the guidance provided in the Riparian and Aquatic Habitat Management Plan (2000b). Livestock would be restricted in the Rio Chama SMA and would have limited opportunities to graze riparian zones in the Sabinoso SMA.

Grazing privileges in the Cuestecita Allotment (1,629 acres with 52 AUMs) would be retained for the current permittee; however, for protection of the riparian resources, grazing would be excluded upon relinquishment of the permit and no permit transfer would be allowed.

Channelization and dredging operations in riparian zones would be prohibited, and acquisition of riparian habitat on State and private lands would be actively pursued.

Mineral material sales would be excluded from riparian areas, and areas of riparian/aquatic improvement projects would be withdrawn from minerals. Controlled surface occupancy would be applied to oil and gas leasing and development in all riparian areas. In the La Cienega SMA/ACEC, OHVs would be restricted to designated routes, and motorized vehicles and mountain bikes would be prohibited where conflicts exist with riparian habitat. The Santa Fe Canyon would be open to hiking only. Open road densities would be limited to 0.25 miles per square mile of surface area in this management unit. Riparian areas would be closed to livestock grazing where degradation occurs and cannot be mitigated, and the Santa Fe River canyon would be withdrawn from mineral entry and closed to mineral material disposal.

Within the Rio Grande corridor, to protect riparian resources and minimize conflicts with wildlife, all unallotted and unpermitted areas (32,327 acres) and 600 acres within Pajarito Allotment (636) would be excluded from livestock grazing over the long-term. Livestock grazing would also be excluded within riparian and wetland areas of the Lower Gorge ACEC and below the rim in the Upper Gorge. The allotment boundary for number 636 would be adjusted to exclude the Comanche Spring area. Riparian areas would continue to be withdrawn from mineral entry and closed to mineral and geothermal leasing. Vehicle access, where practical, would not be allowed within 25 feet of perennial streams, unless mitigating measures are applied. Primitive camping would not be allowed within 100 feet of rivers or streams to protect riparian habitat.

Terrestrial

All terrestrial vegetation management would follow the Standards and Guidelines for Rangeland Health (USDI 2001and Handbook 4180-1).

Prescribed burning would be used to treat forest, grassland, or shrubland vegetation types. In grasslands or shrublands, prescribed burning would be used to kill encroaching conifers, removing dead finer fuels created by years of grass or shrub growth, and stimulating grass and shrub regrowth.

In forests, prescribed burning would be used to eliminate slash generated by mechanical treatments, thin under stories, recycle nutrients, eliminate “ladder” fuels, and/or create and maintain a more savannah-like habitat in stands dominated by medium and large-sized trees.

Changing grazing management or prescription grazing would also be used as a vegetative treatment. Management may include changing the season of use, the intensity of the use, or the kind of livestock. Grassland and shrubland vegetation types would be treated to remove conifer encroachment and move towards a more desired ecological condition of open grasslands and shrublands with a low density of tree species. Grasslands and shrublands would also be assessed to ensure that uplands are in properly functioning condition. If these habitat types are not in properly functioning condition due to management activities, management would be modified to improve conditions.

Natural disturbance regimes would be maintained or mimicked so that plant communities are resilient when periodic outbreaks of insects, disease, and wildland fire occur. Vegetation planning would be coordinated with managers/owners of private, Federal or State lands adjacent to site-specific proposals for a collaborative approach. Vegetation manipulation projects would be designed to minimize impacts to wildlife habitat and improve it when possible. Existing and

developing old-growth forests would be retained and protected from uncharacteristically severe natural disturbances such as stand-replacing wildland fire and insect and disease epidemics.

The BLM would design fire restoration/rehabilitation standards on a case-by-case basis, compatible with landscape resource management objectives and long-term vegetation health protection and fuel management.

Where restoration, rehabilitation, or reclamation efforts (including Bureau authorized actions such as rights-of way) require reseeding activities or use of other plant materials (such as potted plants and poles, etc.), nonnative plant species would be used only if native species are not readily available in sufficient quantities. Care would be taken in selecting nonnative species that are not likely to become invasive. If a nonnative plant species are used or identified for use in restoration, rehabilitation, or reclamation projects, the BLM, through the Bureau Plant Conservation Program and partner organizations, would work to identify and develop native replacements for the nonnative species. Additionally, seed mixes used in these actions would use the closest locally adapted selections, varieties, or cultivars of native species available to improve success of the seeding effort.

2.5.2.8 Visual Resources

Under the no action alternative, visual resources would be managed according to VRM classes where prescribed under the 1988 Taos RMP, as amended, or where VRM classes were not prescribed in the 1988 plan, management would be according to the 2006 visual resource inventory classes:

- Chama SMA would be managed as class I in the wild and scenic river canyon. The rim area of the Chama WSA was prescribed VRM class II in the 1988 Taos RMP. However, based on BLM policy provided in Instruction Memorandum 2000-096 issued subsequent to the 1988 plan, all WSAs are to be managed to meet VRM class I objectives.
- Ute Mountain, in the Taos Plateau planning unit, would be managed according to the Ute Mountain Interim Management Plan of 2005.
- The Rio Grande corridor, including Orilla Verde Recreation Area, Wild Rivers Recreation Area, and the Copper Hill ACEC would be managed according to the 2000 Rio Grande Corridor Final Plan.
- Santa Cruz Lake Recreation Area would have 640 acres managed as class II.

The results of the Taos Field Office VRM inventory which serve a basis for the current management classes are shown on Map 2-1 and in Table 2-4 below.

Table 2-4. Inventoried and currently established VRM classifications

VRM Class	Acreage
I	59,877
II	151,821
III	281,097
IV	102,646

2.5.2.9 Water Resources

Under the Riparian and Aquatic HMP, coordination would occur with the State engineer to acquire water rights as necessary to manage for special status species habitat and aquatic and

riparian resource values. In addition to minimum necessary surface flows, the need for flushing flow events to maintain fish habitat and riparian areas would be considered.

Current and future potable drinking water systems at campgrounds and recreation sites would comply with Environmental Protection Agency standards as managed by the New Mexico Environment Department (NMED). The BLM would cooperate with the NMED and other affected parties to comply with the Federal Water Pollution Control Act (Clean Water Act) to maintain or restore the chemical, physical, and biological integrity of area waters and provide for mitigation and monitoring of land use activities to ensure that BLM-managed lands are not contributing to surface or ground water quality impairments.

2.5.2.10 Lands with Wilderness Characteristics

One area, Ute Mountain, would continue to be managed with sufficient restrictions to protect identified wilderness characteristics per *Federal Register* notice published December 31, 2003, which established a temporary closure of the area to certain use. Management guidance would also be provided by the Ute Mountain Interim Management Plan (USDOI 2005c). Although none of the areas identified in the inventory (see section 3.2.11 and Map 3-11) would be managed specifically for their wilderness characteristics under this alternative, Ute Mountain would be afforded protective management as described in Table 2-5.

Table 2-5. Areas managed for wilderness characteristics

Planning unit/Area	Acres	Management
Taos Plateau/Upper Rio Grande Ute Mountain	13,190	*A temporary closure of certain uses is currently in effect for Ute Mountain, and an interim management plan would continue to provide the following management guidance:* Land Use Authorizations: closed. Minerals: closed to all. Transportation: limited to designated routes (but none identified in the primitive area). Visual: managed to VRM class II and III standards.

2.5.2.11 Wildland Fire

Management priorities for suppression, prescribed fire, non-fire fuels treatments, and community protection/assistance would be described in the current Fire Management Plan (FMP) for the planning area. The FMP would provide specific implementation strategies, evaluation criteria, and accomplishment reporting as referenced in the fire management portion of the RMP.

2.5.2.12 Invasive Species/Noxious Weeds

Control of invasive species/noxious weeds would be implemented as described in section 2.4.1.12 under Continuing Management Guidance.

2.5.3 *Resource Uses*

2.5.3.1 Forestry and Woodland Products

Improving forest health is an objective in all forest and woodland management actions. Current management focuses on the acquisition of State and private lands in the northern part of the planning area for the purpose of harvesting blocks of commercial timber and pinyon-juniper

stands now under partial BLM jurisdiction. Piñon-juniper woodlands would continue to be managed primarily for woodland products except in selected special designation areas, where priorities such as wildlife habitat management or recreation may override interests in woodland product extraction. Due to the limited stands of ponderosa pine in the planning area, these stands would be managed for enhancement and protection rather than the maximization of forest products.

The Taos Field Office would continue to investigate opportunities for biomass utilization (pulp, chipping, stove pellet industries, charcoal, organics for alternative fuels production, etc.).

Permits would be offered for harvesting dead woody materials for fuelwood. Taos Field Office, however, may not issue permits during certain periods (e.g., during the late winter thaw when wet soils are vulnerable to erosion) or where important resources need to be protected from disturbance.

2.5.3.2 Land Tenure

Any lands designated for land ownership adjustment must be so identified through the Bureau's land use planning process. All lands identified for sale or exchange must meet the criteria established in sections 203 and 209 of FLPMA. Disposals through exchange would be considered on a case-by-case basis. All exchanges or disposal of public land would be subject to valid existing rights. Existing authorized permits, leases, rights-of-way, and licenses would be identified as valid existing rights. The Federal government would generally retain all mineral rights and reservations for ditches and canals. Rights-of-way and easements would be retained, if necessary, when implementing exchanges or other types of disposal.

Disposals

Areas identified for disposal under the no action alternative total approximately 60,000 acres and include all of the parcels in the East Side planning unit, except for the Sabinoso Wilderness and SMA. Roughly 84,000 acres were identified for disposal in the 1988 Taos RMP. Since 1988, approximately 12,000 acres of the identified lands have been disposed of through direct sale or exchange, while about 12,000 more acres were removed from disposal consideration due to the occurrence of special resource values.

The 20-acre parcel near NM 585 (T. 25 N., R. 13 E., sec. 28, lots 10, 11) would continue to be retained. The 200-acre parcel identified for disposal in the Garrapata Ridge area (T. 27 N., R. 12 E., sec. 20) would continue to be available for solid waste purposes.

The Cañones parcel (T. 23 N., R. 5 E., sections 17, 18, 19, 20, 21, 29, 30), in the Abiquiu area and the Archuleta Mesa parcel (T. 32 N., R. 1 W., sec. 7, 8, 17, 18, 19, 20) would continue to be considered for disposal.

The Rio Ojo Caliente bridge (T. 23 N., R. 8 E., sec. 13 lot 12, and sec. 24, lots 6 and 7) parcel would continue to be considered for disposal. The block of public lands south of 31 Mile Road (adjacent to Santa Clara Pueblo lands) would not be identified for disposal.

No changes would be made regarding parcels identified for disposal within the Galisteo Basin planning unit. BLM parcels would remain available for disposal on a case-by-case basis, unless resources of national, State, or regional significance are found on them, and the possible adverse effects of the adjustment action cannot be mitigated at reasonable cost. Examples of such

resources are habitat for threatened or endangered species, riparian areas, wetlands, and important cultural resources.

Disposals under R&PP lease/conveyance, as provided by section 212 of FLPMA, would be on a case-by-case basis throughout the planning area, except where specifically excluded.

Acquisitions

State and private lands identified for acquisition, totaling 34,351 acres, are listed in Tables 2-6 and 2-7. Acquisition of lands within or adjacent to special designation areas and those with significant cultural resources would remain high priority. Acquisitions would be considered on a case-by-case basis in other areas within the planning area.

Acquisitions through exchange that consolidate ownership, public use areas, wildlife habitat, watershed, land treatment areas, grazing administration, cultural values, and other resource management needs in ACECs, SRMAs, and WSAs would continue to be a high priority.

Legal public or administrative access over non-Federal lands to reach public lands lacking adequate access would be acquired from willing landowners using all methods available. Specific access easements that have been identified are Ku Pueblo SMA, La Cienega ACEC, San Lazaro SMA, Sabinoso SMA, and Taos Valley Overlook.

Table 2-6. State and private lands identified lands for acquisition, no action alternative

Management Area	Legal Description
STATE LANDS	
San Antonio SMA (9,040 acres)	T29N, R8E Sec 2. T29N, R9E Sec 36. T29N, R10E Sec 16, 22 (part), 32. T29N, R11E Sec 16. T30N, R8E Sec 36. T30N, R9E Sec 16, 32, 36. T30N, R11E Sec 32 (part). T31N, R8E Sec 2. T31N, R9E Sec 16. T32N, R8E Sec 36. T32N, R9E Sec 32
Orilla Verde Recreation Area (360 acres)	T24N, R11E Sec 2: NW, W½SW, NESW; Sec 32: W½NW
Lower Gorge ACEC (320 acres)	T23N, R10E Sec 16: N½
Wild Rivers Recreation Area (1,346 acres)	T29N, R12E Sec 10: NWSW, Lot 5; Sec 16; Sec 32.
Ojo Caliente ACEC (1,280 acres)	T23N, R8E Sec 2: All. T24N, R8E Sec 36: All
Copper Hill ACEC (2,880 acres)	T23N, R10E Sec 36; T23N, R11E Sec 2: N½; Sec 16 and 32. T24N, R11E Sec 36.
Rio Grande Wild and Scenic River (560 acres)	T30N, R12E Sec 7: E½SE; Sec 29: SWNW, W½W½SE; Sec. 32: SW, S½NW, W½W½SE, W½W½NE. T31N, R11E Sec 2: W½SE.
La Cienega ACEC (1,280acres)	T16N, R8E Sec 29 and 32.
PRIVATE LANDS	
San Antonio SMA (9,400 acres)	T29N, R8E Sec 1, 11, 12: All; T29N, R9E

Management Area	Legal Description
	Sec 5, 6, 7: All; Sec 8: W½, S½SW, WSE; Sec 12: W½S½SE; Sec 13: W½; Sec 22: All; Sec 23: (part). T29N, R10E Sec 17: S ½; Sec 18, 19, 21: All; Sec 22: SW; Sec 28: S½W½NE, NWSE; Sec 30: All; Sec 32: S½W½NE, NW.
Orilla Verde Recreation Area (260 acres)	T24N, R11E Sec 1, 2, 10-15, 22, 23, 29.
Wild Rivers Recreation Area SMA (960 acres)	T28N, R12E Sec 7: W½; T29N, R12E Sec 18: NWSW; Sec 19: S½; Sec 30: NE, NENW, SENW, NWNW.
Rio Chama SMA (1,302 acres)	T26N, R2E Sec 9: Lots 1-4; T27N, R2E Sec 27: W½E½, N½NW, SENW, SW; Sec 28: S½NW, SW, SE; Sec 33: W½; Sec 34: E½.
Ojo Caliente ACEC–Posi and Nute (200 acres)	T23N, R8E Sec 1 and 2: within the Ojo Caliente Grant; T24N, R8E Sec 23: within the Ojo Caliente Grant.
La Cienega ACEC (400 acres)	T16N., R8E Sec 30.
Copper Hill ACEC (1,302 acres)	T23N, R11E Sec 17: All; Sec 18 19, 20: that portion within Patent No. 33276; Sec 21: NW, SW, SE, N½NE; Sec 29: that portion within Patent Nos.1018121 and 30820005
Lower Gorge ACEC (2,982 acres)	T23N, R9E Sec 24: E½, SENW, S½SW, Tr. A; Sec 23: Tr. A, SE, NESW; Sec 34: SWSE, SESW; T23N, R10E Sec 1: Lots 5, 6, SWSE; Sec 11: Lots 1, 2, 10, S½NE; Sec 12: Lots 1, 2; Sec 14: All; Sec 15: SW, 4472 Tr. 1, SHC 1109, SHC 4098, SHC 489 (14927), SHC 489 (149278), SHC 488 Tr. 1, 2, SHC 488; Sec 16: Lots 1, 2, SHC 966 Tr. 6, SHC 2143, SHC 1536. T23N, R10E Sec 19: Lots 3, 4, 13, 30, 31, 32, 34, 38, SHC 3266, SHC 388, SHC 969, SHC 561 Tr. 1, 2, 3, SHC 559 Tr. 1, 3, SHC 556 Tr. 1, 2, SHC 560 Tr. 1, 2, 3, 4, SHC 792 Tr. 2, SHC 792 (182952), SHC 792 (181956), SHC 966, SHC 380 Tr. 3, SHC 386, SHC 389, SHC 382 Tr. 1, 2, 3, SHC 383, SHC 494 Tr. 1, SHC 968 Tr. 1, 2. T23N, R10E

Management Area	Legal Description
	Sec 20: Lots 1, 3, 4, 6, 7, SHC 1111 Tr. 3, SHC 1120, SHC 4472, SHC 1536, SHC 801 Tr. 1, 2, 3, SHC 1000 (181959), SHC 798 Bolton Tr., SHC 798 Romero Tr., SHC 1121 Borrego Tr., SHC 1121 Archuleta Tr., SHC 561 Tr. 4, SHC 1121 Roybal Tr., SHC 560 Tr. 4, SHC 968 Tr. 2, SHC 556 Tr. 3, SHC 559 Tr. 2. T23N, R10E Sec 21: SHC 1536, SHC 1111 Tr. 3, SHC 1120 (1128028), SHC 966 Tr. 1, 2, SHC 349 (446), SHC 355 (457), SHC 402 (444), SHC 403 (443), SHC 488 (447), SHC 487 Tr. 1, SHC 4, SHC 490 Romero Tr., (450, 776673), SHC 487 Romero Tr. (448), SHC 487 Ortega Tr., SHC 2143 (181957). T23N, R10E Sec 22: SHC 4098 (449), SHC 489 Sanchez Tr., SHC 489 Romero Tr., SHC 488 Tr. 2, SHC 488 (181954), SHC 2143, Lot 1; T23N, R11E Sec 6: Tr. 4; T24N, R11E Sec 32: SHC 5394 (477467),SHC 5298 Tr. 3, SHC 5394 (477458), SHC 5292 Tr. 2, SHC 5287, SHC 5345 Tr. 1, 2, 3, SHC 5253 Tr. 1, 2, SHC 5296, SHC 5299 Tr. 1, 2, SHC 5347 Tr. 4, 6, SHC 5286 Tr. 2, SHC 5288 Tr. 2, SHC 5346, SHC349 Tr. 3, SHC 5291 T25N, R13E Sec 28: lots 10, 11, Tr. 2, 3, SHC 5348 Tr. 2, SHC 5285 Tr. 3, 4, SHC 5297, SHC 5293 Tr. 1, 2, 3, 4.
Pueblo Quemado SMA (159 acres)	T21N, R10E Sec 33: (unsurveyed portion adjacent to pueblo)
Adjacent to Rio Grande Wild and Scenic River (320 acres)	T25N, R11E Sec 23: N½NE, NWSE, SWNE; Sec 26: SE. T27N, R12E Sec 30, 31: protracted (portion within Arroyo Hondo Grant from north rim to south rim and 100’ setbacks)

Table 2-7. Lands Identified for disposal, no action alternative

Legal Description	Acres
T15N, R11E Sec 32: N2NW	 80.00
T17N, R9E Sec 21: lot 1 Sec 22: NW Sec. 26: lot 13,14,19,20	 23.30 160.00 10.00
T17N, R9E Sec 29: lots 54 and 55; Sec. 35: lot 24; lot 26; lot 27.	 6.06 2.88 31.06 24.67
T20N, R7E Sec 1: N½	 320.00
T20N, R8E Sec 6: lot 4 lot 5; lot 6; lot 7.	 34.77 22.50 22.12 33.39
T20N, R9E Sec 7: lots 1, 2, 3, 6,E½SW, SE; Sec 8: lots 7, 23, 24, S½SW; Sec 9: lot 1, 4, NW, E½NESE, S½SE.	700.00
T23N, R5E Sec 17: lots 1-3, E½, NESW, S½SW; Sec 18: lot 1; Sec 19: lots 1-5, E½NE, SE; Sec 20: all; Sec 21: lots 1-4, W½; Sec 29: W½NE, NW; Sec 30: lots 1 and 2.	 569.48 34.16 369.83 640 485.7 240 59.45
T23N, R8E Sec 13: lot 12; Sec 24: lots 6 and 7	 45.94 45.06
T26N, R10E Sec 13: E½; Sec 24: E½.	 320 320
T26N, R11E Sec 8: all; Sec 29: all; Sec 33: N½.	 640 640 320
T27N, R12E Sec 20: within N½.	200
T32N, R1W Sec 7: lots 6-13; Sec 8: lot 11; Sec 9: lots 7, 8; Sec 17: N½NE, W½, SESE; Sec 18: lots 3-12, E½SW, SE; Sec 19: lots 1-4, E½W½, E½; Sec 20: W½, NWSE.	 230.61 14.16 20.95 440 616.82 630.48 360
All parcels within the East Side planning unit, except for the Sabinoso Wilderness/SMA	

2.5.3.3 Land Use Authorizations, Utility Corridors, Communication Sites

Rights-of-way would be considered on a case-by-case basis in the planning area, except where specifically excluded, using BMPs to minimize impacts. The BLM would continue to grant rights-of-way across public lands to provide access and utility services to private or State lands when no alternative is available or they are completely surrounded by public land. These new rights-of-way would be considered, except where specifically excluded, with restrictions to protect the scenic quality of the area. Only one access point to such parcels would be authorized across public lands. (For additional information refer to Appendix I.)

Future rights-of-way would continue to be excluded in the following areas, totaling 47,830 acres:

- Wild Rivers Recreation Area (unless needed for administering recreation sites)
- Rio Chama Special Management Area/Wilderness Study Area/Wild and Scenic River
- Copper Hill ACEC (new rights-of-way would only be allowed in the Central Protection Zone, not in Agua Caliente or Rio Embudo Protection Zones)
- Lower Gorge ACEC (new rights-of-way would be excluded unless needed to administer recreation sites or to provide access or utility service to private or State lands where it is otherwise not possible; utilities would be underground only and would be co-located with roads)
- Santa Cruz Lake Recreation Area
- Orilla Verde Recreation Area (except for underground utilities and New Mexico Department of Transportation road maintenance activities)
- Rio Grande Wild and Scenic River (excluded from right-of-way crossings except in the right-of-way window near the Rio Grande Gorge Bridge; special stipulations and restricted placement of structures would be required to minimize visual impacts of transmission lines)
- Sabinoso Wilderness

The remaining special designation areas contain management prescriptions that include special stipulations for informed placement of right-of-way corridors before an application can be granted.

Within the Rio Grande corridor, an amendment to an existing right-of-way (e.g., a request for expansion, a different use, or to provide structures different in style) would only be approved if the change is consistent with the objectives of the 1988 RMP. Rights-of-way for acequias (irrigation ditches) are grandfathered through the legislation for wild and scenic rivers, so they would also remain in effect. Construction and rehabilitation of acequias would have to be done using historical materials and methods to protect wild and scenic river values.

Map 2-5 presents all rights-of-way corridors and exclusion areas.

2.5.3.4 Livestock Grazing

Livestock grazing would continue on BLM-administered lands as directed by the existing management plan, except on 22,927 acres where grazing is currently unavailable. Public land health standards would be applied to all public lands, while livestock grazing management guidelines would also be applied to all allotments with authorized grazing use. Animal unit months (AUMs) would be adjusted where necessary to meet public land health standards or other resource objectives as monitoring information is gathered and analyzed.

Under the no action alternative, the Rio Grande Wild and Scenic River corridor, which includes 17,420 acres within the Taos Plateau and Lower Gorge/Copper Hill planning units, would be

unavailable to livestock grazing. Within the Chama, El Palacio, and Ojo Caliente planning units, 415 acres associated with the Pueblos ACEC would be unavailable. Select riparian areas throughout the planning area, totaling approximately 1,755 acres, would be unavailable.

Planning area-specific decisions on the availability of livestock grazing are presented below.

West Santa Fe. Approximately 120 acres around the La Cienega Mesa pueblo ruins, including a portion of the El Camino Real de Tierra Adentro, would be unavailable.

Lower Gorge/Copper Hill. Allotment 521 would become unavailable after the current permit is relinquished and no permit transfer would be allowed.

Riparian areas within the Lower Gorge ACEC, totaling approximately 3,661 acres, would not be available. (This acreage largely coincides with that of the Rio Grande Wild and Scenic River corridor.)

Chama. Approximately 1,025 acres of acquired lands within the Chama Canyons ACEC would remain unavailable to livestock grazing. Specifically, these lands are described as T. 27 N., R. 2 E., Sec. 27: SW¼, Sec. 28: SE¼; T. 27 N., R. 2 E., Sec. 28: S½ NW¼; T. 27 N., R. 2 E., Sec. 33: W½; and T. 27 N., R. 2 E., Sec. 34: W½. Also within the Chama Canyons ACEC, 300 acres along the Rio Cebolla, 74 acres within Lobo Canyon, and 338 acres in the Navajo Peak area along the Rio Chama would be unavailable.

In addition, 725 acres within the Rio Chama Wild and Scenic River corridor would be unavailable. Adjacent areas within the designated river corridor and Chama WSA would be available in accordance with wild and scenic river designation and WSA restrictions.

Taos Plateau. There would be no increase in permitted use in the San Antonio SMA. Approximately 120 acres along the Rio San Antonio would remain unavailable. The Ute Mountain zone of the Taos Plateau ACEC would remain unallotted and, therefore, unavailable by default.

Ojo Caliente. Pueblo sites, totaling 230 acres, and the 325-acre Ojo Caliente Demonstration Area would be unavailable.

Galisteo. Eighty acres at the San Lazaro Pueblo site within allotment 851 would be unavailable.

2.5.3.5 Mineral Resources

Leasable Minerals

Management guidance, implementation procedures, and special management designations related to leasing of mineral resources would remain as they currently exist under the 1988 RMP, 1991 RMP Amendment for oil and gas leasing, and other plan amendments. Oil and gas lease stipulations from the 1988 RMP and all subsequent amendments would also remain as they are.

Table 2-8. Leasing decisions for no action alternative (oil and gas)

Decision	Acres
Closed to leasing	65,710
Nondiscretionary closure	35,590
Open with standard terms and conditions	1,277,770

Open to leasing with constraints (limited)	138,780

In accordance with the 1988 RMP and subsequent amendments, approximately 1,277,770 acres would be open to mineral leasing with standard terms and conditions, and approximately 138,780 acres would be open to leasing with stipulations in addition to the standard terms and conditions (Table 2-8). The Federal mineral estate underlying surface area managed or owned by private, State, or other Federal agencies would be managed in close coordination with the landowners or other agencies (see Map 2-7.)

In areas identified for discretionary closure in the 1988 RMP and subsequent amendments, no new leases would be issued. The development of existing leases would continue according to the terms of the lease. The BLM would continue to implement the portions of the lease agreement that require lessees to conduct operations in a manner that minimizes adverse impacts to other resources and other land uses and users.

The Taos Field Office would continue to manage special designation areas according to timing limitation (TL), controlled surface use (CSU), or no surface occupancy (NSO) constraints placed on leases, as presented in Table 2-9 (see Appendix B for complete lease stipulations). In addition, some areas are closed entirely or partially and have leasing stipulations applied to them as described in the 1988 RMP and subsequent amendments.

The San Antonio Winter Range is open to leasing with a TL constraint which would close it to operations for a specific period of time from (December 1 through June 15), each year, except operations considered routine maintenance would be exempt. The TL is to protect wintering deer and elk habitat.

The following seven areas listed below by planning units are open to leasing and have CSU stipulations placed on lands leased within these areas: Riparian/aquatic SMAs also have CSU stipulations and are scattered through each of the planning units.

Taos Plateau planning unit:

- San Antonio SMA

Lower Gorge/Copper Hill planning unit:

- Black Mesa portion of the Lower Gorge ACEC
- Central Protection Zone of the Copper Hill ACEC

El Palacio planning unit

- Fun Valley SMA
- Sombrillo ACEC

Ojo Caliente planning unit:

- Ojo Caliente ACEC

Eastside planning unit:

- Sabinoso SMA

The following ten areas listed below are open to leasing and have a NSO stipulation placed on lands leased within these areas:

Taos Plateau planning unit:

San Antonio Gorge ACEC
Wild Rivers Rec. Area (portion)

Santa Fe planning unit:
La Cienega ACEC

El Palacio planning unit:
Ku Pueblo SMA
Ojo Del Zorro Pueblo SMA
Pueblo Quemado SMA
Pueblo Sarco SMA
Sajiu Pueblo SMA
San Lazaro SMA
Santa Cruz Lake Recreation Area SMA (Includes La Caja Pueblo ACEC)

Approximately 65,710 acres are closed to fluid mineral leasing under the 1988 RMP and supplemental decisions. The 15 areas closed to mineral leasing are as follows:

Taos Plateau planning unit:
Rio Grande Wild and Scenic River
San Antonio Wilderness Study Area
Winter Range ACEC (520 acre portion)
Ute Mountain Zone (acquisition area 15,000 acres)
Wild Rivers Recreation Area (5000 acre portion)

Lower Gorge/Copper Hill planning unit:
Agua Caliente Protection Zone of the Copper Hill ACEC
Lower Embudo Cultural Protection Zone
Lower Gorge ACEC
Orilla Verde Recreation Area
Rio Embudo Protection Zone of the Copper Hill ACEC
Rio Grande Wild and Scenic River

Chama planning unit:
Rio Chama Special Management Area
Rio Chama Wilderness Study Area
Rio Chama Wild and Scenic River

Galisteo Planning unit:
Galisteo Basin Archeological Resource Protection Act lands

Eastside planning unit:
Sabinoso Wilderness

Table 2-9. No action mineral constraints and withdrawals/closures[1]

Special Management Areas [BLM Surface Acres[2]]	Federal Mineral Withdrawals and Closures		
	Locatable Mineral Acres[3]	Mineral Materials Acres	Leasable Mineral Acres Geothermal, Oil and Gas[4]
Taos Plateau planning unit [255,150] — 353,800			
Rio Grande Wild and Scenic River [13,670]	wd–16,530	closed–16,530	closed–16,530
San Antonio Special Management Area [57,750]	open–74,170; wd–790	open–66,410; closed–8,550	CSU–62,320; closed–8,280; NSO–270; TL–6,150
San Antonio Wilderness Study Area [7,760]	wd–0	closed–7,760	closed–7,760
San Antonio Gorge ACEC [270]	wd–270	closed–270	NSO–270
Winter Range ACEC [6,660]	wd–520	closed–520	closed–520; TL–6,150
Ute Mountain Acquisition [15,000]	N/A–15,000	closed–15,000	closed–15,000
Wild Rivers Rec. Area [18,540] (3,130 acres of WSR overlap)	wd–16,320	closed–16,320	closed–5,000; NSO–11,600
Remainder of planning unit [153,380]	open–234,120	open–234,120	open–241,910
Lower Gorge/Copper Hill planning unit [42,100] — 43,770			
Lower Gorge ACEC [16,580] (WSR overlap of 1,510 acres)	wd–16,870	closed–16,862; open–8	closed–16,870
Orilla Verde Red Area [8,400] (WSR overlap of 2,150 acres)	wd–8,000	closed–8,000	closed–8,000
Copper Hill ACEC [17,200]	wd–18,900	closed–18,870; open–30	CSU–10,570; closed–6,530
Rio Embudo Protection Zone [2,640]	wd–2,610	closed–2,610	closed–2,610
Agua Caliente Protection Zone [3,420]	wd–3,420	closed–3,420	closed–3,420
Lower Embudo Cultural Protection Zone [500]	wd–500	closed–500	closed–500
Central Protection Zone [10,640]	wd–12,370	closed–12,340; open–30	CSU–10,570
Chama planning unit [40,850] — 86,380			
Rio Chama Special Management Area [6,140]	wd–5,900	closed–5,900	closed–5,900
Rio Chama WSR [2,680] (all overlaps w/SMA)	wd–2,280	closed–2,280	closed–2,280
Rio Chama WSA [11,150] (4,860 overlaps w/SMA)	wd–5,080	closed–6,070	closed–6,070
Remainder of planning unit [28,430]	open–80,480	open–74,410	open–74,410
Ojo Caliente planning unit [76,850] — 127,820			
Black Mesa [1,430]	open–1,430	open–1,430	CSU–1,430
Ojo Caliente ACEC [13,370]	wd–290; open–13,080	closed–290; open–13,080	CSU–13,370
Remainder of planning unit [62,050]	open–113,020	open–113,020	open–113,020
El Palacio planning unit [77,700] — 83,760			
Fun Valley SMA [17,850]	open–18,450; closed–0	open–18,450; closed–0	CSU–17,720
Sahiu Pueblo Special Management Area [5]	open–0	open–0	open–0
Ku Pueblo Special Management Area [70]	wd–70	closed–70	NSO–70
Ojo del Zorro Pueblo Special Management Area [25]	wd–30	closed–30	NSO–30
Pueblo Quemado Special Management Area [120]	wd–120	closed–120	NSO–120
Pueblo Sarco Special Management Area [10]	wd–10	closed–10	NSO–10
Sombrillo ACEC [8,600]	open–8,570	open–8,570	CSU–8,600
Santa Cruz Lake Recreation Area [590]	wd–590	closed–590	NSO–590
La Caja Pueblo Special Management Area [85]	wd–85	closed–85	NSO–85
Remainder of planning unit [50,430]	open–55,925	open–55,925	open–56,625
West Santa Fe planning unit [36,050] — 69,450			

Special Management Areas [BLM Surface Acres[2]]	Federal Mineral Withdrawals and Closures		
	Locatable Mineral Acres[3]	Mineral Materials Acres	Leasable Mineral Acres Geothermal, Oil and Gas[4]
La Cienega ACEC [3,730]	wd–3,730	closed–3,730	NSO–3,730
Remainder of planning unit [32,320]	open–65,720	open–65,720	open–65,720
Galisteo Basin planning unit [14,100] — 133,720			
Galisteo Basin Arch. Res. Prot. Act Sites [450]	wd–750	closed–750	closed–750
San Lazaro Special Management Area [80]	wd–80	closed–80	closed–80
Remainder of planning unit [13,650]	open–132,970	open–132,970	open–132,970
East Side [52,300] — 619,150			
Sabinoso SMA [19,680]	open–3,840	open–3,840	CSU–3,320
Sabinoso Wilderness [16,030]	closed–16,120	closed–16,120	closed–16,120
Remainder of planning unit [32,730]	open–599,330	open–599,330	open–599,850
Common to all planning units			
Riparian/Aquatic Special Mgt. Area [2,250][5]	open–2,130	closed–2,410	CSU–2,010

[1] Acres in ( ) are a subset of the total.
[2] The Taos Plateau, Lower Gorge/Copper Hill, and Chama planning units have overlapping designations, and therefore acreage totals are not additive.
[3] wd = withdrawn from mineral entry; N/A is Not Applicable, and for this table refer to acquired lands, for which locatable minerals are considered leasable under the mining law.
[4] NSO-open to mineral leasing with a no surface occupancy stipulation; CSU-open to mineral leasing with a controlled surface use stipulation; TL-open to mineral leasing with timing limitation stipulation controlling access to a specific time of year (see Appendix B for more detail). Locatable, mineral material and leasable acreages are mineral acres only. BLM surface is added to NSO, CSU and TL stipulations when Federal surface/privates minerals occur and is subtracted when private surface/Federal minerals occur. Closed to leasing acres are only mineral acres.
[5] Riparian/aquatic acreages are approximate, and would increase as new riparian lands are mapped. These acreages are not additive, as they are all distributed within the individual planning units.

Locatable Minerals

Under this alternative, the Taos Field Office would continue to manage locatable minerals and other resource responsibilities as it does currently under the 1988 RMP and subsequent amendments. Areas presently withdrawn from locatable mineral entry are as follows:

Taos Plateau planning unit:

- San Antonio Gorge ACEC
- Rio Grande and Red Wild and Scenic Rivers
- Wild Rivers Recreation Area

Lower Gorge/Copper Hill planning unit:

- Copper Hill ACEC
- Lower Gorge ACEC
- Orilla Verde Recreation Area
- Rio Grande Wild and Scenic River

Chama planning unit:

- Rio Chama SMA
- Rio Chama Wild and Scenic River

Ojo Caliente Planning unit:

- Ojo Caliente Pueblos

El Palacio planning unit:

- Pueblos SMAs

Santa Cruz Lake Recreation Area

San Lazaro SMA

Galisteo planning unit:

Galisteo Basin Cultural Sites

Santa Fe planning unit:

La Cienega ACEC

Eastside planning unit:

Sabinoso Wilderness

These withdrawals involve approximately 100,800 acres or about 6 percent of the Federal mineral estate administered by the Taos Field Office. All WSAs are open to mineral entry subject to wilderness nonimpairment standards. Wild and Scenic River withdrawals include the river bed and banks and an area within one-quarter mile of the banks. The Copper Hill ACEC includes the Picuris Mining District, which has the potential for the development of copper. The withdrawn pueblo sites within the Ojo Caliente ACEC have a low potential for the occurrence of placer gold. All the other withdrawn areas have no potential or an unknown potential for locatable mineral occurrence.

The northern half of the El Palacio planning unit includes the Sebastian Martin Grant [T 22 N, R 9 E; T 22 N, R10 E (all except Sec. 1-6); and T 23 N, R 10 E]. The Grant consists of land and minerals acquired by the Federal Government under the Bankhead Jones Act. Minerals that are locatable on public land are leasable on acquired land under 43 CFR 3500. This leasing is discretionary and operations are subject to lease stipulations.

Salable Minerals

Under this alternative, the field office would continue to manage saleable minerals as it currently does under the 1988 RMP and subsequent amendments. Approximately 133,100 acres are closed to mineral material sales and free use. The areas closed to mineral material disposal under the 1988 RMP and supplemental decisions are as follows:

Taos Plateau planning unit:

San Antonio WSA

San Antonio Gorge ACEC

Los Cerritos de la Cruz area (within Winter Range ACEC)

Ute Mountain

Rio Grande and Red Wild and Scenic River Corridor

Wild Rivers Recreation Area

Lower Gorge/Copper Hill planning unit:

Orilla Verde Recreation Area

Copper Hill ACEC

Rio Grande Wild and Scenic River Corridor

Lower Gorge ACEC

Chama planning unit:

Rio Chama SMA

Rio Chama Wild and Scenic River

Rio Chama WSA

Ojo Caliente planning unit:

The pueblos located in Ojo Caliente ACEC

Ku Pueblo SMA

El Palacio planning unit:

Santa Cruz Lake Recreation Area

Ojo Del Zorro Pueblo SMA

Pueblo Quemado SMA

La Caja Pueblo SMA

Pueblo Sarco SMA

Sahiu Pueblo SMA

Santa Fe planning unit:

La Cienega ACEC

Galisteo planning unit:

Sites identified in the Galisteo Basin Archeological Sites Protection Act (San Lazaro SMA).

Eastside planning unit:

Sabinoso Wilderness

2.5.3.6 Recreation

Special recreation management areas (SRMAs) would include the existing Wild Rivers, Santa Cruz Lake, and Orilla Verde Recreation Areas and the Rio Chama and Rio Grande corridors (see Map 2-9). The remainder of the planning area would be managed as extensive recreation management areas (ERMAs). This would include areas such as the Taos Plateau, Ojo Caliente, Copper Hill, La Cienega, and Fun Valley. The recreation opportunity spectrum would be used as a basic management tool. Recreational opportunities in portions of Ute Mountain acquired in 2003 and 2005 would continue to be managed according to the 2005 Ute Mountain Interim Management Plan.

The Rio Grande corridor, including Orilla Verde Recreation Area and Wild Rivers Recreation Area, would be managed according to the 2000 Rio Grande Corridor Final Plan. Motorized boating or hovercraft use is prohibited. Outfitted and private boaters are managed under guidelines for each river segment. Commercial boating is allocated by number of passengers and launch times and locations. Vehicles are limited to designated roads and trails.

The Chama Wild and Scenic River would be managed according to the 1990 Rio Chama Plan. The canyon setting would be managed as semi-primitive, non-motorized and the rim would be managed for a semi primitive motorized setting.

Santa Cruz Lake Recreation Area would be managed for both developed and undeveloped recreation. An interpretive program would be created in conjunction with La Caja Pueblo Special Management Area.

Primary use of Fun Valley Special Management Area would be motorized recreation. OHV users including organized race events would be directed to this area. An OHV implementation plan would be developed for the area, and trails that impact paleontological or cultural resources would be closed. Special recreation permits would continue to be considered on a case-by-case basis.

2.5.3.7 Renewable Energy

Unless prohibited or restricted as described in section 2.5.3.3, Land Use Authorizations, Utility Corridors, Communication Sites, wind and solar energy rights-of-way would be considered on a case-by-case basis within all planning units using BMPs to minimize impacts (see Map 2-13). Table 2-10 displays differences by alternative in availability for solar and wind right-of-ways.

Table 2-10. Availability for solar and wind rights-of-way

	No Action and Alternative C*		Alternatives A and B				
Planning unit	Exclude	Open	Exclude	Exclude Wind, Avoid Solar	Exclude Wind, Open Solar	Avoid Wind and Solar	Open
Chama	6,143	34,705	20,119	0	0	2,370	18,660
East Side	16,030	36,258	19,859	0	0	1,496	30,920
El Palacio	597	77,123	9,646	35,053	0	32,793	0
Galisteo	0	14,091	4,760	0	230	4,854	4,489
Lower Gorge/Copper Hill	42,076	0	42,082	0	0	0	0
Ojo Caliente	0	76,831	65,651	11,172	0	0	0
Taos Plateau	55,505	199,633	241,161	3,031	10,924	0	0
West Santa Fe	0	36,067	10,082	23,726	2,260	0	0
Total	142,439	474,708	413,360	72,982	13,414	41,513	54,077

* Acreages do not take into account approximately 132 acres of riparian areas excluded under Alternative C

2.5.3.8 Transportation and Access

Area Designations

Under the current management, 21,180 acres are closed, 64,605 acres are open, 316,525 acres are limited to designated roads, and 192,790 acres are limited to existing roads. Transportation plans previously developed for the Taos Plateau/Upper Rio Grande and Lower Rio Grande/Copper Hill Transportation Areas and several ACECs would continue to be implemented. Plans for the other transportation areas would be completed within a 5-year period of completion of the RMP.

Parking and Camping

In all areas, parking and camping are allowed within 300 feet of any existing or designated road, providing the user is 300 yards from any spring, manmade water hole, water well, or watering tank used by wildlife or domestic stock. In the Rio Grande corridor, parking is limited to within 25 feet of all designated roads, and camping is not allowed within 300 feet of trailheads, except in developed campsites.

Map Sets 1

A set of maps for each transportation area discussed below was developed to reflect the no action alternative, and management direction for each area is reflected in the text and labeled on the map with circled numbers, ① through ⑦.

Transportation Area Guidance

1) Taos Plateau/Upper Rio Grande Transportation Area

Closed – 0 acres

Open – 0 acres

Limited to designated roads – 247,130 acres; Ute Mountain's interim designation of limited to designated roads would be continued – ① 52,920 acres

② No change would be made to roads already designated in the upper Rio Grande corridor. The BLM would continue to identify nonmotorized routes to complete a trail system along the rim of the Rio Grande Gorge. ④ In the San Antonio SMA, 30,000 acres are additionally limited to permitted users only, and 20,000 acres are open seasonally from April 1 to November 30 (for 52 miles of the 302 road miles that are open for use).

⑤ The North Unit Transportation Plan (1994) would remain in effect.

Limited to existing roads –8,020 acres; ③ This area (the San Antonio/Pot Mountain Habitat Management Area) was inventoried in 1992–1993, and decisions made to close approximately 160 miles of roads to protect wildlife habitat, and leave open 308 miles. In the next 5 years, the BLM would re-inventory the area to determine what additional roads should be closed, or which could be reopened while still meeting goals for habitat management and providing access for hunting and livestock management.

2) Lower Rio Grande/Copper Hill Transportation Area

Closed – 2,470 acres

Open – 0 acres

Limited to designated routes – 31,420 acres; The Rio Grande Corridor Plan (2000) designated routes in this travel management area for Orilla Verde Recreation Area, and the Lower Gorge and Copper Hill ACEC to provide access to private and State lands, and to support management of wildlife, livestock grazing and recreation. The continued emphasis for access in this zone would be in support of nonmotorized recreation, particularly the Taos Valley Overlook and the public lands east of NM 68, between Pilar and Dixon.

3) Chama Transportation Area

Closed – 2,680 acres; ①the wild and scenic river/special management area is closed to vehicles.

Open – 0 acres

Limited to designated routes – 0 acres

Limited to existing routes – 38,170 acres; ② this designation would apply to the remainder of the transportation area. The road network supports ranching, access to trailheads leading to the river, and hunting and other recreational activities. The WSA (the part not in the closed river corridor) was inventoried in the 1970s for human intrusions. Only those 'ways' identified in that inventory are available for vehicle use.

4) Ojo Caliente Transportation Area

Closed – 0 acres

Open – 0 acres

Limited to designated routes – 13,360 acres; ① The Ojo Caliente ACEC would be limited to designated roads to provide access for traditional uses such as wood gathering, medicinal plant collection, and sand/gravel/rock collection from designated sites for personal use, and for management of livestock or other administrative uses.

Limited to existing routes – 63,490 acres; ② an inventory would be completed in the next 5 years, with recommendations to close or reroute any roads that are causing excessive damage to resources. The Ku Pueblo Special Management Area (65 acres) is further limited to authorized vehicle use.

5) El Palacio Transportation Area

Closed – 0 acres

Open – 17,850 acres; ① The Fun Valley SMA would remain open to recreational vehicle use, but action would be taken whenever a cultural or paleontological site is found that is being impacted by this use. Some routes would be identified for single-track (motorcycle) use only.

Limited to designated roads – 8,200 acres ② The Copper Hill ACEC extends into the El Palacio transportation planning area. Designations were made in the Rio Grande Corridor Plan (2000).

Limited to existing roads – 38,940 acres; ③ Roads in the remainder of this transportation area would provide access to some private inholdings and State lands, range improvements, flood control structures, and various sites used for recreation, such as target shooting or nonmotorized trailheads. The area contains fossil outcroppings, cultural sites and easily-eroded hillsides which would be avoided by closing or rerouting roads and trails as necessary. Sahui Pueblo (2 acres) is further limited to authorized users only.

6) Sombrillo Transportation Area

Closed – 0 acres

Open – 130 acres; ① Arroyo Seco, a small area near the Wildlife Center would remain open.

Limited to designated roads – 9,190 acres; ② The Sombrillo ACEC (8,600 acres) would remain limited to designated roads. One road was designated that passes through the area; vehicle use elsewhere is approved by permit only for grazing or for research. Vehicle use in Santa Cruz Lake Recreation Area (590 acres) would also remain limited to designated roads. La Caja Pueblo SMA (85 acres) is further limited to authorized vehicle use only.

Limited to existing roads – 11,600 acres; ③ this designation would apply to the remaining acreage in the transportation area. The BLM would complete an inventory in this area and may close or further limit use on roads that are causing damage to high-value resources. Pueblo Sarco and Pueblo Quemado SMAs (130 acres total) are further limited to authorized vehicle use only.

7) West Santa Fe Transportation Area

Closed – 0 acres

Open – 0 acres

Limited to designated routes – 3,730 acres; ① this area designation covers La Cienega ACEC.

Limited to existing routes – 32,320 acres; ② the remainder of the planning area is limited to existing routes. An inventory would be completed within 5 years of the completion of the RMP that may limit or close selected routes whose use by vehicles is impacting resources.

8) Galisteo Basin Transportation Area

Closed – 0 acres

Open – 14,100 acres; an inventory would be conducted in the next 5 years, and recommendations made to close, limit use or reroute some roads if cultural or other resources are at risk from vehicle use.

Limited to designated roads – 0 acres

Limited to existing roads – 0 acres

9) East Side Transportation Area

Closed – 16, 030 acres; ③ Sabinoso Wilderness would continue to be closed.

Open – 32, 525 acres; ① Most of the public lands in this transportation area are open to vehicle use. An inventory would be completed in the next 5 years to identify all routes on public land, and would recommend some closures or reroutes to protect resources.

Limited to designated roads – 3,745 acres; ② Vehicle use in the Sabinoso SMA is limited to designated roads. A transportation plan would be prepared in the next 5 years to inventory and designate roads as open or closed. Priority would be given to identifying roads needed for access to private or State lands.

A comparison of OHV designations by alternative is presented in Table 2-11.

Table 2-11. OHV designations per RMP alternatives

Transportation Area	Designation	No Action (Acres)	Alternative A (Acres)	Alternative B (Acres)	Alternative C (Acres)
Taos Plateau/ Upper Rio Grande [Total: 255,150 ac]	Closed	0	23,990	23,990	23,990
	Open	0	0	0	0
	Limited to designated	247,130	231,160	231,160	231,160
	Limited to existing	8,020	0	0	0
Lower Rio Grande / Copper Hill [Total: 33,890 ac]	Closed	2,470	2,470	2,470	2,470
	Open	0	0	0	0
	Limited to designated	31,420	31,420	31,420	31,420
	Limited to existing	0	0	0	0
Chama [Total: 40,850 ac]	Closed	2,680	10,360	10,360	10,360
	Open	0	0	0	0
	Limited to designated	0	30,490	30,490	30,490
	Limited to existing	38,170	0	0	0
Ojo Caliente [Total: 76,850 ac]	Closed	0	15,590	15,590	4,705
	Open	0	0	0	0
	Limited to designated	13,360	61,260	61,260	72,145
	Limited to existing	63,490	0	0	0
El Palacio [Total: 64,990 ac]	Closed	0	0	0	0
	Open	17,850	0	0	17,850
	Limited to designated	8,200	64,990	64,990	47,140
	Limited to existing	38,940	0	0	0
Sombrillo [Total: 20,920 ac]	Closed	0	1,700	1,700	1,700
	Open	130	0	0	130
	Limited to designated	9,190	19,220	19,220	19,090
	Limited to existing	11,600	0	0	0
West Santa Fe [Total: 36,050 ac]	Closed	0	3,015	3,015	2,540
	Open	0	0	0	0
	Limited to designated	3,730	33,035	33,035	33,510
	Limited to existing	32,320	0	0	0
Galisteo Basin [Total: 14,100 ac]	Closed	0	2,270	2,270	2,270
	Open	14,100	0	0	2,660
	Limited to designated	0	11,830	11,830	9,170
	Limited to existing	0	0	0	0
East Side [Total: 52,300 ac]	Closed	16,030	16,030	16,030	16,030
	Open	32,525	0	0	32,525
	Limited to designated	3,745	36,270	36,270	3,745
[Totals: 595,100 ac]	Closed	21,180	75,425	75,425	64,065
	Open	64,605	0	0	53,165
	Limited to designated	316,525	519,675	519,675	477,870
	Limited to existing	192,790	0	0	0
		595,100	595,100	595,100	595,100

2.5.3.9 Withdrawals

The following areas were recommended for withdrawal in the 1988 RMP and would be brought forward under this alternative. The first acreage shown in parenthesis is the acreage identified for withdrawal from locatable mineral entry, totaling 178,312 acres. The second acreage figure represents the actual withdrawals that have been processed to date, containing a total of 57,386 acres.

Orilla Verde Recreation Area (8,003/5,911)

Lower Gorge ACEC (21,264/4,820)

San Antonio SMA (74,958/0)

- San Antonio WSA
- San Antonio Gorge ACEC
- Winter Range ACEC

Wild Rivers Recreation Area (10,617/9,952)

Rio Chama SMA (includes WSR) (5,901/9,581)

- Rio Chama Wild and Scenic River
- Rio Chama WSA

Rio Grande Wild and Scenic River (16,528/17,642)

Ojo Caliente ACEC - pueblos (291/291)

Copper Hill ACEC

- Embudo Canyon Protection Zone (2,611/1,713)
- Agua Caliente Protection Zone (3,425/878)
- Lower Embudo Cultural Protection Zone (499/0)
- Central Protection Zone (12,373/4,386)

Sahiu Pueblo SMA (n/a)

Ku Pueblo SMA (71/0)

Ojo del Zorro Pueblo SMA (20/0)

Pueblo Quemado SMA (132/0)

Santa Cruz Lake Recreation Area/La Caja Pueblo SMA (590/0)

Pueblo Sarco SMA (10/0)

La Cienega ACEC (3,686/0)

San Lazaro SMA (n/a)

Riparian/Aquatic SMA (n/a)

BLM Office Lot (n/a)

Galisteo Basin Archaeological Prot. Act Sites (1,303/1,303)

Black Mesa (n/a)

Sabinoso Wilderness (16,030/16,030)

Sabinoso SMA (n/a)

Sombrillo ACEC (n/a)

Withdrawals no longer needed, in whole or in part, for the purpose for which they were withdrawn, would be revoked or modified. Upon revocation or modification of a withdrawal, all or part of the withdrawn land could be restored to multiple use management.

2.5.4 *Special Designations*

Under this alternative, the BLM would manage a total of 264,850 acres of specially designated areas and 39 miles of congressionally designated national historic trails. Thirteen areas would continue to be managed as SMAs (131,350 acres) and eight as ACECs (66,350 acres). Wild and scenic rivers (31,970 acres) would continue under existing guidance, but the segments identified in inventories completed early in 2008 would be given additional protection (see Appendix A). The recently designated Sabinoso Wilderness (16,030 acres) and two WSAs (18,910 acres) would continue to be managed to protect their wilderness values under their respective authorities and guidance.

2.5.4.1 Areas of Critical Environmental Concern (66,590 acres)

Eight ACECS—Black Mesa, La Cienega, Copper Hill, Lower Gorge, Ojo Caliente, San Antonio Gorge, Sombrillo, and Winter Range would continue to be managed under prescriptions established in the 1988 RMP, as amended (see Appendix A).

2.5.4.2 Byways

See section 2.4.3.2 (Continuing Management Guidance subheading).

2.5.4.3 National Historic and Scenic Trails (39 miles)

See section 2.4.3.3 (Continuing Management Guidance subheading). The 39 miles of trails include 8 miles for El Camino Real and 31 miles for the Old Spanish National Historic Trails.

2.5.4.4 Special Management Areas (131,350 acres)

Thirteen areas—La Caja Pueblo, Fun Valley, Ku Pueblo, Ojo del Zorro Pueblo, Pueblo Quemado, Pueblo Sarco, Rio Chama, Riparian/Aquatic, Sabinoso, Sahiu Pueblo, San Antonio, San Lazaro and Santa Cruz Lake Recreation Area would continue to be managed as described in Appendix A.

2.5.4.5 Wild and Scenic Rivers (31,970 acres)

See section 2.4.3.6 (Continuing Management Guidance subheading).

2.5.4.6 Wilderness Study Areas (18,910 acres)

See section 2.4.3.8 (Continuing Management Guidance subheading). If released from wilderness consideration by act of Congress, the lands would be managed to the standards for adjacent lands. San Antonio WSA would be managed under guidance for the San Antonio SMA and the San Antonio Gorge ACEC, and the suitable portion of the Rio Chama WSA would be managed as part of the Rio Chama SMA. The nonsuitable portion of the WSA would be managed under general guidelines of the 1988 RMP, as amended.

2.5.4.7 Other Congressional Designations

See section 2.4.3.9 (Continuing Management Guidance subheading) for information on the Galisteo Basin Cultural Sites Protection Act and the Northern Rio Grande National Heritage Area.

2.6 Alternative A (Proposed RMP)

2.6.1 *Overview of Alternative*

Alternative A, the Proposed RMP, strives to balance between the conservation and preservation of natural and cultural resources with resource uses and other opportunities. It recognizes the trends toward renewable energy development and increased recreational use, while protecting sensitive resources and ecosystem processes.

2.6.2 *Resources*

2.6.2.1 Air and Atmospheric Values

Other than the management common to all alternatives identified under section 2.4.1.1, no actions are included under Alternative A specific to the allocation of air resources. The BLM would continue to follow existing State and Federal laws and policies regarding air quality.

2.6.2.2 Cultural Resources

Under this alternative, a balanced approach to site treatment would be implemented through excavation and data recovery versus avoidance of sites that are subject to natural deterioration such as erosion depending on site-specific factors. An extensive consultation program to identify traditional cultural properties and culturally significant economic resource sites throughout the management area would be developed, and identified properties would be protected and ecologically restored if deteriorated.

Several areas having unique or sensitive cultural resources would be designated for special management. Generally, management prescriptions to protect resources in these areas would include reduced access and restrictions on surface-disturbing activities. Under Alternative A, the following special designations are specifically related to cultural resources management and protection (see Map 2-36):

- Ojo Caliente ACEC (expanded to 66,149 acres, includes Ku Pueblo SMA from 1988 RMP)
- La Cienega ACEC (expanded to 13,724 acres)
- Pueblos ACEC (265 acres, includes Ojo del Zorro, La Caja Pueblo, Pueblo Quemado, Pueblo Sarco, and Sahiu Pueblo SMAs from 1988 RMP)
- Santa Fe Ranch ACEC (21,030 acres)
- Galisteo Basin ACEC (1,052 acres, includes San Lazaro SMA from 1988 RMP)
- Sombrillo ACEC (expanded to 18,080 acres)

See Appendix A for a description of how these sites and areas would be managed.

In order to protect cultural resources associated with Burnt Corn Pueblo (68 acres) and Petroglyph Hill (120 acres), two sites included in the Galisteo Basin Archaeological Sites Protection Act and proposed Galisteo Basin ACEC, livestock grazing would be unavailable at these locations within allotments 917 and 926, respectively.

2.6.2.3 Fish and Wildlife

Fish

Similar to the no action alternative except that, in addition to the Rio Agua Caliente restoration, the Taos Field Office would actively manage fish populations and habitat to increase native and decrease exotic fish species on 230 miles of perennial streams. Native fish populations of interest would include those identified as BLM sensitive or those in the Comprehensive Wildlife Conservation Strategy for New Mexico (CWCS) (NMDGF 2005).

Wildlife

Biotic and other public land health standards would be attained through management emphasis placed on key habitats identified by the NMDGF CWCS and through continued implementation of existing HMPs and CRMPs, development of new HMPs (as might be developed for portions of the Chama, Ojo Caliente, West Santa Fe, Taos Plateau, and/or Lower Gorge/Copper Hills planning units or the Sabinoso ACEC), and management protection afforded by ACECs, such as Chama, Copper Hill, La Cienega, Lower Gorge, Ojo Caliente, Sabinoso, or Taos Plateau. Habitat management emphasis would be placed on native species, both game and nongame, using methods consistent with vegetation management decisions.

No livestock conversions from cattle to domestic sheep or goats would be allowed in allotments within occupied bighorn sheep habitat due to the potential transmission of disease and subsequent mortality of bighorn sheep. New sheep and goat allotments or conversions from cattle to sheep or goats would be permitted a minimum of nine airline miles from known bighorn sheep habitat. This distance would be greater if deemed necessary through site-specific analysis or a cooperative agreement with other Federal or State agencies.

In the Taos Plateau planning unit, livestock grazing would be unavailable in the portions of Ute Mountain acquired in 2003 and 2005 to prevent competition for forage with resident pronghorn, elk and other wildlife species of special emphasis. Upon consultation with adjacent private landowners in this area regarding vegetation treatments, it has been determined that wildlife displaced from public lands onto adjacent agricultural lands results in a negative impact to private landowners. Therefore, establishing a non-competitive forage base for wildlife in the Ute Mountain area would benefit wildlife and minimize impacts to adjacent landowners.

Also, based on an interdisciplinary review by BLM resource specialists, any additional AUM's for grazing in this planning unit would be apportioned to either wildlife or livestock based on site-specific conditions, including but not limited to special status species or wildlife habitat and watershed conditions.

Fences would be built to standard BLM wildlife specifications to allow wildlife passage, with the exception of fences built specifically to keep native ungulates out of an area (i.e., forage monitoring plots). Fences identified as barriers to wildlife movement would be considered for removal or reconstruction. In addition, the BLM would seek to acquire State or private lands within five miles of the Rio Grande if acquisition would provide protection to Rocky Mountain bighorn sheep habitat.

Transportation plans would consider opportunities to reduce fragmentation in the Taos Plateau, Chama, La Cienega, Ojo Caliente, Lower Gorge and Sabinoso ACECs. Determining the existing degree of habitat fragmentation would provide an accurate baseline against which to assess the potential impact of travel management decisions and assist in developing a travel management

plan that can provide a road network that would preserve or create sufficient core habitat and linkages to support wildlife. In elk winter and spring ranges and migratory corridors, road densities managed for 0.5 miles per square mile would reduce disturbance to these species during critical periods. Within a 0.25-mile buffer along the Rio Grande where roads or trails may impact bighorn sheep, actions would be implemented to prevent or minimize disturbance to bighorn sheep.

The BLM would ensure that areas and trails for OHVs are located to minimize harassment of wildlife or significant disruption of wildlife habitats. When data becomes available, BLM lands would be managed to consider the relationship between large wildlife populations and smaller isolated populations whenever possible. The intent would be to maintain the function and diversity of all habitats in large areas (patches) across the landscape and minimize long-term human disturbance to wildlife to provide for movement, dispersal, and home ranges. In the context of wildlife habitat fragmentation, the size of the patch would be relative to the size of the BLM parcel(s) and adjacent landowner status (private, Federal or State lands).

Timing restrictions would be applied to surface disturbing activities in priority species' critical habitat to avoid or minimize disturbance during their seasons of use, particularly the breeding and winter season. The critical wildlife habitat and time periods to which the restrictions would apply are elk, mule deer, pronghorn and bighorn sheep critical winter and spring habitat, January 1 through April 30, and bighorn sheep calving range/habitat, May 1 through June 30. Restrictions would also apply to Pronghorn fawning areas, May 1 to July 15. Exceptions to these timing restrictions may be granted by the authorized officer as new data becomes available or if warranted by seasonal conditions.

Portions of the Taos Plateau, Chama, Ojo Caliente and Lower Gorge ACECs, where seasonal critical ranges or migratory corridors for big game are present, including the Rio Grande for bighorn sheep, contain habitat where these timing restrictions may be applied. Potential uses which may be restricted include actions related to transportation, recreation, solid and fluid mineral development, livestock grazing, and land use authorizations.

To protect golden eagles, peregrine falcons, prairie falcons, other raptor species (not including special status species—see section 2.6.2.6 below), mountain plover, and gray vireo, spatial and temporal restrictions would be applied to surface disturbing activities. Prior to surface disturbing activities, surveys would be conducted in potential nesting habitat to identify any active nest (i.e., any nest occupied in the past seven years). Spatial and seasonal buffers are based on the best available recommendations for protecting nesting birds under a wide range of activities. However, they are necessarily site-specific to proposed projects. When determining site-specific buffers, a BLM wildlife biologist would evaluate the type and duration of the proposed activity, the position of topographic and vegetative features, the sensitivity of the affected species, the habituation of breeding pairs to existing activities in the proposed project area, and the local nesting density. The BLM will informally coordinate with state agencies and USFWS anytime a site-specific analysis shows that an action may have an adverse impact on nesting birds. The coordination would determine if the impact could be avoided or must be mitigated, and if so, to determine appropriate and effective mitigation strategies.

In general, the following species would have spatial and seasonal buffers applied accordingly:

Bald eagle: 0.5-1.0 miles (January 1 – August 31)
Golden eagle: 0.5 mile (January 1 – August 31)
Peregrine falcon: 1.0 mile (February 1 – August 31)

Prairie falcon: 0.5 mile (April 1 – August 31)
Osprey: 0.25 mile (April 1 – August 31)
Cooper's hawk: 0.25 (March 15 – August 31)
Northern goshawk: 0.5 mile (March 1 – July 31)
Red-tailed hawk: 0.125 mile (February 1 – July 15)
Ferruginous hawk: 1.0 mile (February 1 – July 15)
Mountain plover: 1.0 mile (March 1 – August 1)
Gray vireo: 0.5 mile (April 1 – August 31)

Long-duration activities would avoid active nests by the above specie-specific distances (NMDGF, 2007; USDI-USFWS, 2008; Williams, 1997). Short-duration activities—those which would begin outside of a given breeding season and end prior to the next breeding season—would avoid active nests by these distances during the respective seasonal periods. These restrictions may be adjusted or waived if impacts can be adequately mitigated, based on a site-specific evaluation by the authorized officer. In addition, greater species-specific restrictions may be applied to wind energy projects (see section 2.6.3.7).

Similarly, prior to surface disturbing activities, surveys would be conducted in potential black tailed prairie dog habitat to identify any occupied prairie dog town. Long-duration activities would avoid occupied towns by 0.25 miles. Short-duration activities—those which would begin outside of a given breeding season and end prior to the next breeding season—would avoid occupied towns by 0.25 miles between April 1 and September 15. These restrictions may also be adjusted or waived if impacts can be adequately mitigated, based on a site-specific evaluation by the authorized officer.

Alternative A would emphasize protecting and restoring special habitat components or features that contribute to the conservation of bat species. These features include, but are not limited to, caves, cliffs, riparian areas, wetlands, and snags. Caves and abandoned mines would be surveyed and assessed for bat use. Areas within 200 meters of features found to support significant bat populations would be closed to any surface disturbing activities (this limitation would not apply to maintenance of existing infrastructure, such as roads and other developments).

Bat gates or other suitable measures would be used to protect bat habitat when significant bat use of caves or abandoned mines is determined. Public health and safety would take precedence over protection of bat habitat if hazardous mine openings cannot be remediated with installation of bat gates. Efforts would be made to safely remove resident bats prior to closure. Also, as a change from the no action alternatives, it was determined that the Black Rock Springs cave does not contain significant bat habitat. Therefore, this cave would not be closed to protect priority wildlife species.

Noise disturbance and management activities would be avoided or minimized within 1 mile of raptor nests during the nesting and brood rearing period. Unoccupied raptor nests would be protected from removal or destruction, including a year-round protection of a 0.25-mile buffer of suitable habitat around any known occupied and unoccupied nests. Parking any motor vehicle or camping within 300 yards of any man-made water hole, water well, or watering tank used by wildlife or domestic stock without prior consent of the BLM would be prohibited.

2.6.2.4 Paleontology

The Sombrillo ACEC would be managed for the protection of relevant and important paleontological resources (see Appendix A).

In addition, a qualified paleontologist would be required to conduct a survey for paleontological resources prior to any surface-disturbing activities within areas where significant resources are known to occur (e.g., the Sombrillo area) and may be required to monitor during such activities.

2.6.2.5 Soils

Same as the no action alternative.

2.6.2.6 Special Status Species

Similar to no action alternative, except additional roads would be closed permanently or seasonally, relocated, maintained, and/or designed to reduce sedimentation and restore or maintain special status species habitat.

Where Santa Fe cholla and grama grass cactus are known to occur, habitat would be inventoried, monitored, and protected from surface disturbing activities. Lands would be retained where these species are found to exist.

To protect bald eagles and ferruginous hawks, spatial and temporal restrictions would be applied to surface disturbing activities. Prior to surface disturbing activities, surveys would be conducted in potential bald eagle roosting habitat and ferruginous hawk nesting habitat to identify any active sites (i.e., for ferruginous hawks, any nest occupied in the past seven years). Long-duration activities would avoid active sites by 0.5 miles. Short-duration activities—those which would begin outside of a respective season and end prior to the next season—would avoid active sites by 0.5 miles from October 1 to July 15 for bald eagles and February 1to July 15 for ferruginous hawks. These restrictions may be adjusted or waived if impacts can be adequately mitigated, based on a site-specific evaluation by the authorized officer. In addition, greater species-specific restrictions may be applied to wind energy projects (see section 2.6.3.7).

Likewise, prior to surface disturbing activities, surveys would be conducted in potential Gunnison prairie dog habitat to identify any occupied prairie dog town. Long-duration activities would avoid occupied towns by 0.25 miles. Short-duration activities—those which would begin outside of a given breeding season and end prior to the next breeding season—would avoid occupied towns by 0.25 miles between April 1 and September 15. These restrictions may also be adjusted or waived if impacts can be adequately mitigated, based on a site-specific evaluation by the authorized officer.

2.6.2.7 Vegetative Communities

Riparian

Under this alternative, all riparian areas within the planning area would be included within the Riparian and Aquatic HMP (2000). Wetlands include both natural and intentionally created areas adjacent to and influenced by streams (perennial, ephemeral, and intermittent), springs, seeps, lake shores, marshes, wet meadows, and stock tanks 0 and are identified using a three parameter test including hydrology, soil, and vegetation indicators. Riparian areas are a form of transitional zone between permanently saturated wetlands and uplands.

For riparian-wetland areas not included in special designations such as WSRs or ACECs, the following restrictions would be applied:

- Forestry activities would be limited in riparian-wetland areas to only those designed to improve resource function, health and conditions.
- Riparian-wetland areas would not be considered for disposal except for cases where (1) the area is small and not contiguous with other public lands, (2) the potential purchaser of the riparian area intends to include it in a conservation area that would provide equal or better resource protection than BLM management, and (3) no special status species resources are involved.
- New rights-of-way and other land use authorizations would be prohibited in all currently identified riparian-wetland areas—areas identified as having riparian-wetland characteristics, including those not previously documented or areas that are acquired after completion of the RMP—unless impacts can be adequately mitigated, based on a site-specific evaluation by the authorized officer.
- Where necessary to meet public land health standards or resource objectives, livestock grazing restrictions in riparian-wetland areas would be identified by allotment and managed under an AMP (allotment management plan), CRMP, or other project or activity-level plan.
- For mineral development activities, all riparian and aquatic areas would be restricted from surface use and occupancy to protect those habitats. In order to ensure that undocumented or newly acquired riparian-wetland areas are protected, mineral leasing actions would be subject to restrictions both at the time of lease and during the application to drill process. For all riparian-wetlands areas, no surface occupancy (NSO) would be allowed within up to 200 meters of the outer edge of 100-year floodplains or potential riparian-wetland edge as identified by hydrology, hydric soils, or vegetation.
- Existing travel routes through riparian areas would be restricted in one of the following ways: (1) closed (permanently or seasonally), (2) relocated away from riparian resources, or (3) designed and/or maintained to reduce sedimentation and restore or maintain riparian vegetation.

Terrestrial

Same as the no action alternative.

2.6.2.8 Visual Resources

The Ute Mountain and San Antonio areas with wilderness characteristics would be VRM class I. The remaining areas in the Taos Plateau planning unit, would be managed as class II, with the exception of class III within a 4-mile buffer along US 64.

VRM class I would be applied to the Chama ACEC, WSR, and WSA in the Chama planning unit. Outside of these special designations, the VRM inventory classes would be prescribed as VRM class III and IV with the exception of class II for areas within 0.5 mile of Highway 84 and near Abiquiu Dam to protect the views along the highway and the Old Spanish National Historic Trail. Also within the Chama planning unit, a 1-mile corridor along the Old Spanish National Historic Trail would be class II (a map would be available at the Taos Field Office upon request).

Within the Ojo Caliente planning unit, lands with wilderness characteristics would be managed as VRM class I, rights-of-way corridors as class III, the existing mining location along 31 Mile Road as class IV, and the remainder of the Ojo Caliente ACEC would be class II.

The majority of the El Palacio planning unit would be managed as VRM class II, based on the community sensitivity and the importance of the recreational setting, the presence of the Old

Spanish National Historic Trail, the high level of highway travel along NM-68, and the importance of the viewshed all the way to the Truchas Peaks. The 0.25-mile buffer adjacent to NM-68 and Alcalde Village would be managed as class III to accommodate highway and utility systems. Viewsheds along NM-76 and NM-503 would be managed as class II. Areas identified for disposal would be managed as class IV.

The majority of the West Santa Fe planning unit would be managed for VRM class II. However, Diablo Canyon along with the Santa Fe River Canyon, which includes the Camino Real de Tierra Adentro National Historic Trail would be managed as class I. The Buckman Road, the powerline running across La Bajada Mesa, and areas identified for disposal would be managed for class III objectives.

In the Galisteo planning unit, the Cerrillos Hills area and Galisteo Basin Protection Act sites would be designated as VRM class II to protect community, recreational, and cultural values. The west end of the San Pedro Mountains would also be managed as VRM class II to protect the viewshed from the Turquoise Trail National Scenic Byway, while the remainder of the area would be class III.

The Sabinoso Wilderness and the Sabinoso ACEC would be designed VRM class I. Largo Canyon headwaters area would be class II, while VRM class IV would be applied to the remainder of the East Side planning unit.

Most areas covered by the 2000 Rio Grande Corridor Final Plan would be managed under the same classifications outlined in that plan. The exception is the Central Protection Zone which would be managed as a class II instead of class III to protect the Old Spanish Nation Historic Trail. A 0.25-mile corridor on either side of NM-75 running southwest from the Canada de Piedra would be managed for class III objectives.

The VRM classes prescribed under Alternative A are shown on Map 2-2 and are totaled in Table 2-12.

Table 2-12. VRM classifications—Alternative A

VRM Class	Acreage
I	111,006
II	393,708
III	53,182
IV	37,546

2.6.2.9 Water

Same as the no action alternative.

2.6.2.10 Lands with Wilderness Characteristics

Five areas would be managed to protect their wilderness characteristics under this alternative, covering a total of 67,032 acres (see Table 2-13 and Map 3-11). Of the two areas not being managed specifically to protect their wilderness character, one area—Cerro de la Olla—would be managed under guidelines for the Taos Plateau ACEC. Mesa de la Cejita would be managed under general guidelines described for Alternative A. (These areas would not be given protective management of wilderness characteristics due to the occurrence of important firewood gathering resources and range and utility developments and use, respectively.)

The northern boundary of the Cerro Colorado area managed for its wilderness characteristics would be 300 feet from highway NM 554 (such that the acreage provided protective management would be 131 acres less than the area inventoried to have wilderness characteristics).

Table 2-13. Areas managed for wilderness characteristics

Planning unit/Area	Acres	Management
Taos Plateau/Upper Rio Grande Adjacent to San Antonio WSA Ute Mountain	 9,210 13,190	*All areas are in the proposed Taos Plateau ACEC* Land Use Authorizations: excluded. Minerals: closed to mineral material sales, and withdrawn from locatable mineral entry, and open to mineral leasing with a controlled surface use restriction. Renewable Energy: excluded. Transportation: Ute Mountain is closed, and the area adjacent to San Antonio WSA is limited to designated routes. Visual: Ute Mountain is class I, and the other two areas would be class II.
Chama Adjacent to Rio Chama WSA	 2,499	*This area is within the proposed Chama Canyons ACEC* Land Use Authorizations: excluded. Minerals: closed to all. Renewable Energy: excluded. Transportation: closed. Visual: class I.
Ojo Caliente Rincon del Cuervo Cerro Colorado	 10,912 31,221	*Both areas would be in the expanded Ojo Caliente ACEC* Land Use Authorizations: both areas would be excluded Minerals: both areas would be withdrawn from all minerals. Renewable Energy: excluded. Transportation: Rincon del Cuervo closed; Cerro Colorado limited to designated routes. Visual: Rincon del Cuervo—class I, and Cerro Colorado—class I and II.

2.6.2.11 Wildland Fire

Same as the no action alternative.

2.6.2.12 Invasive Species/Noxious Weeds

Control of invasive species/noxious weeds would be implemented as described in section 2.4.1.12 under Continuing Management Guidance. An emphasis would be placed on development of Cooperative Weed Management Areas. Actions would be taken in cooperation with stakeholders to identify and treat weed populations where they exist through integrated weed management methods. All actions would be subject to a programmatic or site-specific NEPA analysis which considers local concerns on the methods of treatment.

2.6.3 *Resource Uses*

2.6.3.1 Forestry and Woodland Products

As under the no action alternative, improving forest health and resiliency would be a primary objective of all forest and woodland management actions. Piñon-juniper woodlands management would incorporate the harvest and collection woodland products, except in selected areas where wildlife habitat management, recreation, or the protection of resources associated with a special designation may be a greater priority than woodland product production. Areas excluded from woodland product extraction would be determined through area-specific or activity-level planning as part of the implementation of this RMP. The limited stands of ponderosa pine on BLM lands within the planning area are a valuable asset and would be managed for maintenance and protection rather than forest product production.

Taos Field Office would target 2,000 acres per year for biomass utilization projects, including fuelwood collection. Use of the 2,000 acres would be managed to improve forest health and yield the highest combination of products, including commercial forest species, and ecosystem values.

Biomass, the residue of normal forest treatments, would continue to be offered where available and appropriate. The field office would continue to provide traditional fuelwood, both green and dead and downed, as well as special forest products for personal and commercial use through permits and agreements including nonprofit groups and tribes.

The BLM would locate fuelwood areas which would include greenwood as well as dead and downed woody material where harvest and collection would maintain and improve long-term sustainability of resource values and uses. These fuelwood areas would, in general, not conflict with other permitted activities. Taos Field Office, however, may not issue permits during certain periods (e.g., during the late winter thaw when wet soils are vulnerable to erosion) or where important resources need to be protected from disturbance. Some areas may be designated for harvesting all woody products on a sustained-yield basis.

2.6.3.2 Land Tenure

Similar to the no action alternative, except as follows:

Disposals

In addition to lands identified for disposal under the no action alternative (see section 2.5.3.2), Alternative A would include approximately 9,729 more acres, shown in Table 2-14, for a total of approximately 69,729 acres.

Actions Common to All Planning Units

In addition to the lands specifically identified in Table 2-14, certain disposal opportunities may be considered on a case-by-case basis such as isolated parcels surrounded by private lands. Disposal through exchange would be considered on a case-by-case basis where the BLM would acquire lands with special resource values, including lands within or adjacent to ACECs or other special designations. R&PP leases/conveyance would also be considered on a case-by-case basis, except in special designation areas (such as ACECs), unless otherwise specified.

Disposal of any lands, including those through R&PP leases/conveyance, would not occur if resources of national, State, or regional significance are found on them, including special status

species habitat and cultural resources unless the disposal would accommodate comparable or greater management protection of such resources. Riparian and wetland habitat would only be available for disposal through exchange if consolidated management of riparian and wetland habitat would be achieved or if other significant resources (e.g., special status species habitat or cultural resources) would be acquired. Lands made available for disposal through an R&PP lease/conveyance within special designations that are not used for intended purpose would be automatically reincorporated into the boundary of the special designation.

Taos Plateau planning unit

The 20-acre parcel near NM 585 (T .25 N. R. 13 E., sec 28, lots 10, 11) would be disposed, preferably through a Recreational and Public Purpose (R&PP) lease/conveyance. Cerros de los Taoses parcels, previously identified for disposal, would be retained, except for the isolated parcels immediately to the south (T. 26 N., R. 10 E., sec. 13: E1/2 and sec. 24: E1/2; T. 26 N., R. 11 E., sec. 8: all; sec. 29: all; sec. 33: N1/2). The BLM would consider disposal of all public lands within sec. 10, T. 29 N., R. 9 E. for renewable energy purposes along with 40 acres to Taos County (T. 25 N., R. 11 E., sec. 3: SENE). The 200-acre parcel previously identified for disposal in the Garrapata Ridge area (T. 27 N., R. 12 E., within sec. 20) would be available for other public purposes.

Lower Gorge/Copper Hill planning unit

Approximately 2 acres (T. 23 N., R. 10 E., sec. 22: within SESE; sec. 23: within SWSW) would be disposed of for use as a solid waste transfer site.

Chama planning unit

The Cañones parcel in the Abiquiu area that was previously identified for disposal would be retained to protect sensitive species. Archuleta Mesa (T. 32 N., R. 1 W., secs. 7, 8, 17, 18, 19, 20), except for the communication sites, would be considered for disposal through an exchange for lands within or adjacent to the Rio Chama WSR. Approximately 600 acres of isolated tracts near US 84 would be identified for disposal within the Chama Planning unit (T. 27 N., R. 4 E., sec. 15: NWSW; sec. 20: SESW; sec. 21: SWSE; sec. 28: N1/2NW, NWNE, NWSW; sec, 29: NENE; and T. 26 N., R. 4 E., sec. 10: NW, N1/2SW; and sec. 22: NENE - east side of SR84 only). Approximately 80 acres (2 parcels) identified for disposal contain oil and gas leases (T. 27 N., R. 4 E., sec. 20: SESW and sec. 29: NENE), which would not be reissued by the BLM at the end of their primary term.

Ojo Caliente planning unit

The Rio Ojo Caliente bridge parcel, previously identified for disposal, would be retained to maintain administrative access in the area. Lands near the community of Ojo Caliente (T. 23 N., R. 8 E., sec. 13: within lot 10; and T. 24 N., R. 9 E., sec. 7: within lot 3 and NESW) would be dispose under an R&PP lease/conveyance for public purposes. The block of public land south of 31 Mile Road adjacent to Santa Clara Pueblo lands (within T. 21 N., R. 7 E., secs. 33, 34 and 35) would be preferably disposed of by exchange for high resource value private lands to consolidate public ownership, but disposal through sale would not be precluded. Most of these lands are covered by mining claims, and an associated pumice mine operates on adjacent private lands. Any disposal would have to recognize the valid existing rights of the claimants, and any disposal would be subject to the continued development of the claims.

El Palacio planning unit

The BLM would consider disposal through exchange an area of up to one mile east of Ohkay Owingeh lands, subject to existing land use authorizations and access, consisting of portions of sections 5, 6, 7, 8, 17, 18, 19, 20, 29, and 30 in T. 21 N., R. 9 E.. This area, of up to 3,200 acres, has resources or values that are important to Ohkay Owingeh. Approximately 120 acres in the El Llano area (T. 20 N., R. 9 E., within sec. 6 and T. 21 N., R. 9 E., sec. 31) adjacent to the old City of Espanola landfill would be identified for disposal by R&PP leases/conveyance or exchange for public purposes. Approximately 10 acres (T.20 N., R. 9 E., sec. 23: SESESW) would be disposed under R&PP to Santa Fe County for the existing Nambe Transfer Station Site (including access road), a site within the Sombrillo ACEC. The 619-acre area on the east side of US 285/84 and the south side of Santa Cruz River (La Puebla), previously identified for disposal, would be retained, while the county or other governmental or nonprofit entity would be encouraged to assume management of the existing 127-acre OHV area (T. 20 N. R. 9 E., within sec 18) through R&PP lease/conveyance. The BLM would coordinate with the county or other governmental or nonprofit entity to develop a R&PP lease/conveyance for park purposes on the isolated tract below the Santa Cruz Lake dam (T. 20 N., R. 10 E., within sec. 7).

West Santa Fe planning unit

The BLM would dispose through an R&PP lease/conveyance for a shooting range or other recreational facilities the following lands: T. 16 N., R. 8 E., within sec. 18. Lots 21-24, 26 and 28 in T. 17 N., R.9 E, sec. 31 would be available for transfer to Santa Fe County Open Space for development of a trail system.

Galisteo Basin planning unit

The BLM would retain the following parcels, which were previously identified for disposal, to protect cultural resources within the Galisteo Basin planning unit:

T. 13 N., R. 8 E., secs. 23, 24, 25, 26, 35, 36;

T. 14 N., R, 8 E., secs. 4, 9, 24, 25;

T. 14 N., R. 9 E., secs. 18, 19, 29, 30, 31, 32.

An exception to retention would be disposal through exchange if these lands were used for open space preservation, and the BLM would acquire lands with special resource values through exchange. For split estate lands, the BLM would consider the sale of the subsurface to surface owners.

East Side planning unit

Outside of the wilderness and ACEC areas, the BLM would continue to consider disposal of isolated parcels without public access or where Federal management is not feasible, except where parcels contain valuable resources as identified by specialists. The BLM would also consider disposal of lands with valuable resources (e.g., cultural, water, riparian, and T&E species) to special interest groups for preservation and/or conservation with applicable deed restrictions.

Table 2-14. Lands identified for disposal—Alternative A

Legal Description	Acreage
T16N, R8E	
sec 18: lots 3 and 4, E½, SENW, E½SW.	485
T17N, R9E	
sec 31: lots 21-24, 26 and 28.	4
T20N, R9E	
sec 6: lots 8-17, 19-21;	327
sec 18: within NWNE, N½NW;	127
sec 23: SESESW.	10
T20N, R10 E	
sec 7: within lot 3 and NE.	50
sec 28: lot 2	18
T21N, R9E	
sec 5: W½*	320
sec 6: E½*	320
sec 7: E½*	320
sec 8: W½*	320
sec 17: W½*	320
sec 18: E ½*	320
sec 19: E½*	320
sec 20: W½*	320
sec 29: W½*	320
sec 30: E½*	320
sec 31: lots 2,3,4,5 and SENE, SE.	334
*approximate	
T21N, R7E	
sec 33: lots 8, 17-19, 21, 24,25,27,28, SESESE;	110
sec 34: within S½;	320
sec 35: within S½.	320
T22N, R8E	
sec 36: within Sebastian Martin Land Grant	75
T22N, R9E	
sec 30: within Sebastian Martin Land Grant	75
T23N, R8E	7
sec 13: within lot 10.	
T23N, R10E	
sec 22: within SESE;	1
sec 23: within SWSW.	1
T24N, R9E	
sec 7: within lot 3 and NESW.	53
T25N, R11E	
sec 3: SENE.	40
T25N, R13E	
sec 28: lots 10, 11.	20
T26N, R4E	
sec 10: NW, N½SW;	240
sec 22: within NENE - east side of SR84	17
T26N, R10E	
sec. 13: E½;	320
sec 24: E½.	320
T26N, R11E	
sec 8: all;	640
sec 29: all;	640
sec 33: N½.	320

Legal Description	Acreage
T27N, R4E	
sec 15: NWSW;	40
sec 20: SESW;	40
sec 21: SWSE;	40
sec 28: N½NW, NWNE, NWSW;	160
sec 29: NENE;	40
T27N, R12E	
sec 20: within N½	200
T29N, R9E	
sec 10: NESE, S½SE.	120
T32N., R1W	
sec 7: lots 6-13;	230
sec 8: lot 11;	14
sec 9: lots 7, 8;	21
sec 17: N½NE, W½, SESE;	440
sec 18: lots 3-12, E½SW, SE;	617
sec 19: lots 1-4, E½W½, E½;	630
sec 20: W½, NWSE.	360

Acquisition

Lands identified for potential acquisition under Alternative A total 140,269 acres.

All planning units

Private and State lands with riparian/aquatic habitat would be acquired through purchase or exchange, while those riparian habitats that would improve overall riparian management capabilities would be evaluated for exchange.

Taos Plateau planning unit

All private and State lands would be acquired from willing sellers within the Taos Plateau ACEC (approximately 46,116 acres). The BLM would consider acquisition of private and State lands from willing sellers within five miles of the Rio Grande if acquisition would provide protection to Rocky Mountain bighorn sheep.

Lower Gorge/Copper Hill planning unit

Non-Federal lands would be acquired from willing sellers within specially designated areas in this planning unit.

The BLM would acquire from willing sellers the nontribal lands (approximately 132 acres) adjacent to the Rio Pueblo de Taos for purposes related to recreation, wildlife, fisheries, riparian, and visual quality (T. 24 N., R. 11 E., sec. 1: block 15, lots 1, 2, 3; T. 24 N., R. 12 E., sec. 6: block 16, lot 4; T. 25 N., R. 12 E., sec. 31: block 12, lots 1-3, 12, 13; block 13, lot 16). The BLM would also acquire from willing sellers the area east of the Horseshoe Curve within the Gijosa Grant (approximately 700 acres within T. 24 N., R. 11 E., sec. 24: NE, E1/2NW; sec. 13: SE, SESWSW; T. 24 N. R. 12 E., sec. 19: NW; sec. 18: W1/2) for scenic quality and cultural and wildlife purposes.

The BLM would consider acquisition of private and State lands from willing sellers within five miles of the Rio Grande if acquisition would provide protection to Rocky Mountain bighorn sheep habitat.

Along the Old Spanish National Historic Trail, the BLM would acquire available private lands (approximately 520 acres) with trail resources by purchase or exchange, and State trust lands (approximately 960 acres) containing trail resources by exchange.

Chama planning unit

The Rio Chama WSR, WSA, and ACEC would be acquisition zones.

Along all segments of the Old Spanish National Historic Trail within the planning unit, the BLM would acquire available private lands with trail resources by purchase or exchange, and State trust lands containing trail resources by exchange.

Within the Chama Canyons ACEC, the BLM would acquire available private lands by purchase or exchange (approximately 731 acres) and available State lands by exchange (approximately 644 acres).

El Palacio planning unit

The BLM would acquire private lands within and adjoining the ACECs from willing sellers. Along the Old Spanish National Historic Trail, State trust lands containing trail resources would be acquired by exchange.

Ojo Caliente planning unit

All private lands (approximately 26,051 acres) and State lands (approximately 8,276 acres), if available, would be acquired within the Ojo Caliente ACEC. The BLM would also acquire private lands with cultural sites (Ku, Posi, Nute, Sandoval and Te'ewi pueblos) from willing sellers (approximately 180 acres).

West Santa Fe planning unit

The BLM would acquire State lands within T. 15 N., R. 8 E., secs. 29 and 32, and T. 16 N., R. 7 E., sec. 2, (totaling approximately 678 acres). Within the La Cienega ACEC, private lands in T. 16 N., R. 8 E., sec. 18, 19, 20, 29, 31, and T. 15 N., R. 7 E., sec. 1 (totaling approximately 1,000 acres) would be acquired from willing sellers if significant cultural and natural resources are present.

Within the Santa Fe Ranch ACEC, private lands within T. 18 N., R. 8 E., secs. 10, 13, 15, 16, 17; and T. 19 N., R. 8 E., secs. 30 and 31 and State lands within T. 19 N., R. 8 E., sec. 32, totaling approximately 3,865 acres, would be acquired.

Available private lands with trail resources (approximately 100 acres) would be acquired by purchase or exchange along with State lands within the El Camino Real de Tierra Adentro National Historic Trail (approximately 678 acres) by exchange.

Galisteo Basin planning unit

The BLM would acquire private lands from willing sellers and State lands with important Galisteo Basin cultural sites (approximately 3,295 acres).

East Side planning unit

Areas within or adjacent to the Sabinoso Wilderness/ACEC would be designated as an acquisition zone. The BLM would acquire approximately 9,240 acres of private lands by purchase or exchange, and approximately 2,700 acres of State lands by exchange, if available.

2.6.3.3 Land Use Authorizations, Utility Corridors, Communication Sites

General rights-of-way exclusion areas under Alternative A, which total 126,645 acres, are presented on Map 2-6 along with rights-of-way corridors. Additional exclusion and avoidance areas specific to renewable energy rights-of-way are presented in section 2.6.3.7 and on Map 2-14. Limitations on use relative to riparian and wetland areas are addressed in section 2.6.2.7. Authorizations would also be subject to the limitations, as applicable, presented in Table B-1 under Appendix B.

Land use authorizations issued under minimal impact permits (e.g., commercial filming permits) would be considered throughout the planning area except in Sabinoso Wilderness on a case-by-case basis, subject to applicable minimal impact criteria and appropriate terms and conditions.

Right-of-way restrictions and provisions under this alternative are similar to the no action alternative, except as follows.

Within the Taos Plateau planning unit, a maximum 530-foot width right-of-way corridor would be designated along the Rio Grande Gorge Bridge and rest area (in accordance with the Rio Grande Corridor Final Plan). The corridor width is 530 feet at the bridge and widens to encompass the rest area. The second right-of-way corridor would be along the 345 kilovolt transmission line (Ojo-Taos line) and 115 kilovolt transmission line, with a maximum combined width of 190 feet.

Within the Chama planning unit, an additional 2,849 acres would be closed to new rights-of-way within the Chama Canyon ACEC to protect riparian, wildlife, water quality, and scenic values along the Rio Chama. Rights-of-way and access easements would be maintained if Archuleta Mesa is removed from public ownership.

Within the Ojo Caliente planning unit, right-of-way corridors would be identified along US 285, US 84, NM 111 and NM 554, with a maximum 150 foot width. Within the Ojo Caliente ACEC, rights-of-way would be excluded from the Rincon del Cuervo and Cerro Colorado areas managed for their wilderness characteristics.

Within the El Palacio planning unit rights-of-way would be allowed, but would be subject to meeting VRM classes II and III and mitigation necessary to protect any cultural or paleontological resources. The Pueblos ACEC would be a right-of-way avoidance area.

Within the Lower Gorge/Copper Hill planning unit, rights-of-way for road improvements related to safety would be allowed within the Lower Gorge ACEC (clarifying the intent of the Rio Grande Corridor Final Plan). New utility projects would be underground and would be co-located with existing rights-of-way and roads. Rights-of-way for acequias (irrigation ditches) are grandfathered through the legislation for Wild and Scenic Rivers, and so would remain in effect (in accordance with the Rio Grande Corridor Final Plan).

Within the West Santa Fe planning unit, a 0.25-mile utility corridor would be designated along Buckman Road. Rights-of-ways would also be considered on a case-by-case basis within the La Cienega and Santa Fe Ranch ACECs.

Within the Galisteo Basin planning unit, no new rights-of-way would be allowed within the Galisteo Basin ACEC.

Within the East Side planning unit, no new rights-of-way would be allowed within the Sabinoso Wilderness/ACEC.

Maintenance of the following would be allowed: existing acequias (irrigation ditches); powerlines or bridges in the Rio Grande WSR corridor, provided that actions are consistent with protection of the outstandingly remarkable values of the WSR; within Taos Plateau planning unit, the powerline at Bear Crossing, John Dunn Bridge, High Bridge, and the powerline at Powerline Falls; within the Lower Gorge/Copper Hill planning unit, Taos Junction Bridge, Pilar Bridge, Glen Woody Bridge, and Embudo Station Bridge (if the study segment is designated by Congress).

Within the Taos Plateau planning unit, rights-of-way within the Wild Rivers, San Antonio, and Ute Mountain Zones within the Taos Plateau ACEC would be excluded.

2.6.3.4 Livestock Grazing

Under Alternative A, grazing allotments would continue to be reviewed and AUMs adjusted as conditions dictate. Areas unavailable to livestock grazing total 49,222 acres and include allotments in the Galisteo, Lower Gorge/Copper Hill, and Ojo Caliente planning units (see below). Vacant allotments or those allotments that become available through relinquishment or decision would be evaluated on a case-by-case basis prior to the issuance of a grazing permit. Isolated allotments would be evaluated to determine the best use for these parcels and livestock grazing would remain as a tool to be used to comply with the Standards for Rangeland Health.

Reserve common allotments would be established for use by permittees or lessees whose Taos Field Office-administered allotments are not available due to drought, vegetation manipulations, and wildfire or when monitoring indicates a change or rest is needed in their respective allotments. While available for use under these or similar circumstances, these allotments would not be available by application.

Allotment 596 and 610 and the area described below in the Rio Chama planning unit would be established as reserve common allotments because they are 1) allotments which have been vacant for more than five years, 2) contiguous tracts of BLM-administered lands of sufficient size, 3) newly acquired lands, and/or 4) allotments with minimal likelihood of having a qualified applicant. Consideration may be given to the establishment of additional reserve common allotments using these criteria where appropriate to allow the BLM to manage areas to better meet the needs of the resources as well as permittees or lessees.

As identified in section 2.6.2.3, based on an interdisciplinary review by BLM resource specialists, any additional AUM's for livestock grazing in the Taos Plateau planning unit would be apportioned to either wildlife or livestock grazing based on site-specific conditions, including but not limited to special status species or wildlife habitat and watershed conditions. Also in this planning unit, livestock grazing would be unavailable in the portions of Ute Mountain acquired in 2003 and 2005 to prevent competition for forage with resident pronghorn, elk and other wildlife species of special emphasis.

Approximately 1,025 acres of acquired lands within the Chama Canyons ACEC would be managed as a reserve common allotment, as discussed above. Specifically, these lands are described as T. 27 N., R. 2 E., Sec. 27: SW¼, Sec. 28: SE¼; T. 27 N., R. 2 E., Sec. 28: S½ NW¼; T. 27 N., R. 2 E., Sec. 33: W½; and T. 27 N., R. 2 E., Sec. 34: W½.

The Rio Grande Wild and Scenic River corridor, which includes 17,420 acres within the Taos Plateau and Lower Gorge/Copper Hill planning units, would be unavailable to livestock grazing. Within the Chama, El Palacio, and Ojo Caliente planning units, 245 acres associated with the Pueblos ACEC would be unavailable. Select riparian areas throughout the planning area, totaling 1,755 acres, would be unavailable.

Livestock grazing would also be unavailable in the following areas by planning unit.

West Santa Fe. Approximately 120 acres around the La Cienega Mesa pueblo ruins, including a portion of the El Camino Real de Tierra Adentro, would be unavailable.

In addition, livestock grazing could become unavailable if conflicts arise with the protection of cultural resources which cannot be mitigated otherwise.

Lower Gorge/Copper Hill. Allotments 518, 519, and 520, totaling approximately 17,135 acres, would not be available for livestock. Allotment 521 would become unavailable upon relinquishment of the current permit and no permit transfer would be allowed.

Riparian areas within the Lower Gorge ACEC, totaling approximately 3,661 acres, would not be available. (This acreage largely coincides with that of the Rio Grande Wild and Scenic River corridor.)

The boundary of allotment 636 would be modified to make approximately 4,000 acres, below the rim of the Rio Grande Gorge, unavailable.

Chama. Within the Chama Canyons ACEC, 300 acres along the Rio Cebolla, 74 acres within Lobo Canyon, and 338 acres in the Navajo Peak area along the Rio Chama would be unavailable.

In addition, 725 acres within the Rio Chama Wild and Scenic River corridor would be unavailable.

Taos Plateau. Approximately 120 acres along the Rio San Antonio would be unavailable to livestock grazing. The Wild River Zone (897 acres) and Ute Mountain Zone (14,404 acres, not counting the acreage within the Wild and Scenic River corridor) would be unavailable.

Ojo Caliente. Pueblo sites, totaling 230 acres, and the 325-acre Ojo Caliente Demonstration Area would be unavailable. Allotment 523 (126 acres) and allotment 524 (55 acres) would become unavailable to livestock grazing.

El Palacio. Two staging areas within the Sombrillo ACEC would make 253 acres unavailable to livestock grazing. At Santa Cruz Lake Recreation Area, approximately 350 acres around the developed recreational sites and La Caja Pueblo would be unavailable.

Galisteo. Allotments 917 and 926, containing 2,075 acres and 115 acres respectively, would be unavailable to livestock grazing to better protect cultural resources, while 40 acres within allotment 830 and 80 acres within allotment 851 would also be unavailable for this purpose.

East Side. Approximately 15 acres of riparian vegetation would be unavailable to livestock grazing within the Sabinoso ACEC.

2.6.3.5 Mineral Resources

Leasable Minerals

The goal of Alternative A is to balance extraction of mineral resources with multiple uses of public lands and protection of natural and cultural resources. The objective of this alternative is to allow for mineral development, while minimizing surface disturbance through BMPs to the extent possible. Co-mingling of different producing formations would be encouraged where possible, including consideration of opportunities to combine oil and gas operations across leases and between different lessees or companies through unitization. To control and restrict the amount of surface disturbance caused by oil and gas development, this alternative would require operators to co-locate and plan development infrastructure such as pipelines, utilities, roads, and production facilities in a manner that would reduce cumulative disturbance. Development would further be consolidated by limiting the amount of disturbance to no more than one pad per 160 acres.

Table 2-15. Leasing decisions for Alternative A (oil and gas)

Decision	Acres
Closed to leasing	525,740
Nondiscretionary closure	35,590
Open with standard terms and conditions	648,661
Open to leasing with constraints (limited)	343,449

Approximately 525,740 acres of Federal mineral estate would be closed to mineral leasing to protect sensitive resources (Table 2-15 and Map 2-8A). This includes approximately 35,590 acres of Federal mineral estate that is closed nondiscretionarily. Approximately 648,661 acres would be open to mineral leasing with standard terms and conditions, and 343,449 acres would be open to leasing with constraints to be applied to leases in addition to the standard terms and conditions.

Table 2-16 presents the constraints that would be applied to leases within the special designations and other portions of each planning unit. These constraints include timing limitations (TL) and controlled surface use (CSU), considered to be moderate, and a no surface occupancy (NSO) constraint, considered major. A description of these constraints, to be applied to leases as special stipulations, is presented in Appendix B.

Minerals on split estate lands would be managed in cooperation and collaboration with surface owners and operators as well as appropriate government entities such as county governments, State Land Office, Mining Minerals Division, and New Mexico Oil Conservation Division to determine the appropriate guidelines. Federal and Indian mineral estate underlying surface area managed or owned by private, State, or other Federal agencies would be managed in close coordination with the landowners.

All riparian and aquatic areas would have NSO to protect those habitats. In order to ensure that undocumented or newly acquired riparian-wetland areas are protected, mineral leasing actions would be subject to restriction both at time of lease and during the application to drill process. For all riparian-wetlands areas, no surface use or occupancy would be allowed within up to 200 meters of the outer edge of 100-year floodplains or potential riparian-wetland edge as identified by hydrology, hydric soils, or vegetation. However, an exception may be granted based on a

site-specific evaluation by the authorized officer if an approved plan of operations ensures the protection of water, soil, and habitat resources.

The proposed Taos Plateau ACEC, which includes the North Unit, Ute Mountain, Wild Rivers, and San Antonio zones and a total of 241,210 mineral acres, would be closed to mineral leasing to protect the resource values associated with the ACEC, particularly big game wildlife habitat and migration corridors. The remainder of the Taos Plateau planning unit, consisting of 109,429 acres, would be open to leasing with the CSU and TL stipulation provisions described in Appendix B.

In the Chama planning unit, the Chama Canyons ACEC would be closed to leasing. The one existing oil and gas lease located within the new ACEC would not be re-issued after expiration of its primary term. For the remainder of the planning unit, CSU and TL would be placed on new mineral leasing to protect critical winter and summer ranges and migration corridors for big game. For existing leases in the planning unit, conditions of approval would be attached to APDs to protect deer and elk habitat such as critical winter and summer ranges and migration corridors. In addition, both the Rio Chama WSR and the Rio Chama WSA would remain closed to leasing.

All lands within the expanded and existing Ojo Caliente ACEC, approximately 66,580 acres, would be closed to oil and gas leasing. This is to protect the expanded cultural ACEC which contains prehistoric and historic sites and is located in the Ojo Caliente planning unit.

Within the El Palacio planning unit, any new leases in the expanded Sombrillo ACEC, the proposed Pueblo ACEC, and the Santa Cruz Lake Recreation Area would have an NSO stipulation applied to protect the significant cultural and paleontological resources in this portion of the Española Basin. The remainder of the planning unit would have CSU stipulations applied to leasing as applicable.

Within the West Santa Fe planning unit all new leases within the expanded La Cienega ACEC would contain stipulations for NSO. The newly created Santa Fe Ranch ACEC has two zones: the Ranch Zone would have a CSU stipulation applied while the Diablo Canyon Zone would be closed to leasing. The remainder of the planning unit would have a CSU stipulation applied to any new leasing in those areas.

The Galisteo planning unit would be closed to mineral leasing to protect cultural resources on BLM lands and split estate, and to ensure consistency with Santa Fe County plans. However, if the oil and gas resource is being drained by wells accessing adjacent mineral reserves, the BLM would take action to ensure revenues on the Federal minerals are recovered.

Within the East Side planning unit, all of the minerals within Sabinoso Wilderness and the Sabinoso ACEC would be closed to leasing.

Table 2-16. Alternative A mineral constraints or withdrawals/closures

Special Management Areas [BLM Surface Acres[2]]	Federal Mineral Withdrawals and Closures		
	Locatable Mineral Acres[3]	Mineral Materials Acres	Leasable Mineral Acres Geothermal, Oil and Gas[4]
Taos Plateau planning unit [250,460] — 363,689			
Rio Grande Wild and Scenic River (Upper Gorge) [13,670]	wd–13,050	closed–13,050	closed–13,050
Taos Plateau ACEC [217,810]	open–227,380; wd–23,180	open–0; closed-241,210	closed–241,210;
North Unit [180,290]	open–204,200	closed–204,200	closed–204,200
Ute Mountain Zone [18,370]	wd–4,540	closed–18,370	closed–18,370
San Antonio Zone [8,020]	wd–8,020	closed–8,020	closed–8,020
Wild Rivers Zone [11,220]	wd–10,620	closed–10,620	closed–10,620
Remainder of planning unit [18,980]	open–109,429	open–109,429	CSU/TL–109,429
Lower Gorge/Copper Hill planning unit [42,100] — 43,770			
Lower Gorge ACEC (includes Orilla Verde RA) [21,190]	wd–21,390	closed–21,389;open–1.0	closed–21,390
Rio Grande Wild and Scenic River (Lower Gorge) [3,660]	wd–3,480	closed–3,480	closed–3,480
Copper Hill ACEC [17,200]	wd–18,900	closed–18,879; open–21	closed–6,030; NSO–500;CSU–10,570; fee surface–1,800
Rio Embudo Protection Zone [2,640]	wd–2,610	closed–2,609; open–1.0	closed–2,610
Agua Caliente Protection Zone [3,420]	wd–3,420	closed–3,420	closed–3,420
Lower Embudo Cultural Protection Zone [500]	wd–500	closed–500	NSO–500
Central Protection Zone [10,640]	wd–12,370	closed–12,350; open–20	CSU–10,570
Chama planning unit [40,850] — 86,380			
Chama Canyons ACEC [7,680] (4,630 is outside WSA)	wd–8,180 (5,130 is outside WSA)	closed–8,180 (5,130 is outside WSA)	closed–8,180 (5,130 is outside WSA)
Rio Chama WSR [2,680] (1,620 is outside WSA)	wd–2,280 (1,620 is outside WSA)	closed–2,280 (1,620 is outside WSA)	closed–2,280 (1,620 is outside WSA)
Rio Chama WSA [11,150]	wd–11,150	closed–11,150	closed–11,150
Remainder of planning unit [23,450]	open–68,480	open–68,480	CSU and TL–68,480
Ojo Caliente planning unit [76,850] — 127,820			
Ojo Caliente ACEC [66,150]	wd–66,580	closed–64,280; open–2,300	closed–66,580
Remainder of planning unit [10,700]	open–61,240	open–61,240	CSU–61,240
El Palacio planning unit [77,700] — 83,760			
Santa Cruz Lake Recreation Area [3,340]	wd–3,340	closed–3,340	NSO–3,340
Pueblos ACEC [240]	wd–490	closed–490	NSO–490
Sombrillo ACEC [17,440]	wd–60	closed–18,190	NSO–18,190
Remainder of planning unit [56,680]	open–79,870	open–61,740	CSU–61,740
West Santa Fe planning unit [36,050] — 69,450			
La Cienega ACEC [13,390]	wd–13,350	closed–13,350	NSO–12,760; CSU–470
Santa Fe ranch ACEC [21,030]	open–22,440; wd–710	closed–23,150	CSU–20,360; closed–710
Ranch Zone [21,030]	open–22,44)	closed–22,440	CSU–20,360

Special Management Areas [BLM Surface Acres[2]]	Federal Mineral Withdrawals and Closures		
	Locatable Mineral Acres[3]	Mineral Materials Acres	Leasable Mineral Acres Geothermal, Oil and Gas[4]
Diablo Canyon Zone [710]	wd–710	closed–710	closed–710
Community Growth Area (non-Federal surface)	wd–15,730	open	open
Remainder of planning unit [920]	open–17,220	open–32,950	CSU–35,150
Galisteo Basin planning unit [14,100] — 133,720			
Congressionally designated sites (w/San Lazaro) [450]	wd–750	closed–750	closed–750
San Pedro Mountains San Lazarus Gulch San Pedro Mountains– remainder of area	 open–240 open–2,010	 open–240; closed–2,010	 closed–240 closed–2,010
Community Growth Area (minerals, non-Federal surface)	wd–32,770	open–32,770	closed–32,770
Remainder of planning unit [13,650]	open–99,960	open–97,950	closed–99,960
East Side [52,300] — 619,150			
Sabinoso ACEC (including Wilderness) [19,780]	wd–22,630	closed–22,630	closed–22,630
Remainder of planning unit [32,520]	open–596,520	open–596,520	open–596,520
Common to all planning Units			
Riparian/Aquatic Areas [2,250]	open–1,970	closed–1,970	NSO–1,970

wd = withdrawn from mineral entry.
NSO = open to mineral leasing with a no surface occupancy stipulation.
CSU = open to mineral leasing with a controlled surface use stipulation.
TL = open to mineral leasing with timing limitation stipulation controlling access to a specific time of year (see Appendix B for more detail). Locatable, mineral material and leasable acreages are mineral acres only. BLM surface is added to NSO, CSU and TL stipulations when Federal surface/privates minerals occur and is subtracted when private surface/Federal minerals occur. Closed to leasing acres are only mineral acres.

Locatable Minerals

Under this alternative the following areas would be recommended for withdrawal from mineral entry in addition to those currently withdrawn (see section 2.5.3.5):

Taos Plateau ACEC (North Unit, Ute Mountain, San Antonio, and Wild Rivers Zones)
Rio Chama ACEC
Rio Chama Wild and Scenic River
Rio Chama WSA
Expanded Ojo Caliente ACEC
Expanded La Cienega ACEC
Diablo Canyon (within Santa Fe Ranch ACEC)
Community Growth Areas (West Santa Fe and Galisteo planning units)
Traditional Cultural Property within Sombrillo ACEC
Sabinoso Wilderness
Sabinoso ACEC
Copper Hill ACEC
Rio Grande Wild and Scenic River (Upper and Lower Gorge)
Lower Gorge ACEC (includes Orilla Verde)
Santa Cruz Lake Recreation Area
Pueblo ACEC
Galisteo Basin Archeological Resource Protection Act Sites

Withdrawals under this alternative involve approximately 268,100 acres of the Federal mineral estate administered by the Taos Field Office. All proposed withdrawals are subject to prior existing rights. Because Ute Mountain was acquired, it is not open to the Mining Law. Minerals that are locatable under the Mining Law are leasable if acquired. Leasing of acquired hardrock minerals within the Ute Mountain area would not be allowed. The expanded Ojo Caliente ACEC has a low potential for the occurrence of gold. All the other areas proposed to be withdrawn have no potential or an unknown potential for locatable mineral occurrence.

Salable Minerals

Under this alternative, approximately 511,100 acres are proposed for closure to mineral material sales and free use. Management is the same as the no action alternative, except as follows.

In the Taos Plateau planning unit, the amount of land closed to mineral material disposal would be 299,300 acres. This land would be in the newly created Taos Plateau ACEC, which includes the existing San Antonio SMA, San Antonio WSA, Ute Mountain, and intervening lands. Lands outside of the ACEC would remain open to mineral material disposal.

In the Chama planning unit, the amount of land closed to mineral material disposal would be 700 acres. The Rio Chama ACEC would be created from the non-WSA portion of the Rio Chama SMA and would be closed to mineral material disposal. The Rio Chama WSA would remain closed to disposals so long as it remains a WSA, and would be incorporated into the ACEC if released from wilderness consideration. Lands outside of the ACEC would remain open to mineral material disposal.

In the Ojo Caliente planning unit, mineral material disposal within the enlarged ACEC would be allowed only in the area between El Rito and Ojo Caliente on the north side of NM-111. Lands outside the ACEC would remain open to mineral material disposal, resulting in a total of 64,280 acres in the planning unit closed to disposal.

In the El Palacio planning unit, the amount of land closed to mineral material disposal would be 22,020 acres. The existing SMA would be redesignated as the Pueblos ACEC, increased with the addition of the Nambe Bugge, Kate Owingeh, and Ojito sites, and closed to mineral material disposal. The clay and ash area within the Sombrillo ACEC would be designated as a traditional cultural property and would be available only for tribal uses. An area adjacent to NM 503 would be designated as a community pit.

In the West Santa Fe planning unit, the amount of land closed to mineral material disposal would be 36,500 acres. The La Cienega ACEC would be enlarged and closed to mineral material disposals. A new ACEC, the Santa Fe Ranch ACEC, would be created in the Santa Fe Ranch/Diablo Canyon area and closed to mineral material disposals. Lands outside of the ACECs would remain open to mineral material disposals.

In the Galisteo Basin planning unit, the amount of land closed to mineral material sales and free use would total 2,760 acres. The San Pedro area would be closed to mineral material disposals, except for within San Lazarus Gulch. Within San Lazarus Gulch, surface disturbance associated with mining operations and facilities, including excavation, stockpiling, and infrastructure, would be limited to 10 non-reclaimed acres. Haul roads would be treated or paved by one or more dust suppressant products (e.g., asphalt, chip and seal, chlorides, synthetic polymers, enzymes, or other similar products) approved by the authorized officer to control the generation of dust.

The Galisteo Basin archeological sites designated as ACECs would remain closed to mineral material disposals. If additional significant sites are discovered, they would be included in the ACEC and closed to mineral material disposals.

In the East Side planning unit, the amount of land closed to mineral material disposal would be 22,630 acres. The Sabinoso Wilderness and adjacent ACEC would be closed to mineral material sales and free use.

2.6.3.6 Recreation

Alternative A would establish 11 SRMAs throughout the planning area, and would make some adjustments to the recreation areas currently being managed (Santa Cruz Lake, Orilla Verde and Wild Rivers). In addition, 10 ERMAs would be created to provide guidance for casual uses and custodial management.

Recreation settings, which serve to guide the management of the SRMAs are presented in Table 2-17. Appendix E provides a detailed description of the following settings: primitive, back country, middle country, front country, rural, and urban.

Table 2-17. Acreage of settings

Settings	Acreage
ERMA	410,542
SRMA	185,405
Primitive	44,854
Back Country	19,473
Middle Country	109,683
Front Country	7,638
Rural	3,777
Urban	0

Map 2-10 presents the SRMAs and ERMAs managed under Alternative A, while Table 2-18 below identifies these specific areas and their acreages.

Table 2-18. Acreage of recreation areas

Planning unit	Recreation Name	Designation	Acreage
Taos Plateau	Rio Grande Gorge Recreation Area	SRMA	71,291
	Del Norte River Recreation Management Zone (RMZ)		
	Taos Box RMZ		
	Wild Rivers RMZ		
	Guadalupe Mountain RMZ		
Lower Gorge/ Copper Hill	Rio Grande Gorge Recreation Area (cont.)		
	Orilla Verde and Lower Gorge RMZ		
	Taos Valley Overlook RMZ		
	Horseshoe Curve RMZ		
	Rio Grande Rim and Copper Hill RMZ		
Taos Plateau	Ute Mountain	ERMA	17,820
	San Antonio Gorge	ERMA	8,024
	Taos Plateau	ERMA	186,039
Lower Gorge/ Copper Hill	Rio Embudo	ERMA	14,054
Chama	Chama Canyons	SRMA	13,235
	Chama	ERMA	27,618
Ojo Caliente	Posi	SRMA	4,724
	Ojo Caliente	ERMA	72,108
El Palacio	Palacio Arroyos	SRMA	56,134
	La Puebla	SRMA	680
	Sombrillo	ERMA	17,375
	Santa Cruz Lake	SRMA	3,356
North Santa Fe County	Cieneguilla	SRMA	6,969
	Diablo Canyon	SRMA	713
	West Santa Fe	ERMA	28,384
Galisteo Basin	Cerrillos Hills/Burnt Corn	SRMA	4,811
	San Pedro Mountains	SRMA	2,663
	Galisteo Basin	ERMA	6,617
East Side	Sabinoso	SRMA	19,776
	East Side	ERMA	32,503

Delineated Special and Extensive Recreation Management Areas

SRMAs are established to meet recreation market demand which requires structured or planned recreation management targeting particular activities to produce specific recreation experiences and outcomes. ERMAs offer a variety of dispersed recreation activities through custodial recreation management to resolve use conflicts and provide for visitor safety and resource protection.

Management of each SRMA and ERMA is presented below.

RIO GRANDE DEL NORTE ZONE

Management Objectives: Manage this zone to provide opportunities for visitors to engage in boater skill development or outstanding opportunities for wildlife viewing in these back country and middle country settings.

Outcomes		
Primary Activities: Boating, hiking, fishing.	**Experiences:** Solitude, savoring river and rock-art aesthetics.	**Benefits:** Improved self-confidence, improved boating skills, renewed spirit, and a closer relationship to nature. Economic benefits through special recreation permits. Increased knowledge and appreciation of resources through river guided interpretation.
Setting Prescriptions		
Physical: Primitive. Generally not accessible by road except at John Dunn Bridge (JDB), which is middle country, and Taos Junction Bridge (TJB), which is rural. Remote from highways and population.	**Social:** Up to 16 per group on river. Up to 14 encounters per day on trails and the river.	**Operational:** Signs present at key access points. Patrolled periodically by river rangers. Some use restrictions, limited boating permits required.
Implementing Actions		
Marketing: Develop interpretive signs at JDB on riparian resources, transportation history, user ethics and WSR and boating resources. Limited orientation information about whitewater displayed on BLM website.		**Monitoring:** Vehicle counters, routine surveys, observation, SRP post use reports, and visitor reports of crowding. If trends show that use is over acceptable limits, additional action may be considered, such as encouraging use on other trails.
Management: Signs present at key access points, but limited within the zone; interpretive signs at JDB, trails, shelters, visitor center, and parking areas at Wild Rivers. JDB boating put in, toilets, and signs would be maintained.		**Administrative:** *VRM:* Class I except at JDB which is VRM III. *Travel:* Limited to designated but managed as nonmotorized except at JDB. The "wild" character of these river segments would be maintained through controls on surface-disturbing activity. *Recreation:* Limit the use of signing or other administrative controls. *Permits:* Maintain limits on boating permits to keep social encounters on the river low.

WILD RIVERS RIM ZONE

Management Objectives: Manage this zone to provide opportunities for visitors to engage in nature appreciation, rest and exercise in this front country setting.

Outcomes		
Primary Activities: Hiking, sightseeing, camping, and mountain and road biking.	**Experiences:** Escape from everyday responsibilities, enjoy spectacular views, mental and physical rest, and exercise.	**Benefits:** Sense of wellbeing, gaining closeness to nature, physical fitness, and a greater awareness of aesthetics.
Setting Prescriptions		
Physical: Front country. Improved yet modest, rustic facilities such as campsites, restrooms, trails, and interpretive signs.	**Social:** 30 or more encounters in the front country.	**Operational:** Area personnel are periodically available; rules clearly posted and periodic enforcement presence.
Implementing Actions		
Marketing: Partner with schools and nonprofits to deliver programs to grades K through 8. Provide historic and natural resource interpretation for Wild Rivers Back Country Byway users. Basic orientation information would be displayed on the BLM website.		**Monitoring:** Vehicle counters, routine visitor surveys, SRP reports, and trail registers.
Management: Replace facilities per the Rio Grande Corridor Final Plan.		**Administrative:** *VRM:* Class III. *Travel:* Limited to designated routes. *Permits:* Consider small competitive events and limited number of guide services.

GUADALUPE MOUNTAIN ZONE

Management Objectives: By the year 2030, manage this zone to provide opportunities for visitors to engage in exercise and escape in this back country setting.

Outcomes		
Primary Activities: Hunting, hiking, mountain biking.	**Experiences:** Solitude, exercise.	**Benefits:** Fitness, wellbeing.
Setting Prescriptions		
Physical: Back country. Sparse two tracks and trails. Minimal to nonexistent facilities.	**Social:** Up to 14 encounters per day on trails except during permitted events.	**Operational:** Area personnel are periodically available; rules clearly posted and periodic enforcement presence.
Implementing Actions		
Marketing: Signs and information would be minimal and low key.		**Monitoring:** Trail registers and routine visitor surveys.
Management: Work with partners to develop trail from Questa to the SRMA with potential to link to other trails.		**Administrative:** *VRM:* Class II. *Travel:* Limited to designated routes. *Recreation:* Camping not allowed (except in designated sites along the Wild Rivers rim). *Permits:* Consider small competitive events and limited number of guide services.

TAOS BOX (JDB TO TJB) ZONE

Management Objectives: Manage this zone to provide opportunities for visitors to engage in whitewater rafting with convenient access in this back country setting.

Outcomes		
Primary Activities: Boating, fishing, swimming, hiking.	**Experiences:** Adventure, risk, teamwork, testing skills, time with family.	**Benefits:** Improved outdoor confidence, stronger ties with family and friends.
Setting Prescriptions		
Physical: Back country. Generally not accessible by road except at TJB which is rural.	**Social:** Up to 16 per group on river. Up to 14 encounters per day on trails. 30 or more encounters in the rural areas.	**Operational:** Signs present at key access points.
Implementing Actions		
Marketing: Develop interpretive signs at TJB and JDB on riparian resources, transportation history, user ethics and WSR and boating resources. Basic orientation information displayed on website and in Rio Grande Gorge brochure.		**Monitoring:** Vehicle counters with routine surveys, observation, and SRP post use reports.
Management: Maintain existing facilities. The Rio Grande Corridor Plan would serve as guidance at the activity plan level. Pursue access easements and explore trail opportunities along the Rio Pueblo de Taos.		**Administrative:** *VRM:* Class I except at TJB which is VRM III. *Travel:* Limited to designated but managed as nonmotorized except at TJB. *Recreation:* Limit the use of signing or other administrative controls. *Permits:* Maintain limits on boating permits to keep social encounters on the river low.

ORILLA VERDE AND LOWER GORGE ZONE

Management Objectives: Manage this zone to provide opportunities for visitors to engage river-related activities with convenient access and creature comforts in this rural setting.

Outcomes		
Primary Activities: Boating, camping, fishing, hiking, and wildlife viewing, picnicking, swimming.	**Experiences:** Enjoying time with friends and family, connection to nature, and rest.	**Benefits:** Stronger ties with friends and family, enhanced understanding of nature.
Setting Prescriptions		
Physical: Rural. Proximate to NM Highway 68 and NM 570. Modified by agriculture, modern and convenient facilities.	**Social:** Seasonally and boating dependent; high level of encounters at developed sites.	**Operational:** Highway auto and truck traffic, orientation information, onsite education, and personnel available. Regulations prominent, reservations, routine enforcement.
Implementing Actions		
Marketing: Campgrounds and day use sites would be featured in Rio Grande Gorge brochure, on BLM website, and Zimmerman and Rio Grande Gorge visitor centers. Orientation signs would be placed along NM Highway 68. Interpretive information about the Apodaca Trail, the Old Spanish Trail, and the Camino Real would be available at the Rio Grande Gorge Visitor Center. Display the richness of archaeological and historical resources of the area.		**Monitoring:** Observation by stratified sample and visitor survey or interviews every 2–5 years, vehicle counters at Quartzite and County Line, RUPs, and permit post use reports.
Management: Continue to replace old campground facilities through deferred maintenance. Maintain trails. Construct trail along NM 570 from Pilar Campground with Taos Junction Bridge. Collaborate with NMDOT and pursue safe access from NM Highway 68 along the Bosque segment. The Rio Grande Corridor Plan would serve as guidance at the activity plan level.		**Administrative:** *VRM:* Class II *Travel:* Limited to designated routes. *Permits:* Maintain limits on boating permits. Consider up to three vending permits throughout this zone. *Land Use:* Rights-of-way exclusion. Minerals: Closed to leasing/Withdrawn.

TAOS VALLEY OVERLOOK ZONE

Management Objectives: Manage this zone to provide opportunities for visitors to engage in routine exercise and escape from responsibilities in this community market, middle country setting.

Outcomes		
Primary Activities: Hiking, dog walking, horseback riding, and watching the sunset.	**Experiences:** Enjoy personal time, exercise, and enjoy nature.	**Benefits:** Peace of mind, improved health and fitness, greater aesthetics awareness.
Setting Prescriptions		
Physical: Middle country. Natural appearing except from primitive access routes to trailheads. Maintained and marked trails, simple and few trailhead developments, signs, and toilet.	**Social:** Up to 14 encounters/day on trails except during permitted events. Vehicle track observed. Occasional noise and litter.	**Operational:** Orientation materials and low level interpretive media. Personnel periodic. Rules clearly posted with some restrictions. Periodic enforcement.
Implementing Actions		
Marketing: Primarily for community use. Keep highway signs small and low key. Orientation information would be available at Rio Grande Gorge Visitor Center. May market special events to broader audience. Consult 2006 Taos Valley Overlook Plan for guidance on interpretive media and themes. Interpretive information would include the Old Spanish Trail and Camino Real as well as other themes from the 2006 Taos Valley Overlook Plan. Provide rustic trail signs with difficulty level and distance information.		**Monitoring:** Vehicle counters, trail register, visitor survey or interviews every 2–5 years. *Indicators:* Visitor complaints of crowding, unauthorized trails, and visible erosion. Potential adaptive management for impacts could include limiting the number of SRPs for guided trips and special events.
Management: Develop trails according to the 2006 Taos Valley Overlook Plan. Develop rustic trailheads to rim; one on SE boundary and one on NE boundary. Acquire land and work with NM DOT and Taos County. If necessary, harden surfaces to the level needed to protect resources. Barbed wire fence the boundary where appropriate for vehicle closure, and fortify and define trailhead boundaries with materials that fit setting prescriptions. Purse access easements and explore trail opportunities along the Rio Pueblo de Taos. Frequent patrols initially to establish management presence.		**Administrative:** *VRM:* Class I *Travel:* Closed. Two and four wheel drive at trailheads. Nonmotorized and mechanized use everywhere else. *Permits:* Issue commercial recreation permits appropriate to setting prescriptions. Consider mountain bike guide services and small competitive events.

HORSESHOE CURVE ZONE

Management Objectives: This is a destination and a southern gateway for any visitor to Taos County. Manage this zone to provide opportunities for visitors to engage in natural and cultural history and orientation to the area in this rural setting.

Outcomes		
Primary Activities: Sightseeing and interpretation.	**Experiences:** Enjoy views, learn local history, geology, and culture, and environmental learning.	**Benefits:** Enhanced stewardship in other locales, economic benefits in Taos County, increased value in community by visitors, enhanced pride in community, and a greater
Setting Prescriptions		
Physical: Rural. Adjacent to NM Highway 68, modified by agriculture, modern facilities.	**Social:** High level of encounters.	**Operational:** Highway auto and truck traffic, elaborate education and orientation signs. Regulations prominent, routine enforcement and maintenance of signs.
Implementing Actions		
Marketing: Located along the NM Highway 68, signs maintained by BLM at this NMDOT rest area would serve as a gateway to Taos County. Onsite marketing for Taos County museums and business in general, BLM website. Install interpretive signs, benches, and interpretive trail through partnerships and volunteers. Interpretive information would include the Old Spanish Trail and the Camino Real as well as themes identified in the 2006 Taos Valley Overlook Plan.	**Monitoring:** Communication and interviews with local agencies and businesses every 2–5 years.	
Management: Set up an MOU with NMDOT on maintenance of signs and interpretive trail. Patrol on regular basis with recreation and/or maintenance staff. Obtain access easements on private property or pursue property acquisitions adjacent to NMDOT rest area.	**Administrative:** *VRM:* Class III *Travel:* Limited to designated routes.	

RIO GRANDE RIM AND COPPER HILL ZONE

Management Objectives: Manage this zone to provide opportunities for visitors to engage in routine exercise and escape in this middle country setting.

Outcomes		
Primary Activities: Hiking, mountain biking, and dog walking.	**Experiences:** Independence, exploration, and solitude.	**Benefits:** Sense of adventure, balanced spirit, and better sense of place.
Setting Prescriptions		
Physical: Middle country. Distance from facilities and roads. Facilities minimal to nonexistent.	**Social:** Up to 14 encounters/day on trails except during permitted events.	**Operational:** Two and four wheel drive near old vehicle access points.

Implementing Actions	
Marketing: Minimal marketing except for Rio Grande Rim Trail.	**Monitoring:** Visitor survey or interviews every 2–5 years.
Management: Occasional or rare patrols. Communication with adjacent land owners. Obtain access easements on private property to develop nonmotorized trail connections along the east and west rims of the Rio Grande.	**Administrative:** *VRM:* Class II *Travel:* Limited to designated. *Permits:* Consider SRP for an annual competitive trials riding event, excluding Rio Embudo Canyon.

UTE MOUNTAIN ERMA

Management Objectives: Manage this area to provide an open setting within this undeveloped market with minimal to no facilities and controls where unconfined recreation and casual use, wildlife viewing, and hunting can be maximized.

Implementing Actions	
Marketing: Signs and information would be minimal and low key. Information provided upon request.	**Monitoring:** Trail registers. State game and fish reports for hunting unit.
Management: No additional trails would be developed. The Rio Grande Corridor Plan serves as guidance for boating on the Ute Mountain stretch. Partner with NM DOT to establish a watchable wildlife area in an appropriate location. If necessary, contain and define parking with simple and rustic materials and design to prevent disturbance and protect resources.	**Administrative:** *VRM:* Class I except VRM II along travel routes *Travel:* Closed except limited to designated routes along north and west borders. *Recreation:* Trash would be packed out. Dead and down wood may be collected for camp fires. Parking not allowed beyond 300' of designated routes. Camping prohibited within 300' of descent points into the Rio Grande or Costilla Creek.

SAN ANTONIO ERMA

Management Objectives: Manage this zone to provide opportunities for visitors to engage in routine exercise and escape in this middle country setting.

Implementing Actions

Marketing: Signs and information would be minimal and low key. Information provided upon request. Continued management of watchable wildlife program.

Monitoring: Annual wilderness monitoring report.

Management: Ranger patrols rare. Management actions are limited to implementing transportation plan.

Administrative: *VRM:* Class I
Travel: Limited to designated routes.
Recreation: Trash and human waste to be packet out. Fires in containers only. Dead and down wood collecting only.

TAOS PLATEAU ERMA

Management Objectives: This is an undeveloped market where users can get several miles from human development and activity. Manage this area to provide an open setting with minimal to no facilities and controls where unconfined recreation and casual use can be maximized.

Implementing Actions

Marketing: Provide a kiosk for orientation to establish entrance and identity of BLM public land. Other signs and information would be minimal and low key.

Monitoring: Routine surveys. Participate in hunter contact stations, and vehicle counters. Trail register and routine visitor surveys in the Guadalupe Mountain area within Wild Rivers Recreation Area.

Management: Designate and sign routes. Implement transportation plan. Post regulations and Leave No Trace ethics at access points. Purse access easements and explore trail opportunities along the Petaca Drainage. Maintain trails in the Guadalupe Mountain area. Work with partners to develop trail from Questa to Zimmerman Visitor Center. Contain and define parking if needed to prevent disturbance and protect resources in areas such as Las Mestenas.

Administrative: *VRM:* Class II
Travel: Limited to designated routes.
Recreation: No camping in the Guadalupe Mountain area within Wild Rivers Recreation Area.
Permits: Consider small competitive events within Las Mestenas and guide services in remainder of unit.
Minerals: Closed to mineral material sales.

RIO EMBUDO ERMA

Management Objectives: Manage this area to provide an open setting in a community market with well-defined trailhead or access points to protect the watershed. There would be minimal to no facilities and controls where unconfined recreation and casual use can be maximized.

Implementing Actions

Marketing: Signs and information would be minimal and low key. Information available upon request.

Monitoring: Trip logs from fishing SRPs. Patrol observations. Visitor and public complaints.

Management: Barricade sensitive areas from motor vehicles. If necessary, contain and define parking and/or harden surfaces to the level necessary to protect resources. Develop some single track trails from the Dixon area. Implement transportation plan.

Administrative: *VRM:* Class II along the Rio Grande, class I along the Embudo and Agua Caliente WSR Study Corridors, and class III in the Central Protection Zone
Travel: Limited to designated.
Maintain WSR values.

CHAMA PLANNING UNIT—CHAMA CANYONS SRMA

Management Objectives: This is an undeveloped destination market. The Rio Chama is a destination for float boaters, primarily from New Mexico and Colorado, with others from Arizona, California, and Texas. Manage this area to provide exceptional high scenic quality opportunities for multi-day float boating trips and trout fishing in this primitive and back country setting.

Outcomes

Primary Activities: Boating, camping and hiking.	**Experiences:** Solitude, challenge and risk, and spending time with friends and family.	**Benefits:** Greater self-reliance, improved outdoor skills, sense of adventure, stronger relationships, and a greater awareness of aesthetics.

Setting Prescriptions

Physical: Primitive transitioning to back country at access points. Accessible by road at boat launch and rim locations for trailhead access. Facilities subordinate to the surrounding landscape.	**Social:** Up to 16 people per group. Up to 6 encounters per day in Primitive setting. Up to 14 encounters per day in back country setting.	**Operational:** Signs at key access points. Ranger patrols rare and usually by boat.

Implementing Actions

Marketing: Interpretation would be conducted off site, in the Rio Chama brochure, or through ranger patrols. Any onsite signage should be low key. Interpretation of the Old Spanish Trail National Historic Trail would be provided through guides on the Rio Chama.

Monitoring: Boater register and SRP trip logs. Routine surveys every 5 years. Annual photo points at campsites within the wilderness area. Lottery application numbers. Indicators of impacts include: visitor perception of crowding and unauthorized campsites.

Management: Adaptive management and "limits of acceptable change" would be used to deal with user impacts. Continue to maintain trails such as Navajo Peak Trail. Possible strategies could include: increasing ranger patrols and/or decreasing number of weekday launches. Consult Interim Management Policy for Lands under Wilderness Review.

Administrative: *VRM:* Class I.
Travel: Closed. Motorized use allowed at access points and outside the designated river wilderness area.
Permits: Manage river permits according to 1990 allocation.
Recreation: Trash and human waste to be packet out. Fires in containers only. Dead and down wood collecting only.
Land Use: Rights- of-way exclusion area.
Minerals: Closed to leasing/Withdrawn/Closed

CHAMA ERMA

Management Objectives: This is an undeveloped market which benefits nearby communities. Manage this area to provide an open setting with minimal to no facilities and controls where unconfined recreation and casual use can be maximized.

Implementing Actions

Marketing: Signs and information would be minimal and low key. Interpretation of the Old Spanish Trail National Historic Trail would be provided with a sign along the auto tour route on NM Highway 84/downstream of Abiquiu Dam.

Monitoring: Patrol observations. Trail registers.

Management: Contain and define parking if needed to prevent disturbance and protect resources. Implement transportation plan.

Administrative: *VRM:* Class II within 0.5-mile buffer of Hwy 84. Class III in the Nutrias and class IV everywhere else.
Travel: Limited to designated routes.

OJO CALIENTE PLANNING UNIT – POSI SRMA

Management Objectives: This is a destination market. The area immediately adjacent to the Ojo Caliente Hot Springs is a destination for cultural resource enthusiasts. It attracts visitors from the local area and world-wide. Manage this area to provide opportunities to learn and explore natural and cultural history in this middle country setting.

Outcomes		
Primary Activities: Hiking, visiting pueblo ruins, and mountain biking.	**Experiences:** Exercise, enjoy learning local archaeology, and sharing cultural heritage.	**Benefits:** Improved physical health, increased appreciation of cultural resources, sense of wellness, and a better sense of place.
Setting Prescriptions		
Physical: Middle country. Marked trails, signs, and simple and basic trailhead developments. Encompasses Cerro Negro, Cerro Colorado east to Ojo Caliente and NM 285.	**Social:** Up to 14 encounters per day off travel routes and 29 on travel routes.	**Operational:** Maps posted on site. Regulations clearly posted and intermittent law enforcement presence.
Implementing Actions		
Marketing: Develop interpretive objectives for key resource values to be presented in brochures, off site, or through guided hikes. Provide low key signs and maps on site and at Ojo Caliente Hot Springs.		**Monitoring:** On site trail register or surveys with interviews every 2–5 years. Commercial permit trip logs. Observe, assess, and apply adaptive management to the following indicators: Damage to cultural resources Visitor complaints Number of unauthorized trails Consider the following actions if unacceptable impacts occur from visitor use: Provide interpretive hikes Increase management presence.
Management: Identify and develop trails connecting pueblos. Explore trail links from public land to Santa Fe County. Provide education material on site to increase awareness and appreciation of resources		**Administrative:** *VRM:* Class II. *Travel:* Closed. Nonmotorized and mechanized use on trails. *Recreation:* Closed to shooting. Closed to camping. Partner with NMDGF Game Commission to close to hunting. *Permits:* Consider permits for guided trips to a consistent level with low social encounters. Dogs on leash in high use areas.

OJO CALIENTE ERMA

Management Objectives: This area is undeveloped and used primarily by nearby communities. Manage this area to provide an open setting with minimal to no facilities and controls where unconfined recreation and casual use can be maximized.

Implementing Actions

Marketing: Signs and information would be minimal and low key. Information available upon request.

Management: Provide signs and maps on site. Contain and define parking when needed to prevent disturbance and protect resources. Implement transportation plan. Develop mountain bike and hiking trails with demonstrated user demand.

Monitoring: On site trail register and vehicle counters. Commercial permit trip logs.

Administrative: *VRM:* Class I in Back Country, class III in right of way corridors, and class II in the remainder of the ERMA.
Travel: Closed south of Canada Ancha. Limited to designated in the remainder of the planning unit.
Permits: Consider permits for guided trips or events to a consistent level with low social encounters.

EL PALACIO PLANNING UNIT—PALACIO ARROYOS SRMA

Management Objectives: This area is both a destination for motorized, and motorcycle use across New Mexico as well as routine use by nearby communities in this middle country setting. Manage this area to provide high quality and diverse motorized and nonmotorized trail opportunities.

Outcomes

Primary Activities: Motorcycling, OHV use, hiking and running, dog walking, mountain biking, horseback riding, target shooting, and collecting medicinal herbs.	**Experiences:** Challenge, competition, risk, exercise, fresh air and open space, and enjoying peace.	**Benefits:** Physical health, convenience ('close to home'), improved skill and self-confidence, spiritual connection to beauty and nature, and mental wellbeing. Chance for youth to hone skills and be easily supervised, connection to family, increased knowledge, appreciation, and pride in key natural and historic resources, greater sense of place, reduced vandalism and litter.

Setting Prescriptions

Physical: Middle country. Marked trails and very simple trailheads. Routes primarily dirt, with limited construction where needed for resource protection. Limited rustic facilities, such as parking, ramps, basic toilet, and signs.	**Social:** Up to 14 encounters per day on trails. Up to 29 encounters/day or higher during special events.	**Operational:** Increase the level of law enforcement presence and education to control unauthorized trails. Provide some nonmotorized trails. Provide staging areas for variety of motorized and nonmotorized activity and warm up for motorcycle and ATV use.

Implementing Actions

Marketing: This area should serve a wide audience. Develop a brochure on recreation and cultural resources of the area. Install an information kiosk that helps define the entrance to public land and identify BLM. Develop a brochure on motorized safety, regulations, and user ethics. Provide interpretive information on key resource values including alternative routes of the Old Spanish Trail and Camino Real. Provide education programs on Tread Lightly and Safety of OHV use. Provide information on BLM website and BLM contact stations.	**Monitoring:** Vehicle counters and surveys with interviews every 2–5 years. Monitor number of unauthorized trails. Vehicle counter and routine surveys. Trail registers. Monitor number of unauthorized trails.
Management: Provide signs and maps on site which indicate travel route designations. Provide distinct single track, ATV, and nonmotorized trails. Assign one park ranger to monitor and manage recreation use. Increase the level of law enforcement presence and education to control unauthorized trails. Define staging areas to include a restroom, parking, a vehicle barrier/fence to define the motorized/nonmotorized staging area, and provide a youth riding track/warm up loop. Staging areas would be clearly marked or defined and designed with traffic circulation and both motorized/nonmotorized access routes. If necessary, harden surfaces in staging	**Administrative:** *VRM:* Class II, except class III for right-of-way corridor, and staging areas near La Villita and Quarteles. *Travel:* Limited to designated routes with staging areas. *Recreation:* Close staging areas to target shooting. Dogs on leash in high use areas. Dogs under voice command everywhere else. *Permits:* SRPs allowed for competitive events and guided commercial recreation. Consider larger scale competitive events and commercial activities.

areas to the level appropriate for resource protection.

LA PUEBLA SRMA		
Management Objectives: This is a community market used primarily for local residents and surrounding communities. It offers a unique setting for diverse interaction among recreational enthusiasts and the environmental educational opportunities provided by the Wildlife Center. Manage this area to provide opportunities for community access to learning, escape, and exercise in this rural setting.		
Outcomes		
Primary Activities: Hiking, dog walking, mountain biking, horseback riding, ATV and motorcycle use, interpretive learning, and picnicking.	**Experiences:** Escape from the city, routine exercise, historical discovery, access to close to home amenities, adventure, and skill development.	**Benefits:** More well-rounded youth development, lifestyle improvement, increased desirability as a place to live, increased awareness and appreciation of nature and historic resources, reduced vandalism and litter, fitness, wellbeing, improved skill and confidence.
Setting Prescriptions		
Physical: Rural. Proximate to NM Highway 68, Santa Fe County Roads, and business and residential development. Well defined but limited facilities.	**Social:** Up to 29 encounters per visit.	**Operational:** Maps posted on site. Regulations clearly posted and intermittent law enforcement presence.
Implementing Actions		
Marketing: Provide interpretive material onsite to increase awareness and appreciation of resources, particularly paleontological. Place trailhead signs offering information and regulations on various activities taking place in area. Interpret Tread Lightly principles.		**Monitoring:** Trail registers, vehicle counters. Patrol observations. Visitor complaints.
Management: Acquire access easements in order to develop trailhead/staging areas. Develop as a park with multiple access/trailhead areas such as Country Road 88B. Define and segregate motorized/nonmotorized use areas with moderate design traffic circulation and access roads/trails. Fence and sign access to provide protection of paleontological and cultural resources. Inventory and designate routes. Conduct rehabilitation of soil and vegetation. Design nonmotorized trails using arroyos, existing routes, and some new construction. Establish a ranger presence.		**Administrative:** *VRM:* Class II *Travel:* Closed—180 acres, Limited to Designated—500 acres *Permits:* Consider competitive events, commercial activities, venders, and guide services. *Minerals:* Controlled surface use of leasable minerals.

SOMBRILLO ERMA

Management Objectives: Primarily used by local residents of the community. By the year 2030, manage this area to provide community access to public land and an open setting with minimal to no facilities and controls where unconfined recreation and casual use can be maximized.

Implementing Actions

Marketing: Install a kiosk and trailhead signs to identify entrance to BLM public land. Include interpretation of paleontological resources. Keep other information minimal and low key. Marketed primarily to local communities.

Monitoring: Trail registers. Patrol observations.

Management: Build a fence and sign areas to define motorized and nonmotorized zones. Obtain and develop access points and easements to public land from adjacent private property. Locate trails into public land adjacent to Santa Fe County Open Space parcels. Connect historic villages with trails and enhance mountain biking opportunities where there is demonstrated demand. Adopt, maintain, and re-route the Nambe Badlands Trail and evaluate other user defined trails. Install signs at public land boundaries. Install trailheads and directional signs to define use and protect resources.

Administrative: VRM: Class II
Travel: Majority is limited to designated.
Minerals: Closed to mineral material sales.

SANTA CRUZ LAKE SRMA

Management Objectives: This is a destination for fishing and used routinely by residents in surrounding communities. By the year 2030, manage this area to enhance fishing and boating opportunities in this middle country and front country setting.

Outcomes

Primary Activities: Boating, fishing, camping, and hiking.

Experiences: Family and group affiliation, exercise, and the convenience of being close to home.

Benefits: Improved fitness, sense of wellness, and a better sense of place. Stronger ties with family and friends, obtaining food.

Setting Prescriptions

Physical: Front country around the lake and back country everywhere else. Improved yet modest, rustic facilities such as campsites, restrooms, trails, and interpretive signs in front country. SRMA boundary modified and expanded from Recreation Area to NM Hwy. 503.

Social: Up to 29 encounters per day in Front Country. Up to 14 encounters per day on trails in middle country. Up to 14 encounters/day on trails in back country. Up to 6 people per group.

Operational: Rules clearly posted. Periodic enforcement presence.

Implementing Actions

Marketing: Orientation information available on BLM website and at BLM contact stations. Provide onsite and offsite information in Spanish.

Monitoring: Traffic counter and routine surveys.

Management: Develop additional nonmotorized trails throughout the zone that are well defined with trailheads and signs.

Administrative: *VRM:* Class III around existing facilities, Class II in remainder,
Travel: Limited to designated routes. Dogs on lease in high use areas.
Permits: Consider commercial activities, events, and one vending permit. Open to shooting between recreation area boundary and

expanded SRMA boundary.
Land Use: Right-of-way exclusion within original boundary
Minerals: No Surface/Withdrawn/Closed

WEST SANTA FE—CIENEGUILLA SRMA

Management Objectives: This area is popular among the surrounding communities for interpretation of cultural and historic resources. Manage this area to provide opportunities to learn about historic and cultural resources in this front country setting.

Outcomes

Primary Activities: Exploration of cultural resources, hiking, interpretation, and rock art viewing.	**Experiences:** Exploration, learning local culture, feeling this is a special place, and discovery.	**Benefits:** Greater knowledge and appreciation of historic and cultural resources, connection to nature and history, greater sense of community pride and satisfaction, and reduced looting and vandalism of prehistoric sites.

Setting Prescriptions

Physical: Front country. Proximate to county roads and Interstate 25. Improved yet rustic restrooms, trails, and interpretive signs. This encompasses area from powerline south to NM 599.	**Social:** 29 or more encounters per day.	**Operational:** Provide two pedestrian access points to rim and canyon. Nonmotorized, pedestrian access only. Regulations clearly posted, intermittent law enforcement presence.

Implementing Actions

Marketing: Attempts would not be made to specifically draw visitors to the petroglyphs in the area. However, BLM would work with partners to interpret the collective resources of the Galisteo Basin through a variety of offsite and onsite forums. Once community members and visitors arrive at Cieneguilla, there would be low interpretive signs and a brochure to illustrate and narrate onsite cultural history. Themes would be geared toward pre-history and petroglyphs, the Camino Real, and the Cieneguilla Spanish Land Grant. Orientation information, onsite education, and guided tours would be available on a case-by-case basis by volunteers and BLM staff.

Monitoring: Onsite trail register, vehicle counter, or surveys with interviews every 2–5 years.
Observe, assess, and apply adaptive management to the following indicators:
- Damage to petroglyphs
- Visitor and neighbor complaints
- Visitor perception of crowding
- Number of unauthorized trails

Consider the following actions if unacceptable impacts occur from visitor use:
- Require scheduled, guided trips.
- Open to day use only.
- Increase management presence
- Limit size and/or amount of parking.

Management: Provide hiking trail loops from parking, to petroglyphs and to rim. Install fencing and BLM signs around perimeter of management zone (to south of road and powerlines) for site protection. Provide pedestrian access through fencing. Install a restroom. Manage site in partnership with other local and Federal agencies, neighbors, and conservation groups. Assign one park ranger to monitor and manage recreation use. Partner with community, county, and organized groups to provide site stewards. Explore trail links from public land to Santa Fe County.

Administrative: *VRM:* Class II
Travel: Limited to designated. However, routes south of the powerline would be used for administrative use only as well as pedestrian or nonmotorized access. Close roads south of the powerline.
Permits: Consider permits for guide services. Dogs on leash in high use areas. Closed to camping. Close area to shooting.
Minerals: No surface/Withdrawn/Closed

DIABLO CANYON SRMA

Management Objectives: This area is used primarily by nearby communities. Manage this area to provide opportunities for access to diverse trails, learning, and unstructured play in this middle country setting.

Outcomes

Primary Activities: Hiking, motorized use, rock climbing, dog walking and interpretation.	**Experiences:** Adventure, risk, exercise, exploration, enjoy peace, quite, and beauty, and learning history and environment.	**Benefits:** Improved skills and physical fitness, a greater sense of aesthetics, mental wellbeing, and a connection to community and western heritage.

Setting Prescriptions

Physical: Middle country. Distant from improved roads but proximate to residences. Marked trails, signs, and simple, basic trailhead developments. Includes the canyon over to Buckman Road to the Rio Grande and a small section to the north.	**Social:** 7–14 encounters off travel routes. Up to 29 en route.	**Operational:** Maps posted on site. Regulations clearly posted and intermittent law enforcement presence.

Implementing Actions

Marketing: Partner with the Santa Fe National Forest to help residents and users reconnect to the Rio Grande through environmental education and interpretation. Information available upon request.

Monitoring: Onsite trail register, vehicle counter, or surveys with interviews every 2–5 years.
Observe, assess, and apply adaptive management to the following indicators:
- Visitor complaints
- Visitor perception of crowding
- Number of unauthorized trails
- Number and size of campground rings

Consider the following actions if unacceptable impacts occur from visitor use:
- Close to camping
- Increase management presence and law enforcement presence
- Provide educational material on site to increase awareness and appreciation of resources
- Limit size and/or amount of parking

Management: Provide signs and maps onsite. Define existing staging area into canyon with rustic vehicle barriers and signs. Manage site in partnership with the Santa Fe National Forest. If necessary, harden surfaces and provide a toilet to the level appropriate for resource protection.

Administrative: *VRM:* Class I
Travel: Closed.
Permits: Consider guide permits. Close area to shooting. Use of new permanent climbing hardware requires pre-approval.

WEST SANTA FE ERMA

Management Objectives: The Cerrillos Hills Historic Park, managed by Santa Fe County and adjacent to BLM, is a high visitor use/destination area for hiking and interpretation of mining history. The remainder of the ERMA is undeveloped. By the year 2030, manage this area to protect resources with a well-defined transportation system. Provide an open setting with minimal to no facilities and controls where unconfined recreation and casual use can be maximized.

Implementing Actions

Marketing: Primarily use by local communities. Educate youth and other publics to safe and ethical motorized and nonmotorized use. Information available upon request.

Monitoring: Patrol observations. Trail registers and vehicle counters.

Management: Partner with the Forest Service on potential trailheads. Assign recreation and other staff to monitor and manage recreation use. Actively engage organized user groups to help patrol, monitor, and educate the public about resource values. Provide some single track trail. Implement transportation plan.

Administrative: *VRM:* Class II
Travel: Limited to designated routes. Designate specific opportunities for motorized single track as well as other motorized and nonmotorized travel modes. Close the Boondocks Pasture to motorized use as well as a 0.25 to 1-mile buffer immediately adjacent to Las Campañas.
Permits: Consider on case by case basis. R&PP in T. 16 N., R. 8 E., section 18 near Camel Tracks, specifically for a shooting range.

GALISTEO BASIN— CERRILLOS HILLS/BURNT CORN SRMA

Management Objectives: This is an undeveloped destination market used primarily by nearby communities. Manage this area to provide access to trails and open space, opportunities for routine exercise and escape, and learning local history and prehistory in this front country and middle country setting.

Outcomes

Primary Activities: Exploring history and pre-history, hiking, horseback riding, mountain biking, and casual use recreational mining/prospecting.	**Experiences:** Discovery, freedom, escape from traffic/city/noise, and exercise using trails and open space close to home.	**Benefits:** Gaining knowledge and appreciation of Galisteo resources, mental well-being, connection to nature, beauty, community, and western heritage, physical fitness, and enhanced quality of life.

Setting Prescriptions

Physical: Front country at potential future interpretive center and at wayside exhibits. Middle country in remainder (at trailheads and recreation facilities). Proximate to county roads and residences. Trailhead and recreation facilities should be simple, modest, and use materials that fit this setting.	**Social:** Up to 29 or more encounters in front country. Up to 14 encounters per day in middle country off travel routes and up to 29 on travel routes.	**Operational:** Maps posted on site. Regulations clearly posted and intermittent law enforcement presence.

Implementing Actions

Marketing: Offer guided tours only in sensitive cultural areas on a case-by-case basis. Cultural resources would be marketed on a broad scale at off-site locations. Coordinate with partners to provide information about significant, but fragile Galisteo Basin resources at selected sites and wayside exhibits. Market through neighborhood and archeological partners. Market interpretive resources and wayside exhibits to an international audience and other areas to the local surrounding communities. Develop publications and environmental programs that can be used both on and off site where appropriate. Engage partners in funding and operation of interpretive resources/sites.	**Monitoring:** Vehicle counters. Patrol observations and trail registers.
Management: Explore and locate trail links from public land to Santa Fe County Open Space. Locate and construct trail to Grand Central Mountain. If necessary, harden surfaces to the level appropriate for resource protection.	**Administrative:** *VRM:* Class II for Cerrillos Hills and Galisteo Basin Protection Act sites. Class III in remainder of planning unit. *Travel:* Limited to designated routes including public land areas adjacent to Cerrillos Hills and in Burnt Corn. Burn Corn area closed to motorized travel. *Recreation:* Casual use recreational mining includes only hand tools, panning, nonmotorized sluicing, and metal detectors. *Permits:* Consider guided services. Close adjacent areas to shooting.

SAN PEDRO MOUNTAINS SRMA

Management Objectives: This is a market used primarily by nearby communities. Manage this area to provide access to trails and opportunities for routine exercise and escape in this middle country setting.

Outcomes		
Primary Activities: Hiking, dog walking, biking, horseback riding, and recreational-prospecting.	**Experiences:** Exercise, enjoying nature, and escape.	**Benefits:** Peace of mind, improved health and fitness, appreciation of nature, and enhanced quality of life.
Setting Prescriptions		
Physical: Middle country. Proximate to residences and the Turquoise Trail National Scenic Byway. Natural appearing except from primitive two track routes. Maintained and marked trails, with simple and few trailhead signs.	**Social:** Up to 14 encounters per day on trails and up to 29 en route.	**Operational:** Rules clearly posted with some restrictions. Post maps on simple trailhead signs.

Implementing Actions

Marketing: Keep information and signs minimal and low key. Information available upon request.

Management: Partner with neighbors and local agencies to negotiate access easements across private property to BLM public land, and foster uses in collaboration with adjacent land owners and other land users. Ensure any open mines or mining related hazards on public lands are adequately mitigated to provide for public safety. Explore trail links between public land and Santa Fe County Open Space. Develop rustic trails and signs. Provide trail maps upon request.

Monitoring: Trail registers and visitor survey or interviews every 2–5 years.

Administrative: *VRM:* Class III
Travel: Limited to designated routes, with opportunities for nonmotorized and/or mechanized trail use.
Permits: Consider on case by case basis.

GALISTEO BASIN ERMA

Management Objectives: This is an undeveloped market. By the year 2030, manage this area to provide an open setting with minimal to no facilities and controls where unconfined recreation and casual use can be maximized.

Implementing Actions

Marketing: Information would be minimal and low key.	**Monitoring:** Visitor or public complaints. Range allotment evaluations.
Management: Implement transportation plan.	**Administrative:** *VRM:* Class III *Travel:* Limited to designated. *Permits:* Consider on case by case basis.

EAST SIDE PLANNING UNIT—SABINOSO SRMA

Management Objectives: This is an undeveloped market with limited access. With new opportunities for access, this area would be used primarily by New Mexico residents. Manage this area to provide access, solitude and unconfined recreation in this primitive setting.

Outcomes

Primary Activities: Hunting and hiking, backpacking and wildlife viewing.	**Experiences:** Solitude and exploration.	**Benefits:** A spiritual connection to nature, a sense of adventure and greater awareness of aesthetics.

Setting Prescriptions

Physical: Primitive. Remote from improved roads and population. Provide small, rustic and defined parking areas with a sign at potential trail heads. Only natural materials should be used.	**Social:** Guidance to be developed in Wilderness Management Plan.	**Operational:** No mechanized use allowed. Visitor controls not apparent. Enforcement presence rare.

Implementing Actions

Marketing: Interpretation conducted off site. Develop a Sabinoso Wilderness brochure which provides orientation and interpretation of area resources. Other signs and information would be minimal and low key.	**Monitoring:** Develop a wilderness monitoring plan. Annual wilderness reports. Trail registers. *Indicators:* Visitor reports of crowding, visible erosion on trails, etc.
Management: Management would seek to establish public access at appropriate locations based on the availability of easements and compatibility of access with preserving wilderness character and ACEC values. Trails may be established to manage public use and enjoyment and preservation of wilderness character, including new trails or evaluating existing closed vehicle routes to determine if they may be reconditioned to hiking or equestrian trail specifications. Complete a wilderness management plan.	**Administrative:** *VRM:* Class I, except III at access points *Travel:* Manage as closed to motorized and mechanized use. *Permits:* Guidance to be developed in Wilderness Management Plan. *Land Use:* Rights-of-way exclusion (wilderness). *Minerals:* Withdrawn/Closed (wilderness).

EAST SIDE ERMA

Management Objectives: This is an undeveloped market. Manage this area to provide an open setting with minimal to no facilities and controls where unconfined recreation and casual use can be maximized.

Implementing Actions	
Marketing: Information would be minimal and low key.	**Monitoring:** Visitor or public complaints. Range allotment evaluations.
Management: Implement transportation plan.	**Administrative:** *VRM:* Class III *Travel:* Limited to designated routes. *Permits:* Consider on case by case basis.

2.6.3.7 Renewable Energy

The following details allocations for solar and wind energy rights-of-way applied under Alternative A (see Map 2-14):

- All planning units: If no other restrictions apply, wind and solar energy rights-of-way would be managed on a case-by-case basis within all planning units using BMPs to minimize impacts. Wind and solar energy rights-of-way will be excluded from all riparian areas (including, but not limited to those illustrated on Map 3-4), all Visual Resource Management (VRM) class I areas, and within a mile wide buffer along segments of the El Camino Real de Tierra Adentro and Old Spanish National Historic Trails (see Map 3-20). Up to a four mile radius avoidance area around occupied raptor nests depending on the species. Wind rights-of-way would be excluded from all VRM class II areas, while solar rights-of-way would be avoided in VRM class II areas. An exception to these restrictions may be granted if impacts can be mitigated, based on a site-specific evaluation by the authorized officer.
- Taos Plateau planning unit: Solar energy rights-of-way would be excluded in the Rio Grande Wild and Scenic River corridor and the area north of US 64. Most of the area south of US 64 within the planning unit would be open to solar with exception of an avoidance area adjacent to the west side of the Rio Grande corridor to be managed as VRM class II. Wind rights-of-way would be excluded within the entire planning unit to protect raptor, songbird, and bat populations (see Map 3-9).
- El Palacio planning unit: Solar and wind rights-of-way would be excluded from Santa Cruz Lake Recreation Area. Wind energy rights-of-way would be excluded from mapped avian species concentration areas (see Map 3-9). The remainder of the planning unit would be an avoidance area for wind rights-of-way. Solar energy rights-of-way would be avoided in planning unit where not otherwise excluded.
- Ojo Caliente planning unit: Rights-of-way for wind and solar energy development would be excluded within the Ojo Caliente ACEC. Wind energy would be excluded from the remainder of the planning unit to protect the avian species concentration areas (see Map 3-9).
- West Santa Fe planning unit: Wind energy rights-of-way would be excluded to protect important cultural sites, the scenic viewshed around Santa Fe, and to promote recreation opportunities over renewable energy development.
- Galisteo Basin planning unit: Wind and solar energy rights-of-way would be excluded from the raptor migration corridors in the San Pedro Mountains and Cerrillos Hills areas and Pueblos ACEC (see section 2.6.4.1).
- East Side planning unit: Wind and solar rights-of-way would be excluded within the Sabinoso Wilderness and ACEC (see Maps 3-20 and 2-36).

- Lower Gorge/Copper Hill planning unit: Solar and wind rights-of-way would be excluded to protect resource values of ACECs (see Map 2-36).
- Chama Unit: Solar and wind energy rights-of-way would be excluded from Chama Wild and Scenic River, Chama Wilderness Study Area and Chama Canyons ACEC (see Maps 3-20 and 2-36).

Except within Sabinoso Wilderness, wild and scenic river corridors, WSAs, or other exclusion areas identified in section 2.6.3.3, these exclusions may not apply to access rights-of-way associated with renewable energy projects (i.e., transmission lines, roads, etc.). A total of 499,756 acres would be excluded from wind energy rights-of-way, while another 41,513 acres would be avoided. Solar energy rights-of-way would be excluded from 413,360 acres and avoided on 114,495 acres under this alternative. See Table 2-10 to compare availability for renewable energy rights-of-ways and Map 2-14.

2.6.3.8 Transportation and Access

Area Designations

Under Alternative A, 75,425 acres would be designated closed and 519,675 acres as limited to designated routes.

Areas with cultural resources identified as eligible for the National Register of Historic Places that cannot be sufficiently avoided or otherwise mitigated by OHV use would be limited to inventoried routes until the route designation process is complete.

As presented in section 2.6.2.3, road densities in elk winter and spring ranges and migratory corridors would be managed at up to 0.5 miles or road per square mile to reduce disturbance and habitat fragmentation.

Opportunities and limitations on access to wood gathering areas would be determined through site-specific planning, and would be specified on individual fuelwood permits. Access to gathering areas would be closed beginning January 1 each year and opened when seasonal conditions allow.

Parking and Camping

Parking would be limited to 50 feet from roads unless otherwise allowed by permit (e.g., hunting, wood gathering, or special event). Camping with a vehicle would be allowed within 300 feet of designated roads, but not within 300 feet of riparian areas or developed waters unless otherwise permitted. During the inventory, special attention would be given to designation and signing of short spur roads that provide access to undeveloped campsites.

Map Sets

A set of maps for each transportation area discussed below was developed to reflect Alternative A. Management direction for each area is discussed below and labeled on the map with circled numbers, ① through ⑦.

Transportation Area Guidance

1) Taos Plateau/Upper Rio Grande Transportation Area

Closed – 23,990 acres; ① Ute Mountain, ② Rio Costilla, and ③ the Rio San Antonio WSA would be closed to vehicle access to support backcountry recreation and protect significant wildlife habitat.

Open – 0 acres

Limited to designated routes – 231,160 acres; ④ this would apply to the remainder of the planning area. Short spur routes would be identified and may be opened to allow access to campsites or target shooting areas. No other changes would be made to roads already designated in the upper Rio Grande corridor. The North Unit transportation plan would be reviewed as new inventories are completed. The BLM would continue to identify routes to complete a trail system along the gorge and one trail to connect Questa with the Wild Rivers Rim Area trail system. Seasonal limits on 20,000 acres (affecting 52 miles of road) would continue. Existing designations would be reviewed in the next 5 years.

2) Lower Rio Grande/Copper Hill Transportation Area

Same as the no action alternative. Designations made by the Rio Grande Corridor Plan would be reviewed within 5 years. A trials riding area ③ would be established along NM 75, near the Taos/Rio Arriba County line. The area would include typically single-track routes laid out to support specially permitted events, and would not be open for casual riding.

3) Chama Transportation Area

Closed – 10,360 acres; ① The WSR corridor would be closed to motorized access; ② the ACEC would be closed to motorized access.

Open – 0 acres

Limited to designated routes – 30,490 acres; ③ the remainder of the planning unit would be limited to designated routes. ④ In addition, roads within the portion of the WSA not within the WSR corridor (2,680 acres) would be limited to designated routes. The routes that would be considered for designation are those identified in the wilderness inventory conducted in the 1980s. In the WSAs driving off routes is not permitted except the minimum necessary to allow vehicles to pass.

4) Ojo Caliente Transportation Area

Closed – 4,705 acres; ① The Posi Recreation Area (4,705 acres) would be closed to motorized use to support non-motorized recreation. (As indicated below, one route would transect this closed area within a limited to designated corridor or "cherry stem.")

Open – 0 acres

Limited to designated routes – 61,240 acres; ② the remainder of the planning area would be limited to designated routes. ③ One road through the Posi Recreation Area would be open within a linear limited to designated routes area, essentially a corridor "cherry-stemmed" through the Posi Recreation Area, to allow access to mining claims, but would be closed to camping. Some new trails would be developed for hiking, biking and horseback riding; existing routes would be used to support this network.

5) El Palacio Transportation Area

Closed – 0 acres

Limited to designated routes – 65,105 acres; ① 15,660 acres: the area between Arroyo Canada Ancha and Arroyo Chinguague. These roads would support ATV and motorcycle-based recreation, as well as access for other recreation activities (target shooting, dog walking, jogging, or mountain biking), and for maintenance of range improvements. The area contains fossil outcroppings, cultural sites, and easily eroded hillsides that would be avoided by closing or rerouting roads and trails as necessary. Some routes would be

designated for single-track (motorcycle) use only. Some new routes may be considered to provide loop trails.

② 49,330 acres limited to designated routes: the area from NM 75 south to Cañada Ancha, including the Truchas Arroyo; and the area from NM 76 north to Arroyo de Chinguague. The two areas would have a limited number of routes designated. These routes would provide access to range improvements, erosion control structures, and recreation sites such as the open area and the old Civilian Conservation Corps site and trailheads. Nonmotorized trails would be built or routes closed to vehicles would be converted to nonmotorized trails that have historic interest (such as the old Apodaca Trail).

The Mesa de la Cejita primitive area would be managed for nonmotorized use to support backcountry recreation opportunities. The primitive area begins 2 miles east of Velarde on County Road 0435, located on the north and south sides of Truchas Arroyo. Turnouts and trailheads would be developed to provide access to nonmotorized areas. Routes that have historic interest (such as the Apodaca Trail) would be closed to vehicles and converted to nonmotorized trails.

The BLM would work with Ohkay Owingeh, the Carson National Forest, Nuestra Señora del Rosario San Fernando y Santiago (Truchas) Land Grant, and the State Land Office to assure their access needs are addressed by the BLM. Vehicle use would be restricted within Arroyo del Llano to protect special status plant species. Some roads would be rerouted to avoid cultural or paleontological sites.

A trials riding area ③ would be established within the limited designation area along NM 75, near the Taos/Rio Arriba County line. The area would include typically singe-track routes laid out to support specially permitted events, and would not be open for casual riding.

6) Sombrillo Transportation Area

Closed – 1,700 acres; ① The areas north of Santa Cruz Lake and west and east of Rio Chiquito (1,515 acres) would be closed to motorized use to allow for backcountry recreation. Nonmotorized trails would be developed to provide access to the Rio Quemado and the Rio Medio.

The small area near La Puebla and south of Santa Cruz River (180 acres) would be closed and managed for nonmotorized access, with some existing routes converted to trails for mountain biking, hiking, and horseback riding; other routes would be reclaimed. A trailhead near the river and County Road 88B would be developed. A fence would be constructed to eliminate motorized use in the closed area.

Limited to designated routes – 19,230 acres; ② Approximately 500 acres near La Puebla would be limited to designated routes, providing opportunities for motorized use. Access would be from a staging area. The use would be primarily ATVs and motorcycles, excluding four-wheel drive vehicle use.

③ Santa Cruz Lake Recreation Area (as expanded in this alternative to 2,460 acres) would have a limited number of designated vehicle routes, all intended to provide access to developed facilities along the north shore and at the Overlook. The area south and west of the lake and north of NM 503 would be managed primarily for nonmotorized access on existing routes, with a few roads open to vehicle use to access range improvements.

The area east of Santa Cruz Lake, south of CR 98A, and west of NM 503 would also be managed for nonmotorized use.

④ The area east of NM 503, south of Borrego Mesa Road (FS-506), and north of the Santo Domingo de Cundiyo Grant would be managed for motorized recreation use and livestock grazing.

⑤ The block of public lands south of NM 503 to Nambe Pueblo (6,570) would be managed to provide vehicle access to private lands, livestock grazing improvements, the Cerro Piñon communication site, and traditional uses (e.g., plant collecting or wood gathering). The BLM would work with local groups to identify the most popular nonmotorized trails and designate trailhead access points.

⑥ In the Sombrillo ACEC (8,600 acres), one road following Arroyo Seco would be further limited to permitted users to support research, livestock grazing, and Native American traditional use gathering. A few trailheads would be developed to support equestrian users and mountain bikers. A few nonmotorized routes may be rerouted to mitigate impacts to paleontological or cultural resources or excessive erosion. A few nonmotorized trail routes may be created to develop additional loop opportunities.

7) West Santa Fe Transportation Area

Closed – 3,015 acres; ① Several blocks of public land within the Santa Fe River canyon would be closed to vehicle use. Public access would be on a system of nonmotorized trails. The county road into the area and roads that access private property would remain open to vehicle use.

② The public lands in the vicinity of Diablo Canyon would have one route designated for access to a parking area/trailhead. Vehicle use of portions of the arroyo would be allowed for permitted uses (primarily filming). The route is shared by the BLM and the Santa Fe National Forest. The BLM would work with the Forest Service to provide adequate access.

Open – 0 acres

Limited to designated routes – 33,035 acres; ③ Access would be for mechanized travel (mountain bikes) and permitted users only on the mesa north of the Santa Fe River and south of Route 66.

④ The area between the Forest Service boundary and historic Route 66 contains a network used for casual recreation, access to a mine, range improvements, sites used by the National Guard for training, and by a local club for model airplane flying. The northern part of this zone is habitat for a sensitive species (gray vireo) and would have fewer routes designated open for vehicle use.

⑤ The Boondocks pasture would be managed for a backcountry recreation experience, and would therefore have only a few roads designated open, primarily to serve the needs of livestock grazing, and also to serve as access points for hikers or equestrian riders.

⑥ The area east of Buckman Road and south of Boondocks pasture would contain a system of roads/trails used for motorized recreation. These routes would be kept about a mile from private property boundaries to reduce impacts to residents from noise and dust. Some reroutes are anticipated that would be needed to protect cultural sites.

⑦ The remaining small parcels surrounding the transportation area would be limited to designated routes.

8) Galisteo Basin Transportation Area

Closed – 2,270 acres; ① The Burnt Corn Pueblo area contains one of the BLM-administered pueblo sites protected by the Galisteo Basin Cultural Sites Protection Act. Access to this area would be by foot, horseback, or bicycle. The purpose of the closure is to protect cultural resources and to provide for back-country recreation.

Open – 0 acres

Limited to designated routes – 11,830 acres; ② The Cerrillos Hills area would be managed in partnership with Santa Fe County's Cerrillos Hills Historic Park. Vehicle use would be limited to designated roads, primarily used to access rock and mineral collection areas.

③ The San Pedro area would have several roads designated that provide access to rock and mineral collection areas.

④ In the remainder of the transportation planning area, vehicles would be limited to designated roads which are needed to access trailheads, private lands, or research sites. The BLM would work closely with Santa Fe County and adjacent private land owners to identify a transportation network that allows access to BLM lands, particularly access to appropriate Galisteo Basin cultural sites. Many routes would be further limited to permitted use for research or protective work, and for access to a few range improvements.

9) East Side Transportation Area

Closed – 16,030 acres; ① The Sabinoso Wilderness would be closed to motorized use.

Open – 0 acres

Limited to designated routes – 36,270 acres; ② Vehicle access in the Sabinoso ACEC would be limited to provide access to private lands and maintenance of livestock grazing or wildlife improvements. The BLM would pursue agreements with adjacent private lands to secure access for the public to trailheads in the ACEC that would also allow nonmotorized public access into the wilderness.

③ In the remainder of the planning area, all existing routes would be designated open, primarily in support of livestock grazing. Selected roads may be closed or rerouted if resource damage is consistently noted during monitoring.

2.6.3.9 Withdrawals

Similar to the no action alternative, except the following public lands, containing an additional 132,777 acres would be analyzed for withdrawal from operation of the mining laws:

Taos Plateau planning unit

- Rio Grande Wild and Scenic River, Upper Gorge (13,674 acres)
- Taos Plateau ACEC
  - San Antonio Zone in Taos Plateau ACEC (8,020 acres)
  - Wild Rivers Recreation Area (11,223 acres)

Lower Gorge/Copper Hill planning unit

- Lower Gorge ACEC, includes OVRA (21,191 acres)
- Rio Grande Wild and Scenic River, Lower Gorge (3,661 acres)
- Copper Hill ACEC
  - Rio Embudo Protection Zone (2,643 acres)
  - Agua Caliente protection Zone (3,425 acres)
  - Lower Embudo Cultural protection Zone (499 acres)
  - Central Protection Zone (10,630 acres)

Chama planning unit

- Rio Chama ACEC (8,180 acres, an additional 2,280 acres)
- Rio Chama Wild and Scenic River (2,685 acres)

Ojo Caliente planning unit

Expanded Ojo Caliente ACEC (66,149 acres, includes 252 acres from original ACEC)

El Palacio planning unit

Expanded Santa Cruz Lake Recreation Area (3,356 acres, includes 640 acres from original withdrawal)

Pueblos ACEC (Ojo del Zorro, La Caja Pueblo, Pueblo Quemado, Sahiu, Pueblo Sarco, Nambe Bugge, Ohkay Owingeh and Ojito) (265 acres, includes 245 acres from original SMAs)

West Santa Fe planning unit

Expanded La Cienega ACEC (13,724 acres, includes 3,556 acres from original ACEC)

Santa Fe Ranch ACEC

Diablo Canyon Zone (713 acres)

Community Growth Area (15,727 acres)

Galisteo Basin planning unit

Arch Sites (1,012 acres)

Community Growth Area (32,766 acres)

East Side planning unit

Sabinoso ACEC (3,853 acres)

In addition, 48,493 acres of Federal minerals underlying non-Federal surface would be withdraw from mineral entry under the mining laws.

Upon revocation or modification of a withdrawal, all or part of the withdrawn lands would be managed in conformance with established guidelines for those areas.

2.6.4 *Special Designations*

The BLM would manage a total of 473,085 acres as ACECs, WSRs, wilderness, or WSAs and 39 miles as national historic trails. Under this alternative, SMAs would be rescinded and most of those lands included within ACECs, except Fun Valley and the Riparian/Aquatic SMAs. Some management prescriptions would change for some ACECs, as shown in the ACEC/SMA tables in Appendix A.

2.6.4.1 Areas of Critical Environmental Concern (407,855 acres)

Eleven ACECs would be designated in this alternative (see Map 2-36):

- The Copper Hill would retain the same boundaries as under the no action alternative, but would have some minor changes to its management prescriptions.
- Four ACECs would be expanded to include adjacent lands with significant resources: La Cienega ACEC would be expanded from 3,730 acres to 13,390 acres, with more comprehensive prescriptions for a broader array of protected resources; the Lower Gorge ACEC would be expanded to include Orilla Verde Recreation Area, from 16,510 acres to 21,190; Ojo Caliente ACEC would be expanded from 13,370 to 66,150 acres to include additional lands with significant cultural sites; and the Sombrillo ACEC would be expanded from 8,600 to 18,080 acres to protect significant paleontological, cultural, and scenic values.
- Five new ACECS would replace SMAs or would incorporate smaller ACECs. The 7,680 Chama Canyons ACEC would be an expansion of the rescinded Rio Chama SMA (6,140 acres); the Galisteo Basin ACEC (450 acres) would include the sites covered in the Galisteo Basin

Archaeological Sites Protection Act (the ACEC designation would apply to BLM-administered lands only, and would include any lands subject to the congressional designation acquired by the BLM); the Pueblos ACEC (240 acres) would replace five SMAs (La Caja Pueblo, Ojo del Zorro Pueblo, Pueblo Quemado, Pueblo Sarco and Sahiu Pueblo); Sabinoso ACEC at 19,780 acres would slightly expand on the rescinded 19,680 acre Sabinoso SMA; and Taos Plateau would replace the rescinded San Antonio SMA, San Antonio Gorge ACEC, and Winter Range ACEC.

- One new ACEC would be designated—Santa Fe Ranch (21,030 acres).

2.6.4.2 Byways

See section 2.4.3.2 (Continuing Management Guidance subheading).

2.6.4.3 National Historic and Scenic Trails (39 miles)

See section 2.4.3.3 (Continuing Management Guidance subheading). The 39 miles include 8 miles for El Camino Real and 31 miles for the Old Spanish National Historic Trails.

2.6.4.4 Special Management Areas (no acres)

Current BLM policy has removed the use of SMAs; therefore, the 13 SMAs would be rescinded in this alternative. Ten would be replaced by ACECs (see above). Three would be rescinded, but still managed for the values identified originally—the areas/resources covered by the Riparian/Aquatic SMA would be managed under guidance for riparian areas as described in section 2.6.2.7; Fun Valley SMA would be managed as part of the proposed El Palacio Special Recreation Management Area (section 2.6.3.6); and Santa Cruz Lake would be managed as part of a larger SRMA (section 2.6.3.6).

2.6.4.5 Wild and Scenic Rivers (31,970 acres)

See section 2.4.3.6 (Continuing Management Guidance subheading). In this alternative, the Rio Nutrias and Rio Pueblo de Taos river segments would be recommended suitable for addition to the national WSR system, along with the Rio Embudo Box and Rio Grande Bosque, recommended suitable in previous plans.

2.6.4.6 Wilderness Study Areas (18,910 acres)

See section 2.4.3.8 (Continuing Management Guidance subheading). If released from wilderness review by Congress, the WSAs would be managed under guidelines for the ACEC they are at least partly within: San Antonio WSA would be managed as part of a larger primitive area within Taos Plateau ACEC; and the suitable part of Rio Chama as part of a primitive area within the Chama Canyons ACEC. They would be protected by restrictive land use prescriptions (see Appendix A).

2.6.4.7 Other Congressional Designations

See section 2.4.3.9 (Continuing Management Guidance subheading) for information on the Galisteo Basin Cultural Sites Protection Act and the Northern Rio Grande National Heritage Area.

2.7 Alternative B

2.7.1 *Overview of the Alternative*

Alternative B emphasizes conservation and protection of physical, biological, and heritage resources and applies the greatest constraints on resource uses than the other alternatives. It designates the most area for ACECs and is the most restrictive to OHV use and mineral leasing. Alternative B increases closures for mineral leasing as well as rights-of-way. No areas would be designated as open for OHV use. Alternative B also increases protections for visual resources and wilderness characteristics, emphasizing visual quality and naturalness.

2.7.2 *Resources*

2.7.2.1 Air and Atmospheric Values

Same as the no action alternative.

2.7.2.2 Cultural Resources

Same as the Alternative A.

2.7.2.3 Fish and Wildlife

Fish

Same as Alternative A.

Wildlife

Similar to Alternative A; however, unoccupied raptor nests would be protected from removal or destruction, and a 0.5-mile buffer of suitable habitat around unoccupied nests would be maintained. Vegetative competition, encroachment, and risk of fire to raptor roost and nest trees would be reduced, and conditions for future perches/large trees would be enhanced.

An additional objective under Alternative B would be to provide for security cover for big game within forested habitat types by maintaining core blocks of at least 160 acres of roadless area, or close roads during the hunting season that are not substantially altered by timber harvest.

The BLM would enhance and improve big game winter range by protecting and restoring mountain mahogany stands where conifers have become established. Mountain mahogany stands would be avoided where possible by designing buffer zones around these stands for transportation or other land use development. The BLM would also proactively restore the distribution and vigor of sagebrush stands through vegetative treatments designed to create a variety of age classes and structural diversity.

The BLM would manage for adequate numbers, species, and sizes of snags and levels of downed wood to contribute to the needs of wildlife, invertebrates, fungi, bryophytes, saprophytes, lichens, long-term soil productivity, nutrient cycling, carbon cycles and other ecosystem processes. Prescribed fire, mechanical treatments, inoculation, or other appropriate methods would be used to create snags and down woody material, where deficient, in appropriate vegetation types across the landscape. Management for wildlife values associated with large amounts of down wood and snags would be emphasized less in wildlife urban interface areas to allow for fuels reduction projects that would reduce the potential for extreme wildland fire.

In the Taos Plateau planning unit, additional livestock grazing AUM's would be allocated to wildlife, providing additional forage in critical winter range for big game species.

2.7.2.4 Paleontology

Same as the no action alternative.

2.7.2.5 Soils

Same as the no action alternative.

2.7.2.6 Special Status Species

Same as Alternative A.

2.7.2.7 Vegetative Communities

Riparian

All riparian areas that are not within another special designation would be included in a riparian ACEC. Management prescriptions for this ACEC are provided in Appendix A.

Terrestrial

Same as the no action alternative.

2.7.2.8 Visual Resources

In the Taos Plateau planning unit, the ACEC would be classified the same as Alternative A, while the remaining areas would be VRM class II. Management of the West Santa Fe planning unit would be the same as Alternative A, except the Artesian Pasture, Cerro Seguro, and the Tetillitas Peaks area would be managed as VRM class I. Management of the Ojo Caliente Unit west of Highway 285 would be VRM class I except Posi SRMA and other selected areas, which would be managed as class II. The East Side planning unit would be managed the same as under Alternative A, except grazing allotment 904 would be managed as VRM class II to protect scenic values along the Pecos River.

The VRM classes prescribed under Alternative B are shown on Map 2-3 and are totaled in Table 2-19.

Table 2-19. VRM classifications—Alternative B

VRM Class	Acreage
I	115,284
II	401,505
III	38,533
IV	40,119

2.7.2.9 Water Resources

Same as the no action alternative.

2.7.2.10 Lands with Wilderness Characteristics

Seven areas covering 93,413 acres possessing wilderness characteristics would be managed to protect their wilderness characteristics, as prescribed in Table 2-20. This would protect all BLM-administered lands with wilderness characteristics in the planning area.

Table 2-20. Areas managed for wilderness characteristics

Planning unit/Area	Acres	Management
Taos Plateau/Upper Rio Grande Adjacent to San Antonio WSA Cerro de la Olla Ute Mountain	 9,210 13,820 13,190	*The three areas are in the proposed Taos Plateau ACEC* Land Use Authorizations: right-of-way exclusion areas. Minerals: closed to all. Renewable Energy: excluded. Transportation: closed to motorized access. Visual: class II would apply to East of San Antonio and Cerro de la Olla; Ute Mountain would be class I.
Chama Adjacent to Rio Chama WSA	 2,499	*This area is within the proposed Chama Canyons ACEC* Land Use Authorizations: excluded. Minerals: closed to all. Renewable Energy: excluded. Transportation: closed. Visual: class I.
Ojo Caliente Cerro Colorado Rincon del Cuervo	 31,352 10,912	*Both areas would be in the expanded Ojo Caliente ACEC* Land Use Authorizations: both are excluded. Minerals: both areas would be withdrawn from all minerals. Renewable Energy: excluded. Transportation: Rincon del Cuervo closed, Cerro Colorado limited to designated roads. Visual: Rincon del Cuervo is class I, most of Cerro Colorado is class I, with a small portion in the north west corner class II.
El Palacio Mesa de la Cejita	 12,430	*No additional special designation would apply to the area* Land Use Authorizations: excluded. Minerals: controlled surface use stipulations would apply to mineral leasing; the area would be closed to material sales. Renewable Energy: excluded. Transportation: motorized use would be limited to the county-maintained roads. Visual: class II.

2.7.2.11 Wildland Fire

Same as the no action alternative.

2.7.2.12 Invasive Species/Noxious Weeds

The BLM would aggressively pursue the identification and control of weeds on public lands using all available tools, including manual removal, mechanical removal, biological control,

prescribed fire, and herbicides. Preferred treatments would be those proven most effective given the target vegetation, regardless of other nonresource-specific considerations.

2.7.3 *Resource Uses*

2.7.3.1 Forestry and Woodland Products

Piñon-juniper woodlands would be managed primarily for woodland products except in selected special designation areas, where priorities such as wildlife habitat management or recreation may override interests in woodland product extraction. Ponderosa pine stands would be managed for enhancement and protection of the stands rather than the maximization of forest products.

Fuelwood cutting would not be permitted within approximately 13,000 acres in the northern portion of Zone 1 in the El Palacio planning unit, including Mesa de la Cejita.

The Taos Field Office would continue to investigate opportunities for biomass utilization (pulp, chipping, stove pellet industries, charcoal, organics for alternative fuels production, etc.).

The field office would only offer special forest products for traditional use. Permits would be offered for personal and commercial use to remove only dead and down tree species as designated by the field office manager.

2.7.3.2 Land Tenure

Disposals

In addition to lands identified for disposal under the no action alternative (see section 2.5.3.2), Alternative B would include approximately 4,078 more acres, shown in Table 2-21, for a total of approximately 64,078 acres.

Actions Common to All Planning Units

Disposals under R&PP lease/conveyance would be on a case-by-case basis, except where specifically excluded.

Taos Plateau planning unit

The BLM would dispose of the 20-acre parcel near NM-585 (T. 25 N., R.13 E. Sec 28, lots 10, 11), preferably through an exchange. Cerros de los Taoses parcels, previously identified for disposal would be retained, except for the isolated parcels immediately to the south (T. 26 N., R. 10 E., sec. 13: E1/2 and sec. 24: E1/2; T. 26 N., R. 11 E., sec. 8: all; sec. 29: all; sec. 33: N1/2). The BLM would consider disposal of 40 acres to Taos County (T. 25 N., R. 11 E., sec. 3: SENE). Disposal of public lands within sec. 10, T. 29 N., R. 9 E. would not be considered for renewable energy purposes. The 200-acre Garrapata Ridge parcel would be retained.

Lower Gorge/Copper Hill planning unit

The BLM would dispose of approximately 2 acres (T. 23 N., R. 10 E., sec. 22: within SESE; sec. 23: within SWSW) for use as a solid waste transfer site.

Chama planning unit

The Cañones parcel in the Abiquiu area that was previously identified for disposal would be retained to protect sensitive species. The Archuleta Mesa parcel would not be disposed. Approximately 600 acres of isolated tracts near US 84 would be identified for disposal (T. 27 N.,

R. 4 E., sec. 15: NWSW; sec. 20: SESW; sec. 21: SWSE; sec. 28: N1/2NW, NWNE, NWSW; sec, 29: NENE; and T. 26 N., R. 4 E., sec. 10: NW, N1/2SW; and sec. 22: NENE - east side of SR84 only); any existing oil and gas leases on these lands would not be reissued at the end of their term.

Ojo Caliente planning unit

The Rio Ojo Caliente bridge parcel (T. 23 N., R. 8 E., sec. 13: within lot 12, and sec. 24: within lots 6 and 7), previously identified for disposal, would be retained to maintain administrative access in the area. The block of public lands south of 31 Mile Road parcels adjacent to Santa Clara Pueblo lands (T. 21 N., R. 7 E., secs. 33, 34, 35, south of 31 Mile road only) would be disposed by exchange for high resource value private lands to consolidate public ownership in the planning unit. Disposals under R&PP lease/conveyance within the Ojo Caliente planning unit would not be allowed.

El Palacio planning unit

No disposals would be allowed in the El Palacio planning unit.

West Santa Fe planning unit

The following parcel would be available for disposal through an R&PP lease/conveyance for a shooting range or other recreational facilities: T. 16 N., R. 8 E., within sec. 18. The BLM would transfer lots 21-24, 26 and 28 in T. 17 N., R. 9 E., sec. 31 to Santa Fe County Open Space for development of a trail system.

Galisteo Basin planning unit

The BLM would retain the following parcels, which were previously identified for disposal, to protect cultural resources within the Galisteo Basin Planning unit:

T13N, R8E, sec 23, 24, 25, 26, 35, 36;

T14N, R8E, sec 4, 9, 24, 25;

T14N, R9E, sec 18, 19, 29, 30, 31, 32.

For split estate lands, the BLM would consider the sale of the subsurface to surface owners.

East Side planning unit

The areas within or adjacent to the Sabinoso Wilderness and ACEC would be designated as an acquisition zone. Outside of the wilderness and ACEC, the BLM would continue consideration of disposal of isolated parcels without public access or where Federal management is not feasible, except when parcels contain valuable resources as identified by specialists. The BLM would also consider disposal of lands with valuable resources (cultural, water, riparian, threatened or endangered species) to special interest groups for preservation and/or conservation with applicable deed restrictions.

Table 2-21. Lands identified for disposal—Alternative B

Legal Description	Acres
T16N, R8E Sec 18: lots 3 and 4, E½, SENW, E½SW	 485.15
T21N, R7E Sec 33: lots 8, 17-19, 21, 24,25,27,28, SESESE; Sec 34: within S½;	 3.95 109.98

Legal Description	Acres
Sec 35: within S½.	320
T17N, R9E	
Sec. 31: lots 21-24, 26 and 28;	320
T23N, R10E	
Sec 22: within SESE;	1
Sec 23: within SWSW.	1
T25N, R13E	
Sec 28: lots 10, 11.	20
T26N., R4E	
Sec 10: NW, N½SW;	240
Sec 22: within NENE - east side of SR84.	17
T26N, R10E	
Sec 13: E½;	320
Sec 24: E½.	320
T26N, R11E	
Sec 8: all;	640
Sec 29: all;	640
Sec 33: N½.	320
T27N, R4E	
Sec 15: NWSW;	40
Sec 20: SESW;	40
Sec. 21: SWSE;	40
Sec 28: N½NW, NWNE, NWSW;	160
Sec 29: NENE.	40

Acquisition

Acquisitions under Alternative B would be the same as those under Alternative A.

2.7.3.3 Land Use Authorizations, Utility Corridors, Communication Sites

Land use authorizations, utility corridors, and communication sites under Alternative B would be the same as those under Alternative A (see Map 2-6), with the following exception:

Approximately 1,275 acres would also be excluded from rights-of-way in the Riparian/Aquatic ACEC.

Rights-of-way exclusion areas under Alternative B would total 127,920 acres. Additional exclusion and avoidance areas specific to renewable energy rights-of-way are indicated in section 2.7.3.7 and on Map 2-14. Authorizations would also be subject to the limitations, as applicable, presented in Table B-1 under Appendix B.

2.7.3.4 Livestock Grazing

Under this alternative, emphasis would be placed on the identification of areas where changes in livestock management would be used as a tool to benefit natural processes. Greater consideration would be given to the protection of resources over resource uses. As with Alternative A, livestock would be used as a tool to assist in providing the disturbance necessary to maintain or enhance the natural resources in meeting the Standards for Rangeland Health. Approximately 52,584 acres would be unavailable to grazing under this alternative.

Acquired lands in the Chama planning unit along the Rio Chama corridor (approximately 1,025 acres) would remain unavailable for grazing. Specifically, these lands are described as T. 27 N.,

R. 2 E., Sec. 27: SW¼, Sec. 28: SE¼; T. 27 N., R. 2 E., Sec. 28: S½ NW¼; T. 27 N., R. 2 E., Sec. 33: W½; and T. 27 N., R. 2 E., Sec. 34: W½.

As identified in section 2.7.2.3, in the Taos Plateau planning unit, livestock grazing would be unavailable in the portions of Ute Mountain acquired in 2003 and 2005 to prevent competition for forage with resident pronghorn, elk, and other wildlife species of special emphasis. Also in this planning unit, additional livestock grazing AUM's would be allocated to wildlife, providing additional forage in critical winter range for big game species.

Other areas unavailable to livestock grazing would be the same as those under Alternative A, except approximately 2,482 acres would be unavailable below the canyon rim in Santa Fe River canyon (does not include the areas within an existing allotment boundary in T. 16 N., R. 7 E., sec. 25, NE¼NE¼, which would be available for grazing), as well as an additional 160 acres within the Rio Chama Wild and Scenic River corridor and would also be unavailable.

2.7.3.5 Mineral Resources

This alternative emphasizes conservation, protection, and enhancement of natural and cultural resources through management measures that provide limitations on surface disturbing activities. Additional areas would be delineated for special management designation.

Leasable Minerals

Under Alternative B, approximately 594,220 acres of Federal mineral estate would be closed to mineral leasing to protect sensitive resources (Map 2-8B), including 35,590 acres of Federal mineral estate closed nondiscretionarily. Approximately 658,430 acres would be open to mineral leasing with standard terms and conditions, and 227,089 acres would be open to leasing with stipulations in addition to the standard terms and conditions (see Appendix B). Federal mineral estate underlying surface area managed or owned by private, state, or other Federal agencies would be managed in close coordination with the landowners or agencies.

Table 2-22. Leasing decisions for Alternative B (oil and gas)

Decision	Acres
Closed to leasing	594,220
Nondiscretionary closure	35,590
Open with standard terms and conditions	658,430
Open to leasing with constraints (limited)	227,089

This alternative minimizes development of leasable minerals, including leasing for geothermal. Revised geothermal leasing regulations were enacted in 2007, implementing the Energy Policy Act of 2005.

The Taos Field Office would manage special designation and other areas discussed by planning unit below and listed in Table 2-23 according to timing limitations (TL), controlled surface use (CSU), or no surface occupancy (NSO) constraints placed on leases (see Appendix B). In addition, some areas are closed entirely to leasing to ensure protection of sensitive resource values.

For leasable minerals, closures and restrictions under Alternative A would also be applicable to Alternative B. In addition, the entire Chama planning unit would be closed to mineral leasing to

protect big game wildlife habitat and their migration corridor as well as lands with wilderness characteristics.

Table 2-23. Alternative B mineral constraints and withdrawals/closures

Special Management Areas [BLM Surface Acres[2]]	Federal Mineral Withdrawals and Closures		
	Locatable Mineral Acres[3]	Mineral Materials Acres	Leasable Mineral Acres Geothermal, Oil and Gas[4]
Taos Plateau planning unit [250,460] — 363,689			
Rio Grande Wild and Scenic River (Upper Gorge) [13,670]	wd–13,050	closed–13,050	closed–13,050
Taos Plateau ACEC [217,810]	open–227,380; wd–23,180	open–0; closed–241,210	open–0; closed–241,210
North Unit [180,200]	open–241,210	closed–241,210	closed–241,210
Ute Mountain Zone [18,370]	wd–4,540	closed–18,370	closed–18,370
San Antonio Zone [8,020]	wd–8,020	closed–8,020	closed–8,020
Wild Rivers Zone [11,220]	wd–10,620	closed–10,620	closed–10,620
Remainder of planning unit [18,980]	open–109,429	open–109,429	CSU/TL–109,429
Lower Gorge/Copper Hill planning unit [42,100] — 43,770			
Lower Gorge ACEC (includes Orilla Verde RA) [21,190]	wd–21,390	closed–21,389;open–1.0	closed–21,390
Rio Grande Wild and Scenic River (Lower Gorge) [3,660]	wd–3,480	closed–3,480	closed–3,480
Copper Hill ACEC [17,200]	wd–18,900	closed–18,879; open–21	closed–6,030; NSO–500;CSU–10,570; fee surface–1,800
Rio Embudo Protection Zone [2,640]	wd–(2,610)	closed–2,609; open–1.0	closed–2,610
Agua Caliente Protection Zone [3,420]	wd–(3,420)	closed–3,420	closed–3,420
Lower Embudo Cultural Protection Zone [500]	wd–500	closed–500	NSO–500
Central Protection Zone [10,640]	wd–12,370	closed–12,350; open–20	CSU–10,570
Chama planning unit [40,850] — 86,380			
Chama Canyons ACEC [7,680] (4,630 is outside WSA)	wd–8,180 (5,130 is outside WSA)	closed–8,180 (5,130 is outside WSA)	closed–8,180 (5,130 is outside WSA)
Rio Chama WSR [2,680] (1,620 is outside WSA)	wd–2,280 (1,620 is outside WSA)	closed–2,280 (1,620 is outside WSA)	closed–2,280 (1,620 is outside WSA)
Rio Chama WSA [11,150]	wd–11,150	closed–11,150	closed–11,150
Remainder of planning unit [23,450]	closed–68,480	closed–68,480	closed–68,480
Ojo Caliente planning unit [76,850] — 127,820			
Ojo Caliente ACEC [66,150]	wd–66,580	closed–64,280; open–2,300	closed–66,580
Remainder of planning unit [10,700]	open–61,240	open–61,240	CSU–61,240
El Palacio planning unit [77,700] — 83,760			
Santa Cruz Lake Recreation Area [3,340]	wd–3,340	closed–3,340	NSO–3,340
Pueblos ACEC [240] (6 sites)	wd–490	closed–490	NSO–490
Sombrillo ACEC [18,080]	wd–60	closed–18,190	NSO–18,190
Remainder of planning unit [56,680]	open–79,870	open–61,740	CSU–61,740
West Santa Fe planning unit [36,050] — 69,450			
La Cienega ACEC [13,390]	wd–13,350	closed–13,350	NSO–12,880; CSU–470
Santa Fe Ranch ACEC [21,030]	open–22,440; wd–710	closed–23,150	CSU–20,360; closed–710
Ranch Zone [21,030]	open–22,440	closed–22,440	CSU–20,360
Diablo Canyon Zone [710]	wd–710	closed–710	closed–710

Special Management Areas [BLM Surface Acres[2]]	Federal Mineral Withdrawals and Closures		
	Locatable Mineral Acres[3]	Mineral Materials Acres	Leasable Mineral Acres Geothermal, Oil and Gas[4]
Community Growth Area (non-Federal surface)	wd–15,730	open	open
Remainder of planning unit [920]	open–17,220	open–32,950	CSU–35,150
Galisteo Basin planning unit [14,100] — 133,720			
Congressionally designated sites (w/San Lazaro) [450]	wd–750	closed–750	closed–750
San Pedro Mountains San Lazarus Gulch San Pedro Mountains– remainder of area	 open–240 wd–2,010	 open–240 closed–2,010	 closed–240 closed–2,010
Cerrillos Hills Area	wd–1,870	open–1,870	closed–1,870
Community Growth Area (minerals, non-Federal surface)	wd–32,770	open–32,770	closed–32,770
Remainder of planning unit [13,650]	open–95,840	open–96,080	closed–95,840
East Side [52,300] — 619,150			
Sabinoso ACEC (including Wilderness) [19,780]	wd–22,630	closed–22,630	closed–22,630
Remainder of planning unit [32,520]	open–596,520	open–596,520	open–596,520
Common to All Planning Units			
Riparian/Aquatic Areas [2,250]	open–1,970	closed–1,970	NSO–1,970

wd = withdrawn from mineral entry.
NSO = open to mineral leasing with a no surface occupancy stipulation.
CSU = open to mineral leasing with a controlled surface use stipulation.
TL = open to mineral leasing with timing limitation stipulation controlling access to a specific time of year (see Appendix B for more detail). Locatable, mineral material and leasable acreages are mineral acres only. BLM surface is added to NSO, CSU and TL stipulations when Federal surface/privates minerals occur and is subtracted when private surface/Federal minerals occur. Closed to leasing acres are only mineral acres.

Locatable Minerals

Under this alternative the following areas would be recommended for withdrawal from mineral entry in addition to those currently withdrawn and identified for withdrawal under Alternative A (see sections 2.5.3.5 and 2.6.3.5, respectively):

San Antonio WSA

Chama planning unit

Cerrillos Hills

San Pedro Mountains

Withdrawals under this alternative total approximately 340,700 acres of the Federal mineral estate administered by the Taos Field Office.

Cerrillos Hills has a high potential for recreational gold panning and a moderate to low potential for the mining of turquoise. The San Pedro Mountains has a high potential for recreational gold panning and high potential for the continued development of silica sand. All the other areas proposed to be withdrawn have no potential or an unknown potential for locatable mineral occurrence.

Salable Minerals

Under this alternative, approximately 579,600 acres are proposed for closure to mineral material sales and free use. Management is the same as the Alternative A, except as follows.

The entire Chama planning unit would be closed to mineral material disposal. This would increase the area currently closed to disposals by 86,380 acres.

Management of the Taos Plateau, Ojo Caliente, El Palacio, Santa Fe, Galisteo Basin and Eastside planning units would be the same as under Alternative A.

2.7.3.6 Recreation

Management under Alternative B would be similar to Alternative A, except that Northshore at Santa Cruz Lake would be closed to camping. The vehicle entrance to the lake would be closed at dusk every evening. See Map 2-11 for locations of the SRMAs and ERMAs managed under this alternative.

2.7.3.7 Renewable Energy

Same as Alternative A.

2.7.3.8 Transportation and Access

Area Designations

Under this alternative, 75,425 acres would be closed to vehicles and the remaining 519,675 acres would be limited to designated roads or to permitted users. Road densities in elk winter and spring ranges and migratory corridors would be managed at up to 0.5 miles or road per square mile to reduce disturbance and habitat fragmentation.

Opportunities and limitations on access to wood gathering areas would be determined through site-specific planning, and would be specified on individual fuelwood permits. Access to gathering areas would be closed beginning January 1 each year and opened when seasonal conditions allow.

Parking and Camping

Parking would be allowed within 25 feet of designated roads unless otherwise allowed by permit (e.g., hunting, wood gathering, or special event). Camping with a vehicle would be limited to areas within 100 feet of roads, but not within 300 feet of riparian areas or developed waters unless otherwise permitted (see section 3.2.8.1 for a description of riparian areas). During the inventory, special attention would be given to designation and signing of short roads that provide access to undeveloped campsites.

Map Sets

A set of maps for each transportation area discussed below was developed to reflect Alternative B, and management direction for each area is reflected in the text and labeled on the map with circled numbers, ① through ⑦.

Transportation Area Guidance

1) Taos Plateau/Upper Rio Grande Transportation Area

   Similar to Alternative A, except the Cerro de la Olla primitive area would continue to be limited to designated and further limited to permitted users only.

2) Lower Rio Grande / Copper Hill Transportation Area

   Same as the no action alternative.

3) Chama Transportation Area

   Same as Alternative A.

4) Ojo Caliente Transportation Area

Similar to Alternative A, except the limited to designated area south of NM 111 and NM 554 would be further limited to permitted users only.

5) El Palacio Transportation Area

Closed – 0

Open – 0 acres

Limited to designated routes – 64,990 acres; the Mesa de la Cejita primitive area would be further limited to vehicle use to support backcountry recreation opportunities. A relatively few number of roads would be designated open to provide access to private lands, range improvements, erosion control structures, and recreation sites such as the old Civilian Conservation Corps site and trailheads. Nonmotorized trails would be built or identified for such use from existing routes that have deteriorated or that have historic interest (such as the old Apodaca Trail). The BLM would work with Ohkay Owingeh, the Carson National Forest, Nuestra Señora del Rosario San Fernando y Santiago (Truchas) Land Grant, and the State Land Office to assure their access needs are addressed by the BLM. No areas would be designated specifically to support motorized recreation.

6) Sombrillo Transportation Area

The open area described in the no action alternative and in Alternative A would change to an area limited to designated roads.

Closed – 1,700 acres

Open – 0 acres

Limited to designated roads – 19,220 acres; roads would be identified that provide access to private, state, or tribal lands; range improvements; and recreation sites such as trailheads or camping areas.

7) West Santa Fe Transportation Area

Similar to Alternative A. The area south of Boondocks pasture (11,820 acres) would continue to be limited to designated, but would have fewer routes designated open and would not be managed specifically for motorized recreation. Access would be primarily for livestock grazing and casual recreation uses.

8) Galisteo Basin Transportation Area

Same as Alternative A.

9) East Side Transportation Area

Same as Alternative A.

2.7.3.9 Withdrawals

Same as Alternative A, except the following public lands, containing an additional 93,473 acres, would be proposed for withdrawal from operation of the mining laws:

Chama planning unit (40,852 acres)

Galisteo Basin planning unit

San Pedro (2,253 acres)

Cerrillos Hills (1,875 acres)

Community Growth Area (32,766 acres)

West Santa Fe planning unit

Community Growth Area (15,727 acres)

In addition, 48,493 acres of Federal minerals underlying non-Federal surface would be withdraw from mineral entry under the mining laws.

2.7.4 *Special Designations*

The BLM would manage a total of 476,335 acres as ACECs, WSRs (designated, as well as eligible and/or suitable segments), wilderness, or WSAs. In addition, 39 miles of national historic trails in the planning area would be managed to protect their historic/scenic resources. Management of these areas would be similar to Alternative A—SMAs, most of which would be included in ACECs would be rescinded. Management prescriptions would change for some ACECs, as shown in the respective tables in Appendix A. Generally these changes would further limit surface disturbance from mineral development or provide additional restrictions on issuance of rights-of-way.

2.7.4.1 Areas of Critical Environmental Concern (410,105 acres)

Eleven ACECS would be established under this alternative (see Map 2-37):

- The Copper Hill would retain the same boundaries as under the no action alternative, but would have some minor changes to its management prescriptions.
- Three ACECs would be expanded to include adjacent lands with significant resources: La Cienega ACEC would be expanded from 3,730 acres to 13,390 acres, with more comprehensive prescriptions for a broader array of protected resources; the Lower Gorge ACEC would be expanded from 16,580 to 21,190 acres to include Orilla Verde Recreation Area; Ojo Caliente ACEC would be increased from 13,370 to 66,150 acres to include additional lands with significant cultural, scenic, and riparian values; and the Sombrillo ACEC would be expanded from 8,600 to 18,080 acres to protect significant paleontological, cultural, and scenic values.
- Five new ACECs would replace SMAs or would incorporate smaller ACECs. Chama Canyons ACEC would be an expansion of the rescinded Rio Chama SMA; the Galisteo Basin ACEC would include the former San Lazaro Pueblo SMA and four additional pueblo sites (Burnt Corn Pueblo, Petroglyph Hill, Pueblo Blanco, and Pueblo Galisteo/Las Madres), which are covered in the Galisteo Basin Archaeological Sites Protection Act; the Pueblos ACEC would replace five SMAs (La Caja Pueblo, Ojo del Zorro Pueblo, Pueblo Quemado, Pueblo Sarco and Sahiu Pueblo); Sabinoso ACEC would expand on the former Sabinoso SMA; and Taos Plateau ACEC (222,500 acres) would replace the San Antonio SMA (57,690 acres), and San Antonio Gorge (270 acres) and Winter Range ACECs (6,660 acres).
- One new ACEC would be designated—Santa Fe Ranch (21,030 acres).
- One ACEC—the Riparian/Aquatic ACEC—would be reduced by 975 acres to eliminate overlap with other ACECs.

2.7.4.2 Byways

See section 2.4.3.2 (Continuing Management Guidance subheading).

2.7.4.3 National Historic and Scenic Trails (39 miles)

See section 2.4.3.3 (Continuing Management Guidance subheading). The 39 miles include 8 miles for El Camino Real and 31 miles for the Old Spanish National Historic Trails.

2.7.4.4 Special Management Areas (no acres)

The 13 SMAs would be rescinded in this alternative; 11 would be replaced by ACECs (see above). Two would be rescinded but would still managed for the values identified originally—Fun Valley SMA would be managed as part of the proposed El Palacio SRMA, and Santa Cruz Lake Recreation Area SMA would be managed as part of a larger SRMA (see section 2.7.3.6).

2.7.4.5 Wild and Scenic Rivers (est. 31,970 acres)

See section 2.4.3.6 (Continuing Management Guidance subheading). In this alternative, the Rio Nutrias and Rio Pueblo de Taos river segments would be recommended suitable for addition to the WSR system, along with the Rio Embudo Box and Bosque segment of the Rio Grande.

2.7.4.6 Wilderness Study Areas (18,910 acres)

See section 2.4.3.8 (Continuing Management Guidance subheading). If released from wilderness review by Congress, the WSAs would be managed under guidelines for the ACEC they are at least partly within: San Antonio WSA would be managed as part of a larger primitive area within Taos Plateau ACEC and the suitable part of Rio Chama would be managed as part of a primitive area within the Chama Canyons ACEC. They would be protected by restrictive land use prescriptions (see Appendix A).

2.7.4.7 Other Congressional Designations

See section 2.4.3.9 (Continuing Management Guidance subheading) for information on the Galisteo Basin Cultural Sites Protection Act and the Northern Rio Grande National Heritage Area.

2.8 Alternative C

2.8.1 *Overview of the Alternative*

Alternative C focuses management on the production of natural resources and maximization of resource uses from the public lands within the existing regulatory framework. A minimum of restrictions necessary to prevent undue resource damage would be applied. Relative to all alternatives, Alternative C conserves the least land area for physical, biological, and heritage resources. It designates the lowest number of ACECs and is the least restrictive to OHV use and mineral leasing. Alternative C also provides more area to be available for renewable energy development when compared to the other action alternatives.

2.8.2 *Resources*

2.8.2.1 Air and Atmospheric Values

Same as the no action alternative.

2.8.2.2 Cultural

Same as the no action alternative, except changes to special designations where cultural resources are provided protective management (see section 2.8.4).

2.8.2.3 Fish and Wildlife

Similar to the no action alternative, except the program would focus on monitoring of wildlife habitat and populations, where feasible. Pre-treatment data would inform management decisions to minimize adverse impacts to key wildlife habitat and priority species, where feasible. This alternative would engage public land users and applicants in monitoring prior to and during authorized activities that could damage soils, vegetation, and wildlife habitat to ensure impacts caused by such activities are minimized. Post-treatment rehabilitation and offsite mitigation are tools that would minimize impacts to wildlife and require coordination between multiple entities.

Areas of migratory corridors would be protected to prevent impacts to meta-populations and promote genetic diversity, including permanent or seasonal closure of some roads, retention and acquisition of lands in those areas, controlled surface occupancy for mineral development, and closure to rights-of-way development.

Any additional AUM's in the Taos Plateau planning unit would go to livestock grazing to the extent wildlife populations would not be adversely affected.

2.8.2.4 Paleontology

Same as the no action alternative.

2.8.2.5 Soils

Same as the no action alternative.

2.8.2.6 Special Status Species

Same as Alternative A.

2.8.2.7 Vegetative Communities

Riparian

Same as Alternative A.

Terrestrial

Same as the no action alternative.

2.8.2.8 Visual Resources

Management of visual resources would be the same as under the no action alternative except for the following:

- The Cerrillos Hills area and the protected Galisteo Basin archaeological sites would be managed as VRM class III, while the remainder of the Galisteo planning unit would be managed as VRM class IV.
- The Ojo Caliente planning unit would be managed as class II, except for along Highways 285, 111, and 554, and the existing powerline near NM 84 and Hernandez, which would be class III. The existing mining area along 31 Mile Road would be managed as class IV.
- The Chama planning unit would include VRM class III in some areas proposed as class IV under the no action alternative.
- El Palacio planning unit would be managed as VRM class II, except for right-of-way corridor along Highway 68, the southern portion of the isolated block of public lands near La Puebla, and

the isolated block north of Chimayo, all of which would be managed for VRM class III objectives.

- Lands within the East Side planning unit adjacent to Sabinoso Wilderness would be managed as VRM class II.

The VRM classes prescribed under Alternative C are shown on Map 2-4 and are totaled in Table 2-24 below.

Table 2-24. VRM classifications—Alternative C

VRM Class	Acreage
I	56,402
II	203,006
III	224,562
IV	111,473

2.8.2.9 Water Resources

Same as the no action alternative.

2.8.2.10 Lands with Wilderness Characteristics

One area—Ute Mountain—would be managed to protect its wilderness characteristics under this alternative:

Table 2-25. Area managed for wilderness characteristics

Planning unit/Area	Acres	Management
Taos Plateau/Upper Rio Grande Ute Mountain	13,190	*Ute Mountain would not be in an ACEC under this alternative* Land Use Authorizations: excluded from rights-of-way. Minerals: closed to mineral leasing and material sales. Renewable Energy: excluded. Transportation: closed. Visual: class I and II guidelines would apply.

The remaining lands with wilderness characteristics would not be provided protective management to provide greater opportunities for firewood gathering, rights-of-way, renewable energy development, mineral resource development, and other land uses, consistent with the emphases under this alternative.

2.8.2.11 Wildland Fire

Same as the no action alternative.

2.8.2.12 Invasive Species/Noxious Weeds

Same as Alternative A.

2.8.3 *Resource Uses*

2.8.3.1 Forestry and Woodland Products

The field office would put an emphasis on commodity production of forest and woodland products. The field office would offer personal and commercial wood permits based on an allowable harvest schedule of 2,000 to 5,000 acres per year and technical proposals from market interest in commodity offers. The forest health treatments in conjunction with allowable harvest would still be based on ecological principles for each forest type and BMPs for each project area. Reforestation acres would also increase based on funding to achieve these targets. The field office would actively look for opportunities in biomass utilization for a variety of private and public interests.

2.8.3.2 Land Tenure

Similar to the no action, except as follows.

Disposal

In addition to lands identified for disposal under the no action alternative (see section 2.5.3.2), Alternative C would include approximately 7,451 more acres, shown in Table 2-26, for a total of approximately 67,451 acres.

Actions Common to All Units

R&PP leases/conveyance would be considered on a case-by-case basis, except in specially designated areas in all planning units. Disposal of these lands would not occur if resources of national, state, or regional significance are found on them, including special status species habitat, cultural resources, and/or riparian and wetland habitat.

Lands made available for disposal through an R&PP lease/conveyance within special designations that are not used for intended purpose would be automatically reincorporated into the boundary of the special designation.

Galisteo Basin planning unit

BLM parcels would remain available for disposal on a case-by-case basis, unless resources of national, state, or regional significance are found on them, and the possible adverse effects of the adjustment action cannot be mitigated at a reasonable cost. Examples of such resources are habitat for threatened or endangered species, riparian areas, wetlands, and important cultural resources.

Taos Plateau planning unit

The BLM would not consider the 20-acre parcel near NM 585 (T. 25 N., R. 13 E., sec. 28, lots 10, 11) for disposal. Disposal of all public lands within sec. 10, T. 29 N., R. 9 E. would be considered for alternative energy purposes, along with disposal of 40 acres to Taos County (T. 25 N., R. 11 E., sec. 3: SENE). The 200-acre parcel previously identified for disposal in the Garrapata Ridge area (T. 27 N., R. 12 E., within sec. 20) would be available for other public purposes.

Chama planning unit

The Cañones parcel (T. 23 N., R. 5 E., secs. 17, 18, 19, 20, 21, 29, 30) in the Abiquiu area and the Archuleta Mesa parcel (T. 32 N., R. 1 W., secs. 7, 8, 9, 17, 18, 19, 20) would continue to be considered for disposal.

Ojo Caliente planning unit

The Rio Ojo Caliente bridge parcel (previously identified for disposal) would be retained for administrative access in the area.

Dispose under an R&PP lease/conveyance for public purposes near the community of Ojo Caliente the following lands: T. 23 N., R. 8 E., sec. 13: within lot 10; and T. 24 N., R. 9 E., sec. 7: within lot 3 and NESW. Dispose of the block of public lands south of the 31 Mile Road parcels (T. 21 N., R. 7 E., secs. 33, 34, 35, south of 31 Mile Road only) adjacent to Santa Clara Pueblo lands, by exchange for high resource value private lands to consolidate public ownership within the Ojo Caliente Planning unit.

El Palacio planning unit

In addition to the no action alternative, the tract between the Oñate Center and the Rio Arriba County land transfer site consisting of approximately 150 acres in T. 22 N., R. 8 E., sec. 36 (protracted) and T. 22 N., R. 9 E., sec 31 (protracted) would be available for disposal by direct sale or exchange for public purposes.

The El Llano area (T. 20 N., R. 9 E., within sec. 6, and T. 21 N., R. 9 E., sec. 31) adjacent to the old City of Espanola landfill would be identified for disposal by R&PP leases/conveyance or exchange for public purposes.

The 619 acres on the east side of US 285/84 and the south side of Santa Cruz River (La Puebla), previously identified for disposal, would be retained, while the county or other governmental or nonprofit entity would be encouraged to assume management of the existing 127-acre (T. 20 N., R. 9 E., within sec. 18) OHV use area through R&PP lease/conveyance.

Approximately 10 acres (T. 20 N., R. 9 E., sec. 23: SESESW) would be disposed of through R&PP conveyance to Santa Fe County for the existing Nambe Transfer Station Site, a site within the Sombrillo ACEC.

The BLM would coordinate with the county or other governmental or nonprofit entity to develop an R&PP lease/conveyance for park purposes on the isolated tract below the Santa Cruz Lake dam (T. 20 N., R. 10 E., within sec. 7).

All lands identified for disposal are shown on Table 2-26. Lands identified for disposal in this alternative total approximately 7,451 acres.

Table 2-26. Lands identified for disposal—Alternative C

Legal Description	Acres
T20N, R9E	
Sec 6: lots 8-17, 19-21;	326.89
Sec 18: within NWNE, N½NW;	127
Sec 23: SESESW.	10
T20N, R10E	
Sec 7: within lot 3 and NE.	50
T21N, R7E	
Sec 33: lots 8, 17-19, 21, 24,25,27,28, SESESE;	109.98
Sec 34: within S½;	320
Sec 35: within S½.	320
T21N, R9E	
Sec 5: lots 3 and 4, S½NW, SW;	319.86
Sec 6: lots 5-9 and SENE, E½SE;	251.99
Sec 31: lots 2,3,4,5 and SENE, SE.	333.94
T22N, R8E	
Sec 36 (protracted): within SMLG.	75
T22N, R9E	
Sec 31 (protracted): within SMLG.	75
T23N, R5E	
Sec 17: lots 1-3, E½, NESW, S½SW;	569.48
Sec 18: lot 1;	34.16
Sec 19: lots 1-5, E½NE, SE;	369.83
Sec 20: all;	640
Sec 21: lots 1-4, W½;	485.7
Sec 29: W½NE, NW;	240
Sec 30: lots 1 and 2.	59.45
T23N, R8E	
Sec 13: within lot 10.	7
T24N, R9E	
Sec 7: within lot 3 and NESW.	53
T25N, R11E	
Sec 3: SENE.	40
T27N, R12E	
Sec 20: within N½.	200
T29N, R9E	
Sec 10: NESE, S½SE.	120
T32N, R1W	
Sec 7: lots 6-13;	230.61
Sec 8: lot 11;	14.16
Sec 9: lots 7, 8;	20.95
Sec 17: N½NE, W½, SESE;	440
Sec 18: lots 3-12, E½SW, SE;	616.82
Sec 19: lots 1-4, E½W½, E½;	630.48
Sec 20: W½, NWSE.	360

Acquisition

Lower Gorge/Copper Hill planning unit

Acquisition of non-Federal lands from willing sellers within specially designated areas would continue.

East Side planning unit

No additional acquisitions would be considered.

West Santa Fe planning unit

No additional acquisitions would be considered.

El Palacio planning unit

Private lands within the ACECs would be acquired from willing sellers.

2.8.3.3 Land Use Authorizations, Utility Corridors, Communication Sites

Alternative C would be similar to the no action alternative, except for the following:

Only the WSR corridor within the Chama planning unit would be excluded from rights-of-ways.

Within the Taos Plateau planning unit, maintenance of existing acequias (irrigation ditches), powerlines, or bridges would be allowed in the Rio Grande WSR corridor, provided that the actions are consistent with protection of the river values. Specifically, this includes the powerline at Bear Crossing, John Dunn Bridge, High Bridge, and the powerline at Powerline Falls.

Within the Lower Gorge/Copper Hill planning unit, maintenance of the powerline at Taos Junction Bridge, Pilar Bridge, Glen Woody Bridge, and Embudo Station Bridge (if the study segment is designated by Congress) would be allowed.

A total of 44,705 acres would be excluded under Alternative C. Additional exclusion areas specific to renewable energy rights-of-way are indicated in section 2.8.3.7.

2.8.3.4 Livestock Grazing

Under this alternative, emphasis would be placed on allocating the greatest number of AUMs to livestock grazing without damaging or degrading natural resources. All allotments currently unavailable to grazing, vacant, or that have extended periods of nonuse would be evaluated for activation. Riparian areas currently unavailable would be evaluated to determine if livestock grazing could be accomplished without damage or degradation to the resource. Acreage unavailable to livestock grazing under this alternative could be reduced to 19,760.

In the Taos Plateau planning unit, any additional AUM's would go to livestock grazing to the extent it would not adversely affect wildlife populations. A common reserve allotment would be established on the portions of Ute Mountain acquired in 2003 and 2005.

Acquired lands in the Chama planning unit along the Rio Chama corridor (approximately 1,025 acres) would be available to grazing through the annual allocation to a permittee with base property. Specifically, these lands are described as T. 27 N., R. 2 E., Sec. 27: SW¼, Sec. 28: SE¼; T. 27 N., R. 2 E., Sec. 28: S½ NW¼; T. 27 N., R. 2 E., Sec. 33: W½; and T. 27 N., R. 2 E., Sec. 34: W½.

As under the other alternatives, the Rio Grande Wild and Scenic River corridor, which includes 17,420 acres within the Taos Plateau, and Lower Gorge/Copper Hill planning units, would be unavailable to livestock grazing. Select riparian areas throughout the planning area, totaling 1,755 acres, would also be unavailable.

Within the Chama, El Palacio, and Ojo Caliente planning units, 235 acres associated with the Pueblos ACEC would be unavailable.

Approximately 120 acres around La Cienega Mesa pueblo ruins within La Cienega ACEC in the West Santa Fe planning unit would be unavailable to livestock grazing.

Pueblo sites within the Ojo Caliente planning unit, totaling 230 acres, would be unavailable to livestock grazing.

2.8.3.5 Mineral Resources

Leasable Minerals

Alternative C would allow for maximum leasable mineral development in the planning area subject to appropriate environmental controls. In the event of land use conflicts, priority would be given to opportunities for mineral recovery.

Under Alternative C, approximately 99,510 acres of Federal mineral estate would be closed to mineral leasing to protect sensitive resources. This includes 35,590 acres of Federal mineral estate closed nondiscretionarily. Approximately 1,302,920 acres would be open to mineral leasing with standard terms and conditions and 115,420 acres would be open to leasing with stipulations in addition to the standard terms and conditions (Appendix B). Federal mineral estate underlying surface area managed or owned by private, state, or other Federal agencies would be managed in close coordination with the landowners or agencies (see Map 2-7).

Table 2-27. Leasing decisions for Alternative C

Decision	Acres
Closed to leasing	99,510
Nondiscretionary closure	35,590
Open with standard terms and conditions	1,302,920
Open to leasing with constraints (limited)	115,420

This alternative allows for the maximum development of leasable mineral development which includes leasing for geothermal. New revised geothermal leasing regulations were enacted in 2007, implementing the Energy Policy Act of 2005. The new regulations restructure rules on the term and royalty for geothermal leases; however, leasing stipulations developed in this RMP for oil and gas leasing also apply to geothermal leasing.

Alternative C (see Table 2-28) is very similar to the no action alternative regarding acreages open to leasing with standard terms and conditions and acreages open with constraints. The same leasing constraints for the no action alternative generally apply to Alternative C on the same lands, except several of the special designations have changed by being expanded or rescinded. There are no SMAs in Alternative C as these lands have been changed to become new ACECs or added to existing ACECs with some changes to the management prescriptions and leasing stipulations from the original SMAs.

The following areas no longer exist in Alternative C compared to the no action alternative: Fun Valley SMA, Black Mesa, and Sabinoso SMA. The 17,720-acre Fun Valley SMA of the no action alternative has been rescinded and has become part of the expanded 18,190-acre

Sombrillo ACEC in Alternatives A and B. The 1,430 acre Black Mesa has been rescinded to become part of the 66,580-acre expanded Ojo Caliente ACEC of Alternative A and B.

Several cultural sites which include: Ojo Del Zorro Pueblo, Pueblo Quemado, Pueblo Sarco, Sajiu Pueblo, and San Lazaro, have been consolidated to form the Pueblo ACEC of Alternatives A and B. The NSO leasing stipulation remains for the Pueblo ACEC.

Any non-producing lease in its primary term located in special designation areas may be reissued under a new lease.

Table 2-28. Alternative C mineral constraints and withdrawals/closures

	Federal Mineral Withdrawals and Closures		
Special Management Areas [BLM Surface Acres[2]]	**Locatable Mineral Acres[3]**	**Mineral Materials Acres**	**Leasable Mineral Acres Geothermal, Oil and Gas[4]**
Taos Plateau planning unit [255,150] — 353,800			
Rio Grande Wild and Scenic River-Upper Gorge [13,670]	wd–16,530	closed–16,530	closed–16,530
San Antonio ACEC [57,750]	open–74,170; wd–790	open–66,410; closed–8,550	CSU–62,320; closed–8,280
San Antonio WSA [7,760]	wd–0; open–7,760	closed–7,760	NSO–270; TL–6,150; closed–7,760
San Antonio Gorge ACEC [270]	wd–270	closed–270	NSO–270
Winter Range ACEC [6,660]	wd–520	closed–520	closed–520; TL–6,150
Ute Mountain Primitive Area [13,190]	N/A–13,190	closed–13,190	closed–13,190
Wild Rivers Rec. Area [18,540] (3,130 overlap w/WSR)	wd–16,320	closed–16,320	closed–5000; NSO–11,600
Remainder of planning area [155,190]	open–234,120; N/A–1,810	open–235,930	CSU–237,070
Lower Gorge/Copper Hill planning unit [42,100] — 43,770			
Lower Gorge ACEC [16,580]	wd–15,540	closed–15,536; open–4	closed–15,540
Orilla Verde Rec. Area [8,400] (2,150 overlaps w/WSR)	wd–8,000 (2,150 overlaps WSR)	closed–8,000 (2,150 overlaps WSR)	closed–8,000 (2,150 overlaps WSR)
Rio Grande Wild and Scenic River (Lower Gorge) [1,510]	wd–1,330	closed–1,330	closed–1,330
Copper Hill ACEC [17,200]	wd–18,900; open–0	closed–18,879; open–3	CSU–10,570; closed–6,530
Rio Embudo Protection Zone [2,640]	wd–2,610	closed–2,610	closed–2,610
Agua Caliente Protection Zone [3,420]	wd–3,420	closed–3,420	closed–3,420
Lower Embudo Cultural Protection Zone [500]	wd–500	closed–500	closed–500
Central Protection Zone [10,640]	wd–12,370	closed–12,367; open–3	CSU–10,570
Chama planning unit [40,850] — 86,380			
Rio Chama WSR [2,680] (1,620 not in WSA)	wd–2,280	closed–2,280	closed–2,280
Rio Chama WSA [11,150]	open–9,530	closed–9,530	closed–9,530
Remainder of planning unit [28,080]	open–74,570	open–74,570	open–74,570
Ojo Caliente planning unit [76,850] — 127,820			
Ojo Caliente ACEC [13,370]	wd–290; open–13,080	closed–290; open–13,080	CSU–13,370
Pueblos ACEC – Ku Pueblo [70]	wd–70	closed–70	NSO–70
Remainder of planning unit [63,410]	open–114,380	open–14,380	open–114,380
El Palacio planning unit [77,700] — 83,760			
Santa Cruz Lake Recreation Area [590]	wd–590	closed–590	NSO–590

Special Management Areas [BLM Surface Acres[2]]	Federal Mineral Withdrawals and Closures		
	Locatable Mineral Acres[3]	Mineral Materials Acres	Leasable Mineral Acres Geothermal, Oil and Gas[4]
Sombrillo ACEC [8,600]	open–8,570	open–8,570	CSU–8,600
Remainder of planning unit [68,510]	open–74,600	open–74,600	open–74,600
West Santa Fe planning unit [36,050] — 69,450			
La Cienega ACEC [3,730]	wd–3,730	closed–3,730	NSO–3,730
Remainder of planning unit [32,320]	open–65,720	open–65,720	open–65,720
Galisteo Basin planning unit [14,100] — 133,720			
Galisteo Basin Arch. Resource Prot. Act Sites [450]	wd–750	closed–750	closed–750
Remainder of planning unit [13,650]	open–132,970	open–132,970	open–132,970
East Side [52,300] — 619,150			
Sabinoso Wilderness [16,030]	closed–16,120	closed–16,120	closed–16,120
Remainder of planning unit [36,270]	open–603,030	open–603,030	open–603,030
Common to All Planning Units			
Riparian/Aquatic Areas [2,250]	open–1,277	closed–1,277	CSU–1,270[7]

wd = withdrawn from mineral entry.
NSO = open to mineral leasing with a no surface occupancy stipulation.
CSU = open to mineral leasing with a controlled surface use stipulation.
TL = open to mineral leasing with timing limitation stipulation controlling access to a specific time of year (see Appendix B for more detail). Locatable, mineral material and leasable acreages are mineral acres only. BLM surface is added to NSO, CSU and TL stipulations when Federal surface/privates minerals occur and is subtracted when private surface/Federal minerals occur. Closed to leasing acres are only mineral acres.

Locatable Minerals

This alternative allows for the maximum locatable mineral development. Management would be the same as under the no action alternative.

Salable Minerals

This alternative allows for the maximum saleable mineral development. Management would be the same as under the no action alternative.

2.8.3.6 Recreation

Recreation under Alternative C would be similar to Alternative A, except for the following differences:

The La Puebla SRMA would not be established and the area would be encompassed within the Sombrillo ERMA.

El Palacio Arroyos would remain designated open to motorized use in the original Fun Valley SMA, as it exists under the no action alternative (see El Palacio Transportation Area under section 2.8.3.8).

The Rio Grande Rim/Copperhill zone would include an 80-acre area near the county line by Apodaca along NM 75 where special recreation permits for motorized events would be allowed. Visitor and public complaints would be used as an indicator of impacts. Potential adaptive management may consider limiting the number of special recreational permits based on limits of acceptable change.

The Sabinoso SRMA outside of the wilderness would be managed as middle country with up to 14 encounters per day. Motorized use would be allowed on existing routes.

Diablo Canyon would be managed as front country. Overnight camping facilities and an amphitheater could be developed.

Recreation settings and associated acreages under Alternative C are presented in Table 2-29, while Map 2-12 presents the locations of the SRMAs and ERMAs.

Table 2-29. Acreage of settings

Settings	Acreage
ERMA	411,147
SRMA	183,924
Primitive	40,099
Back Country	19,473
Middle Country	112,694
Front Country	8,121
Rural	3,538
Urban	0

2.8.3.7 Renewable Energy

Similar to the no action alternative, except wind and solar energy rights-of-way would be excluded from all riparian areas in all planning units. See Table 2-10 for a comparison of availability for renewable energy rights-of-way.

2.8.3.8 Transportation and Access

Area Designations

Under Alternative C, 64,065 acres would be designated closed, 53,165 acres would be designated open, and 477,870 acres would be limited to designated routes and permitted users. No acreage would be limited to existing routes.

Areas with cultural resources identified as eligible for the National Register of Historic Places that cannot be sufficiently avoided or otherwise mitigated by OHV use would be limited to inventoried routes until the route designation process is complete.

Opportunities and limitations on access to wood gathering areas would be determined through site-specific planning, and would be specified on individual fuelwood permits. Access to gathering areas would be closed beginning January 1 each year and opened when seasonal conditions allow.

Parking and Camping

Parking would be limited to 300 feet from roads, unless otherwise allowed by permit (e.g., wood gathering or special events). Camping with a vehicle would be allowed within 300 feet of designated roads, but not within 300 feet of riparian areas or developed waters. During the inventory, special attention would be given to designation and signing of short spur roads that provide access to undeveloped campsites.

Map Sets

A set of maps for each transportation area discussed below was developed to reflect Alternative C. Management direction for each area is discussed as follows and labeled on the map with circled numbers, ① through ⑦.

Transportation Area Guidance

1) Taos Plateau/Upper Rio Grande Transportation Area

Same as Alternative A.

2) Lower Rio Grande/Copper Hill Transportation Area (similar to no action)

Limited to designated roads—a trials riding area ③ would be established along NM 75, near the Taos/Rio Arriba County line. The area would include typically singe-track routes laid out to support specially permitted events, and would not be "open" for casual riding.

3) Chama Transportation Area

Same as Alternative A.

4) Ojo Caliente Transportation Area

Closed – 4,705 acres

Limited to designated – 72,125; ② the remainder of the planning area would be limited to designated routes. ③ One road through the Posi Recreation Area would be open within a linear limited to designated routes area, essentially a corridor "cherry-stemmed" through the Posi Recreation Area, to allow access to mining claims, but would be closed to camping. Some new trails would be developed for hiking, biking and horseback riding; existing routes would be used to support this network.

5) El Palacio Transportation Area

Open – 17,850; ① acres would remain open

Limited to designated routes – 47,140; ② establish an additional community riding area of approximately 160 acres or less north of NM 76, east of Chimayo near the Arroyo de la Canada. With the acceptation of the open area, ③ all remaining acreage would be limited to designated. A trials riding area ④ would be established along NM 75, near the Taos/Rio Arriba County line. The area would include typically singe-track routes laid out to support specially permitted events, and would not be "open" for casual riding.

6) Sombrillo Transportation Area

Similar to Alternative A; ⑥ The area between NM 503 and the Nambe Pueblo would remain limited to designated and managed for more intensive motorized recreation.

7) West of Santa Fe Transportation Area

Closed – 2,540 acres

Open – 0 acres

Limited to designated routes – 33,510 acres; ② Diablo Canyon (475 acres) would be managed as limited to designated roads to support filming, access to rock climbing sites, and for some motorized recreation north of Diablo Canyon.

8) Galisteo Basin Transportation Area

Closed – 2,270; ① Burnt Corn Pueblo

Open – 2,660 acres; ③ San Pedro area would be an open area, primarily to support access to minerals.

Limited to designated routes – 9,170; ② Cerrillos Hills (2,510 acres) ④ and the rest of the transportation area would remain limited to designated routes (6,660 acres).

9) East Side Transportation Area

Same as the no action alternative.

2.8.3.9 Withdrawals

Same as the no action alternative.

2.8.4 *Special Designations*

Special designation areas in this alternative would cover 182,680 acres and 39 miles of national historic trails. The biggest change from the no action alternative is the elimination of 11 former SMAs and 3 ACECs (Black Mesa, San Antonio Gorge and Winter Range).

2.8.4.1 Areas of Critical Environmental Concern (115,770 acres)

Six ACECS would be included in this alternative (see Map 2-38):

- Five—the Copper Hill, La Cienega, Lower Gorge, Ojo Caliente and Sombrillo ACECs—would retain the same boundaries as in the no action alternative, but would have some minor changes to their management prescriptions.
- One new ACEC would be designated: the San Antonio ACEC would have the same boundary as the no action alternative's San Antonio SMA. It would include lands covered by the rescinded San Antonio and Winter Range ACECs.
- Black Mesa ACEC would be rescinded and not replaced by another designation.

2.8.4.2 Byways

See section 2.4.3.2 (Continuing Management Guidance subheading).

2.8.4.3 National Historic and Scenic Trails (39 miles)

See section 2.4.3.3 (Continuing Management Guidance subheading). The 39 miles include 8 miles for El Camino Real, and 31 miles for the Old Spanish National Historic Trails.

2.8.4.4 Special Management Areas (no acres)

The 13 SMAs would be rescinded in this alternative, while only one would be replaced by an ACEC (San Antonio, see above). The remainder would still be managed to protect the resources originally identified. The areas covered by the Riparian/Aquatic SMA would be managed under guidance for riparian areas as described in section 2.8.2.7. Fun Valley SMA would be managed as part of the proposed El Palacio SRMA, and Santa Cruz Lake as part of an expanded SRMA (section 2.8.3.6). Lands in the rescinded Rio Chama SMA would be managed under guidance for the Rio Chama WSR (section 2.4.3.6) and the Rio Chama WSA (section 2.4.3.8). About 50 percent of the land in the rescinded Sabinoso SMA is included in the congressionally designated Sabinoso Wilderness. Seven cultural sites (La Caja Pueblo, Ku Pueblo, Ojo del Zorro Pueblo, Pueblo Quemado, Pueblo Sarco, Sahiu Pueblo and San Lazaro) would retain restrictions from mineral use or other surface-disturbing activity, but adjacent lands with cultural value would not be acquired.

2.8.4.5 Wild and Scenic Rivers (31,970 acres)

See section 2.4.3.6 (Continuing Management Guidance subheading). Only the Rio Embudo Box and the Rio Grande Bosque segment would be carried forward with a suitable recommendation for designation as a WSR.

2.8.4.6 Wilderness Study Areas (18,910 acres)

See section 2.4.3.8 (Continuing Management Guidance subheading). If released from wilderness review, these areas would be managed under general plan guidance. Mineral restrictions would be rescinded, and the areas would be more available for land uses such as rights-of-way or alternative energy development.

2.8.4.7 Other Congressional Designations

See section 2.4.3.9 (Continuing Management Guidance subheading) for information on the Galisteo Basin Cultural Sites Protection Act and the Northern Rio Grande National Heritage Area.

2.9 Summary Comparison of Alternatives and Impacts

Table 2-30 presents a summary comparison of key decisions under the alternatives. Table 2-31 presents a summary comparison of the impacts projected to occur as a result of implementing key decisions under each alternative.

Table 2-30. Summary comparison of alternatives

Air and Atmospheric Values			
No Action	Alternative A	Alternative B	Alternative C
Maintain air quality at or above national air quality standards for the six criteria pollutants established by EPA in accordance with the Clean Air Act. Follow nonbinding New Mexico Environment Department air quality directives when considering allocations and implementing management activities. BMPs for protection of air quality would also be implemented.			
Cultural Resources			
No Action	Alternative A	Alternative B	Alternative C
Management actions on public lands and projects which are federally funded, permitted, or assisted on non-federal land would comply with sections 106 and 110 of the National Historic Preservation Act, Executive Order 13287, and the Protocol Agreement between BLM New Mexico and State Historic Preservation Office. Three congressional designations would continue to be managed to protect cultural resources.			
Two ACECs and seven SMAs totaling 21,684 acres would be managed to protect cultural resources.	A balanced approach to site treatment would be implemented through excavation and data recovery versus avoidance sites that are subject to natural deterioration such as erosion. Six ACECs totaling 141,375 acres would be designated to protect cultural resources.	Same as Alternative A.	Same as no action.
Fish and Wildlife			
No Action	Alternative A	Alternative B	Alternative C
Fisheries			
Designate the Rio Grande cutthroat trout as a BLM sensitive species in New Mexico per BLM Manual 6840. Work with NMDGF to restore Rio Grande cutthroat trout to 5 miles of the Rio Agua Caliente.	In addition to the no action alternative, the Taos Field Office would actively manage fish populations and habitat to increase native and decrease exotic fish species on 230 miles of perennial streams.	Same as Alternative A.	Same as no action.
Wildlife			
Biotic and other public land health standards would be attained through management emphasis placed on key habitats identified in existing ACECs and SMAs and through continued implementation	Same as no action, except in cooperation with NMDGF, consider identification of areas for introduction, augmentation, or reestablishment of native fish and wildlife on a case-by-case basis. Sheep and goat allotments	Similar to Alternative A; however, unoccupied raptor nests would be protected from removal or destruction and a 0.5-mile buffer of suitable habitat around unoccupied nests would be maintained. Maintain core	Similar to the no action alternative except there would be a higher level of monitoring would be implemented to inform decisions on any increase in land use activities, while collaborating with partners

of HMPs and CRMPs.	would not be available within a minimum of 9 miles from bighorn sheep habitat. Road densities in elk winter/spring ranges and migratory corridors would be no more than 0.5 miles per square mile. An area within 0.25 mile of the Rio Grande Gorge would be closed for bighorn sheep habitat. Seasonal restrictions for protection of elk and deer winter/spring range would be applied January 1 through April 30, and bighorn sheep calving May 1 through June 30. Unoccupied raptor nests would be protected within a 0.25-mile buffer. No parking motor vehicles or camping within 300 yards of man-made water holes, water wells, or watering tanks. Utility corridors would be co-located and excluded from riparian areas and priority wildlife species habitat where necessary.	blocks of habitat of at least 160 acres that are roadless or have temporarily closed roads.	and land owners to allow for adaptive resource management which would mitigate effects to wildlife.
Paleontology			
No Action	Alternative A	Alternative B	Alternative C
It is the policy of the BLM to manage and protect paleontological resources according to existing BLM Handbook guidance (BLM Manual 8270, Paleontological Resource Management and H-8270-1). In the BLM's management of paleontological resources, it would continue to apply mitigation measures in specific locations where these resources could occur. The Sombrillo ACEC would be managed to protect paleontological resources.			
The Sombrillo ACEC would remain 8,600 acres.	Sombrillo ACEC would be expanded to 18,080 acres to protect the relevant and important paleontological values. A qualified paleontologist would be required conduct a survey for paleontological resources prior to any surface-disturbing activities within areas where significant resources are known to occur (e.g., the Sombrillo area) and may be required to monitor during such activities.	Same as Alternative A.	Same as the no action alternative.

Soils			
No Action	Alternative A	Alternative B	Alternative C
Provide protection of soils through vegetation management under the existing Riparian and Aquatic HMP and standards and guidelines for grazing. Follow the Rangeland Health Standards and Guidelines to assess soil condition and establish management objectives. Over the life of the plan, begin restoration of all areas identified as having impaired soils within 5 years of assessment. Over the life of the plan, prevent any increases in acreage of impaired soils due to management activities. Manage resource uses to maintain or improve soil condition.			
Special Status Species			
No Action	Alternative A	Alternative B	Alternative C
Special status species would be managed in accordance to the Endangered Species Act and BLM policy under all alternatives.			
To protect southwestern willow flycatcher habitat, shoreline access is restricted in designated areas and closed on selected side channels in the BLM Orilla Verde Recreation Area.	Similar to no action alternative, except roads would be closed permanently or seasonally, re-located, designed and/or maintained to reduce sedimentation and restore or maintain special status species habitat.	Same as Alternative A.	Same as Alternative A.
Vegetative Communities			
No Action	Alternative A	Alternative B	Alternative C
Vegetation would be managed under the guidance of the New Mexico Standards and Guidelines, Healthy Forest Restoration Act (2004) to maintain and/or improve ecosystem and watershed health. Vegetation management would provide a mosaic of habitat types with maximum edge and structural diversity, maximize forage and cover potential for a variety of wildlife species, inventory and maintain existing old-growth, provide fuelwood for local communities, and reduce the need for wildfire suppression through restoration activities. Manage riparian areas as prescribed in the Riparian and Aquatic Habitat Management Plan.	Similar to no action, except all riparian areas within the planning area would be included within the Riparian and Aquatic Habitat Management Area.	Similar to Alternative A, except an ACEC would be designated for riparian areas.	Same as Alternative A.

Coordinate with the state engineer to acquire surface water rights as necessary to manage for special status species habitat and aquatic and riparian resource values. Controlled surface occupancy for mineral leasing in riparian areas.			
Inventory and control weed populations through an integrated pest management (IPM) program implemented through integrated weed management (IWM) and coordinated weed management areas (CWMAs). Reduce the area and density of existing populations to acceptable levels. Monitor and reevaluate populations at suitable intervals through the use of surveys to identify new infestations.			
Visual Resource Management			
No Action	Alternative A	Alternative B	Alternative C
Designated VRM Classes (acres) Class I: 59,877 Class II: 151,821 Class III: 281,097 Class IV: 102,646	Designated VRM Classes (acres) Class I: 111,006 Class II: 393,708 Class III: 53,182 Class IV: 37,546	Designated VRM Classes (acres) Class I: 115,284 Class II: 401,505 Class III: 38,533 Class IV: 40,119	Designated VRM Classes (acres) Class I: 56,402 Class II: 203,006 Class III: 224,562 Class IV: 111,473
Water			
No Action	*Alternative A*	*Alternative B*	*Alternative C*
Under the Riparian and Aquatic Habitat Management Plan, coordinate with the state engineer to acquire surface water rights as necessary to manage for special status species habitat and aquatic and riparian resource values. In addition to minimum necessary flow, consider need for flushing flow events to maintain fish habitat and riparian areas. Current and future potable drinking water systems at campgrounds and recreation sites would comply with Environmental Protection Agency standards as managed by the New Mexico Environment Department. Ongoing management would provide for mitigation and monitoring of land use activities to ensure that BLM public lands are not contributing to surface or groundwater water quality impairment.			
Lands with Wilderness Characteristics			
No Action	Alternative A	Alternative B	Alternative C
One area would be managed to protect its wilderness characteristics, covering a total of 13,190 acres.	Five areas would be managed for wilderness characteristics, covering a total of 67,032 acres.	Seven areas would be managed for wilderness characteristics, covering a total of 93,413 acres.	Same as the no action alternative.
Wildland Fire Management			
No Action	Alternative A	Alternative B	Alternative C
The Fire Management Plan would provide specific implementation strategies, evaluation criteria, and accomplishment reporting details in accordance with goals and objectives and other associated provisions in the RMP.			

Forestry and Woodlands Products			
No Action	Alternative A	Alternative B	Alternative C
The Taos Field Office would continue to investigate opportunities for biomass utilization (e.g., pulp, chipping, stove pellet industries, charcoal, organics for alternative fuels production, etc.). Piñon-juniper woodlands are managed primarily for woodland products except in selected special designation areas, where priorities such as wildlife habitat management or recreation may override interests in woodland product extraction.			
Under the no action alternative, permits would be offered for personal and commercial use to remove only dead tree species as designated by the field office manager.	The program would target 2,000 acres/year for biomass utilization projects, including permitted fuelwood collection. Use of the 2,000 acres would be managed to improve forest health and yield the highest combination of products, including commercial forest species, and ecosystem values.	Permits would be offered for personal and commercial use to remove only dead and down tree species as designated by the field office manager.	The field office would put an emphasis on commodity production of forest and woodland products. The field office would offer personal and commercial wood permits based on an allowable harvest schedule of 2,000 to 5,000 acres per year and based on technical proposals from market interest in commodity offers.
Land Tenure			
No Action	Alternative A	Alternative B	Alternative C
Disposals under R&PP leases/conveyance would be on a case-by-case basis, except where specifically excluded.	Consider R&PP leases/conveyance on a case-by-case basis, except in specially designated areas (ACECs, etc.). Disposal of these lands would not occur if resources of national, state, or regional significance are found on them, including special status species habitat, cultural resources, and/or riparian and wetland habitat.		
Approximately 60,000 acres would be identified for disposal. All of the parcels in the East Side planning unit, except for the Sabinoso Wilderness, are identified for disposal.	Approximately 69,729 acres would be identified for disposal.	Approximately 64,078 acres would be identified for disposal.	Approximately 67,451 acres would be identified for disposal.
34,351 acres would be identified for acquisition.	Approximately 140,269 acres would be identified for acquisition.	Same as Alternative A.	Same as no action alternative.
Acquisition of lands within or adjacent to special designation areas and those with significant cultural resources would remain high priority. Acquisitions would be considered on a case-by-case basis in other portions within the planning area.	Acquisition of non-Federal lands from willing sellers within specially designated areas would continue.	Same As Alternative A.	Same as Alternative A, except no additional acquisitions would be considered in the East Side or West Santa Fe planning units.

Land Use Authorizations			
No Action	Alternative A	Alternative B	Alternative C
▪Rights-of-way would be considered on a case-by-case basis, except where specifically excluded, using BMPs to minimize impacts. ▪Rights-of-way would be excluded in the following areas, with some exceptions: Wild Rivers Recreation Area, Rio Chama SMA/WSA/WSR, Copper Hill ACEC, Lower Gorge ACEC, Santa Cruz Lake Recreation Area, Orilla Verde Recreation Area, Rio Grande and Red River WSR, and Sabinoso Wilderness. ▪Rights-of-way for acequias (irrigation ditches) are grandfathered through the legislation for WSRs, so they also would remain in effect. Construction and rehabilitation of acequias would have to be done using historical materials and methods to protect WSR values. ▪Rights-of-way exclusion areas under the no action alternatives would total 47,830 acres.	▪Similar to no action, except rights-of-way would also be excluded from the following areas: Chama Canyon ACEC; Galisteo Basin ACEC; Sabinoso ACEC; within the Wild Rivers, San Antonio, and Ute Mountain zones within the Taos Plateau ACEC; and Cerro Colorado and Rincon del Cuervo areas of Ojo Caliente ACEC. ▪Right-of-way corridors would be designated along US 285, US 84, NM111 and NM554, with a maximum 150’ width, as well as a 1/4 mile utility corridor along Buckman Road within West Santa Fe planning unit. The Pueblos ACEC would be a right-of-way avoidance area. ▪Allow for maintenance of the following: existing acequias, powerlines or bridges in the Rio Grande WSR, provided that actions are consistent with protection of the outstandingly remarkable values of the WSR. Specifically, these include the power line at Bear Crossing, John Dunn Bridge, High Bridge, the powerline at Powerline Falls, Taos Junction Bridge, Pilar Bridge, Glen Woody Bridge, and Embudo Station Bridge (if the study segment is designated by Congress). ▪Rights-of-way exclusion areas under Alternatives A would total 126,645 acres.	▪Same as Alternative A, except approximately 1,275 acres would also be excluded from rights-of-way in the Riparian/Aquatic ACEC. ▪Rights-of-way exclusion areas under Alternatives B would total 127,920 acres.	▪Similar to the no action, except allow for maintenance of the following: existing acequias, power lines or bridges in the Rio Grande WSR, provided that actions are consistent with protection of the values of the WSR. These include the powerline at Bear Crossing, John Dunn Bridge, High Bridge, and the powerline at Powerline Falls, the powerline at Taos Junction Bridge, Pilar Bridge, Glen Woody Bridge, and Embudo Station Bridge (if the study segment is designated by Congress). ▪In addition, only the WSR corridor within the Chama planning unit would be excluded from rights-of-ways. ▪Rights-of-way exclusion areas under Alternatives C would total 44,705 acres.

Livestock Grazing			
No Action	Alternative A	Alternative B	Alternative C
Management of livestock grazing on small isolated parcels would remain a low priority. Conflicts in areas where residential expansion is occurring would be handled on a case-by-case basis. Approximately 22,927 acres would remain unavailable to grazing under this alternative.	On small scattered tracts of public land where surrounding private landowners hold a grazing lease for these parcels, consider disposals, or management through an agreement with a local or state government agency or a qualified nonprofit watershed group or similar entity. In areas where residential expansion or subdivision of a base property is interfering with the orderly and efficient operation on the range resource, grazing may be excluded. Livestock grazing may be used as a tool to maintain or improve the health of the land. Acquired lands and vacant allotments would be considered for use as forage reserves or reserve common allotments. Allotments would remain intact for administrative tracking purposes. Grazing would be excluded in the area below the Santa Cruz Lake dam. Grazing would be excluded within all of the designated Galisteo Basin cultural sites. Approximately 49,222 acres would be unavailable to grazing under this alternative.	Similar to Alternative A, however emphasis would be placed on livestock use as a tool to achieve resource management objectives. Consideration would be given to the protection of the resource, while the needs of the resource users would be a lesser consideration. Approximately 52,584 acres would be unavailable to grazing under this alternative.	Similar to the no action alternative, except emphasis would be placed on allocating the greatest number of AUMs that could be obtained without damage to the natural resources. Approximately 19,760 acres would be unavailable to grazing under this alternative.
Minerals			
No Action	Alternative A	Alternative B	Alternative C
Minerals on split estate lands would be managed in cooperation and collaboration with surface owners, lessees and operators.			
Oil and Gas			

Closed to leasing: 65,710 Nondiscretionary Closure: 35,590 Open with standard terms and conditions: 1,277,770 Open to leasing with constraints (limited): 138,780	Closed to leasing: 525,740 Nondiscretionary Closure: 35,590 Open with standard terms and conditions: 648,661 Open to leasing with constraints (limited): 343,449	Closed to leasing: 594,220 Nondiscretionary Closure: 35,590 Open with standard terms and conditions: 658,430 Open to leasing with constraints (limited): 227,089	Closed to leasing: 99,510 Nondiscretionary Closure: 35,590 Open with standard terms and conditions: 1,302,920 Open to leasing with constraints (limited): 115,420
Minerals			
Withdrawn from locatable minerals: 100,800 acres.	Withdrawn from locatable minerals: 268,100 acres.	Withdrawn from locatable minerals: 340,700 acres.	Areas withdrawn from locatable minerals would be the same as the no action alternative.
Closed to mineral material sales and free use: 133,100 acres.	Closed to mineral materials sales and free use: 511,100 acres.	Closed to mineral materials sales and free use: 579,600 acres.	Areas closed to mineral material sales and free use would be the same as the no action alternative.
Recreation			
No Action	Alternative A	Alternative B	Alternative C
The Rio Grande corridor, including Orilla Verde Recreation Area and Wild Rivers Recreation Area, would be managed according to the 2000 Rio Grande Corridor Final Plan. The Chama WSR would be managed according to the 1990 Rio Chama Plan.			
SRMAs would include existing recreation areas, and the Rio Chama and Rio Grande corridors. The remainder of the planning area would be managed as ERMAs.	Alternative A would establish 11 SRMAs totaling 185,405 acres throughout the planning area and would make some adjustments to the recreation areas currently being managed (Santa Cruz Lake, Orilla Verde and Wild Rivers). Public lands would be allocated to SRMAs as follows: Primitive: 44,854 Back Country: 19,473 Middle Country: 109,683 Front Country: 7,638 Rural: 3,777 Urban: 0 In addition, 10 ERMAs totaling 410,542 acres would be created to provide guidance for casual uses and custodial management.	Similar to Alternative A, except that the Santa Cruz Lake Northshore area would be closed to camping.	Similar to Alternative A, except the allocations of the SRMAs would be adjusted and further development and motorized use would be allowed.

Renewable Energy			
No Action	Alternative A	Alternative B	Alternative C
Wind and solar excluded: 142,439 acres Open: 474,708 acres Unless prohibited by restrictions in land use authorizations, utility corridors, communication sites, wind and solar energy rights-of-way would be considered on a case-by-case basis within all planning units using BMPs to minimize impacts.	Wind and solar excluded: 413,360 acres Wind excluded, solar avoided: 72,982 acres Wind excluded, solar open: 13,414 acres Wind and solar avoided: 41,513 acres Open: 61,092 acres Wind and solar energy rights-of-way would be managed on a case-by-case basis within all planning units using BMPs to minimize impacts. Wind and solar energy rights-of-way, other than those for transmission or access, would be excluded from all riparian areas within all planning units.	Same as Alternative A.	Similar to the no action alternative, except wind and solar energy rights-of-ways, other than those for transmission or access, would be excluded from all riparian areas within all planning units.
Transportation/Access			
No Action	Alternative A	Alternative B	Alternative C
Closed: 21,180 acres Open: 64,605 acres Limited to Designated Routes: 316,525 acres Limited to Existing Routes: 192,790 acres Transportation plans already developed for the Taos Plateau/Upper Rio Grande and Lower Rio Grande/Copper Hill transportation areas, and several ACECs would continue to be implemented. Plans for the other transportation areas would be	Closed: 75,425 acres Open: 0 acres Limited to Designated Routes: 519,675 acres Limited to Existing Routes: 0 acres During an interim period (but no more than 5 years from completion of the RMP), for travel management areas where route designations have not been completed, the BLM would allow the use of existing routes of travel. Where conflicts have been identified, or where degradation of significant resources is occurring, the BLM would use emergency closures to prevent	Closed: 75,425 acres Open: 0 acres Limited to Designated Routes: 519,675 acres Limited to Existing Routes: 0 acres During an interim period (but no more than 5 years from completion of the RMP), for travel management areas where route designations have not been completed, the BLM would allow the use of existing routes of travel. Where conflicts have been identified, or where degradation of significant resources is occurring, the BLM would use emergency closures to prevent	Closed: 64,065 acres Open: 53,165 acres Limited to Designated Routes: 477,870 acres Limited to Existing Routes: 0 acres. During an interim period (but no more than 5 years from completion of the RMP), for travel management areas where route designations have not been completed, the BLM would allow the use of existing routes of travel. Where conflicts have been identified, or where degradation of significant resources is occurring,

completed within a 5-year period. The current amount of acreage open for cross country travel would remain. The limited to designated or existing areas would continue to have a moderate to high density motorized routes. Closed acreages represent areas with wilderness quality, WSRs, and small parcels protecting habitat. Generally, parking and camping are allowed within 300 feet of any existing or designated road, but not within 300 yards from any spring, riparian area, developed waters, or designated trailheads except where otherwise designated.	additional resource damage until the formal route designation process is completed. Closed acreages represent; areas with wilderness quality, WSRs, and small parcels protecting habitat. Limited to designated acreages would provide for all modes of travel with low to high density of route systems in all transportation areas. Parking would be limited to 50 feet from roads, unless otherwise allowed by permit. Camping would be allowed within 300 feet of designated roads, but not within 300 feet of riparian areas or developed waters unless otherwise permitted.	additional resource damage until the formal route designation process is completed. Open acreages would have a designated route system. Closed acreages represent areas with wilderness quality, WSRs, and small parcels protecting habitat. Limited to designated areas would have a lighter density motorized route system than under Alternative A. Parking would be allowed within 25 feet of designated roads unless otherwise allowed by permit. Camping would be limited to areas within 100 feet of roads, but not within 300 feet of riparian areas or developed waters unless otherwise permitted.	the BLM would use emergency closures to prevent additional resource damage until the formal route designation process is completed. The amount of open acreage for cross country travel would increase. Closed acreages represent areas with wilderness quality, WSRs, and small parcels protecting habitat. Limited to designated acreages would adopt a moderate to higher density of motorized route systems than under the no action alternative. Parking would be limited to 300 feet from roads, unless otherwise allowed by permit. Camping would be allowed within 300 feet of designated roads, but not within 300 feet of riparian areas or developed waters.
Withdrawals			
No Action	Alternative A	Alternative B	Alternative C
Approximately 57,386 acres of land have been withdrawn from entry under all or some of the land or mining laws pursuant to regulations found at 43 CFR 2900.			
178,312 acres have been identified for withdrawal from locatable mineral entry.	Similar to the no action, except an additional 132,777 acres, would be analyzed for withdrawal from operation of the mining laws.	Same as Alternative A, except an additional 93,473 acres would be analyzed for proposed withdrawal from operation of the mining laws.	Same as no action.

Special Designations			
No Action	Alternative A	Alternative B	Alternative C
ACECs			
Eight ACECs totaling 66,590 acres would continue to be managed as prescribed by the 1988 RMP. Twelve SMAs totaling 131,350 acres would continue to be managed as prescribed by the 1988 RMP.	Eleven ACECs designated totaling 407,855 acres: One ACEC carried forward from the no action alternative. Four ACECs expanded from the no action alternative. Five new ACECs created from existing SMAs and ACECs. One new ACEC.	Twelve ACECs designated, totaling 410,105 acres. Management prescriptions within ACECs would vary from Alternative A.	Six ACECs, totaling 115,770 acres, would be designated. Designate the San Antonio ACEC (same area as covered by the no action alternative's San Antonio SMA); San Antonio Gorge, Winter Range, and Black Mesa ACECs would be rescinded.
Byways			
Wild Rivers Back Country Byway would be managed as part of Wild Rivers Recreation Area. The viewshed would be managed to maintain scenic quality and provide historic and natural resource interpretation for byway users.	Wild Rivers Back Country Byway would be managed as part of the proposed Taos Plateau ACEC and Rio Grande Gorge Recreation Area. The viewshed would be managed to maintain scenic quality and provide historic and natural resource interpretation for byway users.		
National Historic or Scenic Trails			
Four national scenic or historic trails (shown on Map 3-20), including the Santa Fe, Camino Real de Tierra Adentro and Old Spanish National Historic Trails, and the Continental Divide National Scenic Trail, would be managed under guidance of the National Trails System Act of 1968, the enabling legislation for each trail, and activity plan guidance.			
Watchable Wildlife Viewing Sites			
The two watchable wildlife areas identified in the planning area—Wild Rivers and San Antonio—would have interpretive plans completed, with appropriate highway signing and parking/viewing areas provided for visitors.			
Wild and Scenic Rivers			
The National Wild and Scenic River System includes 3 river segments in the planning area totaling 100 miles. An additional 7.6 miles of the Rio Grande from Rinconada to Velarde was designated by Congress as a study segment. In the 2000 Rio Grande Corridor Plan, the BLM identified 5 river segments as eligible or suitable for designation. An inventory completed in January 2008 identified an additional 11 segments which are eligible and 2 of these were determined suitable. All eligible and suitable segments would be managed to protect their identified outstandingly remarkable values, tentative classification, and free-flowing character. The designated WSRs, as well as river segments which have been found eligible or suitable for designation, would be managed under guidance of the National Wild and Scenic Rivers Act, as amended.			

Eligible and suitable segments would be managed to protect their identified outstandingly remarkable values, tentative classification, and free-flowing character. The designated WSRs, as well as river segments which have been found eligible or suitable for designation, would be managed under guidance of the National Wild and Scenic Rivers Act, as amended.	A segment of the Rio Nutrias and Rio Pueblo de Taos would be determined suitable. All other eligible rivers would remain eligible. Rio Grande Bosque and Rio Embudo Box, determined suitable in the 2000 Rio Grande Corridor Final Plan would remain suitable.	Same as Alternative A.	Only the Rio Grande Bosque and Rio Embudo Box, determined suitable in the 2000 Rio Grande Corridor Final Plan, would remain suitable. All other eligible rivers would not be carried forward for further consideration for designation as a WSR.
Wilderness			
Sabinoso Wilderness (16,030 acres) will be managed according to the Wilderness Act of 1964 and BLM Manual 8560. A wilderness management plan will provide site-specific management direction for this area.			
Wilderness Study Areas			
The two WSAs in the planning area (Rio Chama and San Antonio) totaling 18,910 acres would be managed under the Interim Management Policy for Lands Under Wilderness Review (BLM Manual H-8550-1). If any are designated wilderness, they would be managed under guidelines in the Wilderness Act of 1964, the enabling legislation, and a wilderness management plan which would be prepared by the BLM.			
Other Congressional Designations			
The nine sites designated by the Galisteo Basin Archaeological Sites Protection Act would continue to be managed in accordance with the enabling legislation. The BLM would continue to collaborate on management of the Northern Rio Grand National Heritage Area.	In addition to the no action alternative, the Galisteo Basin sites would be designated as the Galisteo Basin ACEC for further protection.		

Table 2-31. Summary comparison of impacts

Air and Atmospheric Values			
No Action	Alternative A	Alternative B	Alternative C
Very low emissions relative to total emissions in the planning area are anticipated to result from BLM management decisions.	Increased travel management and reduced area available for mineral development should result in less short-term impacts than either the no action alternative or Alternative C.	A much greater area would be closed to mineral leasing, resulting in the lowest potential for emissions of all the alternatives.	Potential for emissions would be similar to if not slightly higher than under the no action alternative, although very low compared to total emissions in the planning area.
Cultural Resources			
No Action	Alternative A	Alternative B	Alternative C
Continued OHV travel on existing routes within 192,790 acres could lead to impacts to an unquantifiable number of cultural resource sites. Renewable energy rights-of-way could result in impacts to the visual integrity of cultural properties that derive their significance from natural settings.	More data would be recovered through excavation of cultural resources instead of mitigating impacts with avoidance. Six ACECs would provide protection to relevant and important cultural resources. Limiting OHV travel to only designated routes would result in avoidance of cultural resource sites. Classification of VRM class I or II would reduce potential impacts from renewable energy and other rights-of-way on cultural properties that derive their significance from the natural settings. Cultural resources would be protected by rights-of-way exclusion in the Ojo Caliente ACEC.	Same as Alternative A.	Similar to the no action alternative, except OHV designations would provide additional protection to an unquantifiable number of cultural resources. Also, additional acreage of VRM class II would help maintain the landscape context for cultural resources.
Fish and Wildlife			
No Action	Alternative A	Alternative B	Alternative C
Fisheries			
Impacts to fisheries from land tenure adjustments, land use authorizations, mineral resource development, and transportation and access would be greatest under this alternative.	Potential impacts to fisheries would be less than the no action alternative due to greater restrictions on OHV use, rights-of-ways, and an increase in areas closed to mineral development.	Similar to Alternative A, except a much greater area would be closed to mineral leasing, greatly reducing the potential for impact to aquatic habitat.	Substantially reducing the acreage open to OHV travel would result in fewer impacts than the no action alternative, but still more than Alternatives A and B.
Wildlife			

Impacts to wildlife habitats from land tenure adjustments, land use authorizations, mineral resource development, renewable energy development, and transportation and access would be greatest under this alternative. Renewable energy projects could affect wildlife habitat on 77 percent of BLM lands, including much of the Taos Plateau.	Alternative A would provide greater habitat management and protection, largely through management of ACECs, as well as greater limitations on land use authorization, transportation and access, mineral resource development, and renewable energy development. Approximately 43 percent of the planning area would be excluded from renewable energy, including the Taos Plateau, ensuring habitat is not fragmented, reduced or otherwise affected. Additional AUMs for livestock grazing in the Taos Plateau would be apportioned to either wildlife or livestock grazing.	Similar to Alternative A, except additional livestock grazing AUMs in the Taos Plateau unit would go to wildlife, providing additional forage in critical winter range for big game species.	Similar to the no action alternative, except the Taos Plateau unit would be closed to renewable energy development and additional livestock grazing AUMs in Taos Plateau would go to livestock without adversely affecting wildlife forage opportunities.
Paleontology			
No Action	Alternative A	Alternative B	Alternative C
The Sombrillo ACEC (8,600 acres) would be managed to protect paleontological resources. OHV designations would leave 64,605 acres open to off-road travel which could potentially impact paleontological resources. Fun Valley SMA, which has a high frequency of paleontological resources, would remain open to OHV use. Mineral resource development, land tenure adjustments, and land use authorizations have potential to impact paleontological resources in proportion to the acres of public land directly affected by potential future development.	Sombrillo ACEC would be enlarged by adding 9,520 acres containing paleontological resources. Paleontological resources could be impacted where they occur within the 380 acres remaining open to OHV travel. Mineral resource development, land tenure adjustments, and land use authorizations have potential to impact paleontological resources outside of Sombrillo ACEC in proportion to the acres of public land directly affected by potential future development. However, a paleontological survey prior to surface-disturbing activities and potential monitoring during such activities would mitigate much of the effects.	Same as Alternative A.	Similar to the no action alternative, except the reduced acreage open to OHV travel would reduce potential for impacts to paleontological resources.

Soils			
No Action	Alternative A	Alternative B	Alternative C
Impacts from land tenure adjustments (i.e., disposals) could adversely affect soils on up to 14 percent of the total BLM-managed surface area. Mineral development exclusions could protect soils from potential impacts on 14 percent of the total BLM-managed surface area. Allowing 64,605 acres to remain open to OHV use would have adverse impacts on soils.	Impacts from land tenure adjustments could adversely affect soils on up to 15 percent of the total BLM-managed surface area. Mineral development exclusions could protect soils from potential impacts on 38 percent of the total BLM-managed surface area. Impacts to soils from OHV use would be substantially limited by eliminating open areas.	Similar to Alternative A, except mineral development exclusions could protect soils from potential impacts on 47 percent of the total BLM-managed surface area. Also, no areas would be open of OHV travel, affording soils the greatest protection from this use.	Same as Alternative A, except allowing approximately 53,165 acres to remain open to OHV use would have adverse impacts on soils.
Special Status Species			
No Action	Alternative A	Alternative B	Alternative C
Special status species would be protected by management in accordance with the Endangered Species Act and BLM policy. To protect southwestern willow flycatcher habitat, shoreline access would be restricted in designated areas and closed on selected side channels in the BLM Orilla Verde Recreation Area.	Special status species would be protected by management in accordance with the Endangered Species Act and BLM policy. Designation of 11 ACECs would provide the greatest beneficial impacts on special status species. Expansion of the Lower Gorge and La Cienaga ACECs would protect habitat for special status species. However, 600 acres of Santa Fe Cholla habitat would be available for disposal under land tenure decisions. The elimination of open OHV areas would reduce potential impacts to special status species by reducing sedimentation and vegetation damage caused by OHVs.	Similar to Alternative A, except designation of Riparian/Aquatic ACEC would increase protective measures for special status species, and no acres with potential habitat for special status species would be available for disposal under land tenure decisions.	Special status species would be protected by management in accordance with the Endangered Species Act and BLM policy. As under Alternative A, 600 acres of potential habitat for special status species would be available for disposal under land tenure decisions. The substantial decrease in areas open to OHV use from the no action alternative would reduce potential impacts to special status species by reducing sedimentation and vegetation damage caused by OHVs.
Vegetative Communities			
No Action	Alternative A	Alternative B	Alternative C
Management per the New Mexico Standards and Guidelines, Healthy Forest Restoration Act (2004) and the Taos Field Office Fire Management Plan (2005b) would maintain and/or improve ecosystem and watershed	Similar to the no action alternative, except all riparian areas within planning area would be protected by inclusion within the Riparian and Aquatic Habitat Management Area. In addition measures would be applied	Similar to Alternative A, except the Riparian/Aquatic ACEC would further ensure protection to these resources.	Same as the no action alternative.

health. Management as prescribed in the Riparian and Aquatic Habitat Management Plan would also provide for healthy, functioning riparian and aquatic areas listed in that plan. No net loss of riparian habitat is projected.	for the protection of riparian vegetation and habitat.		
Visual Resource Management			
No Action	Alternative A	Alternative B	Alternative C
One-third of the planning area would be either VRM class I or class II, which provides protection of areas with higher scenic quality.	Approximately 66 percent of the planning area would be class II, which largely protects scenic quality. Much of the remaining area, which generally coincide with special designations, would be class I.	Similar to Alternative A, except some class II areas would be class I under this alternative, providing greater protection to visual resources.	The planning area would be predominantly managed as class II and III, which would largely protect and preserve the quality of scenic resources while providing for development opportunities.
Water			
No Action	Alternative A	Alternative B	Alternative C
Impacts from land tenure adjustments could adversely affect water quality where surface water is present on 14 percent of the total BLM-managed surface area. Land use authorizations could affect surface water quality on 10.5 percent of the total BLM-managed surface area. Mineral development exclusions could protect surface water quality from potential impacts on 14 percent of the total BLM-managed surface area. Allowing 64,605 acres to remain open to OHV use could have adverse impacts on water quality from erosion.	Impacts from land tenure adjustments could adversely affect water quality where surface water is present on 15 percent of the total BLM-managed surface area. Land use authorizations could affect surface water quality on 11 percent of the total BLM-managed surface area. Mineral development exclusions could protect surface water quality from potential impacts on 38 percent of the total BLM-managed surface area. Impacts to water quality from OHV use would be substantially limited by eliminating open areas.	Similar to Alternative A, except mineral development exclusions could protect water quality from potential impacts on 47 percent of the total BLM-managed surface area. Also, no areas would be open to OHV travel, affording water quality the greatest protection from this use.	Same as Alternative A, except allowing approximately 53,165 acres to remain open to OHV use could have adverse impacts on water quality.
Lands with Wilderness Characteristics			
No Action	Alternative A	Alternative B	Alternative C
Wilderness characteristics could diminish on 80,223 acres where it currently exists due to land use authorizations, mineral and renewable energy development, and	Management of 67,032 acres where these characteristics exist, which may result in impacts to other resource uses. Wilderness characteristics could diminish on 26,381 acres where they	Management of Wilds Lands would protect all 93,413 acres where these characteristics exist.	Same as the no action alternative.

other surface disturbing activities.	currently exist due to land use authorizations, mineral and renewable energy development, and other surface disturbing activities.		
Wildland Fire Management			
No Action	Alternative A	Alternative B	Alternative C
Protection of public safety and property, natural and cultural resource, and ecosystem health would be provided for through adherence to the Taos Field Office Fire Management Plan (2005b) and the Fire and Fuels Management Plan Amendment and Environmental Assessment for Public Land in New Mexico and Texas (2004).	Same as the no action alternative.	Same as the no action alternative.	Same as the no action alternative.
Forestry and Woodlands Products			
No Action	Alternative A	Alternative B	Alternative C
The no action alternative would provide for forest and woodland health. Particularly ponderosa pine stands would be provided enhancement and protection, while piñon-juniper woodlands would be available for limited uses. Some woodlands would be maintained for certain special designations, wildlife habitats, and recreation areas.	Similar to the no action alternative, except the utilization of 2,000 acres per year for biomass utilization projects, including fuelwood collection, would help improve forest health and yield a high combination of products, such as commercial forest species, and ecosystem values.	Similar to the no action alternative except that reduced opportunities for fuelwood collection could serve to protect other resource values. Closing fuelwood on 13,000 acres in El Palacio Unit Zone 1 would not have much of an impact on fuelwood gathering as this area is not typically used for this purpose, primarily given the vegetation type.	Similar to the no action alternative except that harvesting of 2,000 to 5,000 acres per year would provide commercial opportunities while, under greater management, helping to improve forest health and yield a high combination of products, including commercial forest species, and ecosystem values.
Land Tenure			
No Action	Alternative A	Alternative B	Alternative C
Disposal of all of the parcels in the East Side planning unit, except for the Sabinoso Wilderness, would improve the effective and efficient management of larger blocks of lands. Acquisition of lands within or adjacent to special designations and areas with significant cultural resources would provide for greater protection	This alternative provides the greatest opportunity to acquire and dispose of lands for more improved manageability and resource protective purposes, while meeting the needs of local communities.	Similar to Alternative A, except fewer lands are identified for disposal.	Similar to the no action alternative, except additional lands are identified for disposal.

of resources and provide for greater opportunities for public enjoyment of those lands and resources.			
Land Use Authorizations			
No Action	Alternative A	Alternative B	Alternative C
Rights-of-way would be excluded from the Wild Rivers Recreation Area, Rio Chama SMA/WSA/WSR, Copper Hill ACEC, Lower Gorge ACEC, Santa Cruz Lake Recreation Area, Orilla Verde Recreation Area, Rio Grande WSR, and Sabinoso Wilderness.	In addition to those areas identified under the no action alternative, rights-of-way would also be excluded from Chama Canyon ACEC; Galisteo Basin ACEC; Sabinoso ACEC; within the Wild Rivers, San Antonio, and Ute Mountain zones of the Taos Plateau ACEC; and within the Cerro Colorado and Rincon del Cuervo areas of Ojo Caliente ACEC.	Exclusion areas would be much the same as those under as Alternative A, with additional exclusions within the Riparian/Aquatic ACECs.	Exclusion areas would be the same as those under the no action alternative, with exception to a reduced area along the Rio Chama.
Livestock Grazing			
No Action	Alternative A	Alternative B	Alternative C
Livestock grazing would continue to be excluded from approximately 22,927 acres of unavailable lands. Potential land disposals could lead to the loss of 4,782 AUMs of grazing preference.	Establishment of reserve common allotments would provide the flexibility to reduce potential impacts to rangeland resources if environmental conditions such as drought indicate the need. Livestock grazing would be excluded from approximately 49,222 acres of unavailable lands. Exclusions could potentially result in a loss of approximately 2,600 AUMs. Potential land disposals could lead to the loss of 4,687 AUMs of grazing preference.	Similar to Alternative A except land disposal proposals would affect slightly more AUMs than Alternative A. Likewise, only a slightly greater number of acres would be unavailable to grazing.	This alternative would provide the most AUMs for livestock grazing, possibly utilizing an additional 9,650 AUMs currently not in use throughout the planning area.
Minerals			
No Action	Alternative A	Alternative B	Alternative C
Approximately 93 percent of the Federal mineral estate would be available for leasing. A similar percentage would be open to locatable and salable mineral development.	About two-thirds of the mineral estate would be open to leasable, locatable, and salable minerals. The greater unavailability of Federal minerals could lead to a possible increase in potential for mineral	Approximately 58 percent of the mineral estate would be open to leasing, while over half the estate would be open to locatable and salable minerals.	Similar to the no action alternative.

	development on private lands. In addition to a loss of use of the resources and consequential loss of Federal royalties, potential drainage of Federal oil and gas could occur.		
Recreation			
No Action	Alternative A	Alternative B	Alternative C
The focus of management of recreation would remain limited to the developed Wild Rivers, Santa Cruz Lake, and Orilla Verde Recreation Areas, along with the Rio Chama and Rio Grande Corridors.	With about 31 percent of the public lands in planning area managed as a SRMA, this alternative would provide the greatest variety and opportunity for recreation, including developed, dispersed, or primitive experiences.	Same as Alternative A.	Similar to Alternative A, except with allocations adjusted, the public would have greater opportunities for developed recreation and motorized use.
Renewable Energy			
No Action	Alternative A	Alternative B	Alternative C
Approximately 78 percent of the planning area would be open to renewable energy development. Unless prohibited by restrictions on land use authorizations, utility corridors, communication sites, wind and solar energy rights-of-way would be considered on a case-by-case basis within all planning units using BMPs to minimize impacts.	About one-third of the planning area would be available for renewable energy development. Wind and solar energy rights-of-way would be excluded from all riparian areas within all planning units. Renewable energy exclusions would reduce impacts on visual resources and habitat fragmentation. Lack of opportunity to develop renewable energy projects would direct more interest to private lands and would not contribute to reducing national dependence on fossil fuels.	Same as Alternative A.	Similar to the no action alternative, except wind and solar energy rights-of-way, other than those for transmission or access, would be excluded from all riparian areas throughout the planning area.
Transportation/Access			
No Action	Alternative A	Alternative B	Alternative C
Approximately 3 percent of the planning area would be closed. Ten percent of the area would be open, while the remaining 87 percent would be limited to designated and existing routes. Opportunities for OHV travel and access would be unchanged.	Approximately 12 percent of the planning area would be closed, while the remaining 88 percent would be limited to designated routes. Certain special designations, including Sabinoso Wilderness, WSAs, and the Wild and Scenic River corridors, would preclude OHV opportunities. While fewer routes would likely be available	Same as Alternative A.	About 10 percent of the planning area would be closed, while approximately 90 percent of the area would be limited to designated routes. While more restrictive than the no action alternatives, areas limited to designated routes could have a greater density of routes and, thus, more travel opportunities

	to OHV travel, access to areas would still be provided for throughout most of the planning area.		than under Alternative A.
Special Designations			
No Action	Alternative A	Alternative B	Alternative C
ACECs			
Eight ACECs totaling 66,590 acres would provide special management to the areas' relevant and important values. Twelve Special Management Areas totaling 131,350 acres would continue also provide special management prescriptions to resource values.	Eleven ACECs designated, totaling 407,855 acres, would provide special management to the areas' relevant and important values.	Twelve ACECs designated, totaling 410,105 acres, would provide special management to the areas' relevant and important values.	Six ACEC, totaling 115, 770 acres, would provide special management to the areas' relevant and important values.
Wild and Scenic Rivers			
Non-designated rivers determined eligible or suitable would be protected such that their free-flowing character, outstandingly remarkable values, and tentative classification would be maintained or enhanced.	A segment of the Rio Nutrias and Rio Pueblo de Taos would be determined suitable. All other eligible rivers would remain eligible. Rio Grande Bosque and Rio Embudo Box, determined suitable in the 2000 Rio Grande Corridor Final Plan would remain suitable. All rivers determined suitable and rivers remaining eligible would be protected such that their free-flowing character, outstandingly remarkable values, and tentative classification would be maintained or enhanced.	Same as Alternative A.	Only the Rio Grande Bosque and Rio Embudo Box, determined suitable in the 2000 Rio Grande Corridor Final Plan, would remain suitable. All other eligible rivers would not be carried forward for further consideration for designation as a WSR, and, therefore, their free-flowing character, outstandingly remarkable values, and tentative classification would not be afforded interim protection.

Chapter 3 Existing Environment

3.1 Introduction

This chapter summarizes the current conditions of the resources, resource uses, and programs within the planning area. Pursuant to NEPA regulations at 40 CFR 1502.15, the purpose of the affected environment chapter is to describe the human and natural environment that could potentially be affected, beneficially or adversely, by the alternatives.

The data used to characterize the affected environment was collected from field office staff; Federal, state, county, and local agencies including but not limited to the U.S. Geological Survey (USGS), U.S. Fish and Wildlife Service (USFWS), New Mexico Department of Game and Fish (NMDGF); and other state agencies, counties, and public and private sources. Where data is incomplete, information is interpreted by specialists from the best available sources. Field verification of the data was not conducted in many cases. Acreages used for analysis in this resource management plan revision/ environmental impact statement (RMPR/EIS) reflect the best available geographic information system (GIS) data maintained by the BLM. The affected environment is characterized using four planning categories as shown in Table 3-1 below:

Table 3-1. Planning categories

Resources	
Air quality	Special status species
Cultural	Vegetation (riparian/terrestrial/weeds)
Fish and wildlife	Visual
Geology	Water
Paleontology	Wilderness characteristics
Soils	Wildland fire ecology
Resource Uses	
Forest and woodland management	Recreation
Land tenure	Renewable energy
Land use authorizations, utility corridors, communication sites	Transportation and access
Livestock grazing	Withdrawals
Minerals (locatable/leasable/salable)	
Special Designations	
Areas of critical environmental concern	Wild and scenic rivers
Backcountry byways	Wilderness
National recreation areas	Wilderness study areas
National trails	
Social and Economic	
Social and economic context	Economic well-being and poverty
History	Components of personal income
Cultural identity	Contributions to the area from BLM management
Demographic overview	Nonmarket economic value
Economic specialization and employment	Resiliency
Communities living in the area and interested in BLM lands within Taos Field Office	

3.2 Resources

3.2.1 *Air and Atmospheric Values*

Air Quality

The BLM must consider air quality when making land use allocations when those allocations/decisions could increase emission sources or contribute to nonattainment of the National Ambient Air Quality Standards. Within the planning area, except on tribal lands, the New Mexico Environment Department (NMED) is responsible for monitoring air quality and issuing permits for regulated sources. The NMED has classified emission sources as follows:

Point: large, stationary (nonmobile), identifiable source of emissions that release pollutants into the atmosphere.

Area: collectively represents point sources that have not been inventoried as a specific point, mobile, or biogenic source. They are typically sources which are too small, numerous, or difficult to inventory individually.

Nonpoint and Mobile: motor vehicle, nonroad engine, or nonroad vehicle.

Biogenic: all pollutants emitted from nonhuman sources, for example: trees, vegetation, oil and gas seeps, and microbial activity.

The NMED maintains three air quality monitoring stations within the planning area. For Taos County, there is one station at the Taos Fire Station that monitors particulate matter less than 10 microns (PM_{10}) and less than 2.5 microns ($PM_{2.5}$) in diameter. Major sources identified for Taos are windblown dust and residential wood smoke. There are two stations within Santa Fe County, one near the Santa Fe airport that measures ozone, PM_{10} and $PM_{2.5}$ and one near downtown Santa Fe that measures PM_{10} and $PM_{2.5.}$ Major sources identified for the Santa Fe area are vehicular traffic and residential wood smoke.

Summary data for criteria air pollutants for each county in New Mexico is available at: http://www.epa.gov/air/data/reports.html. The most recently available data reporting emissions by category (from 2002) shows that the nine counties in the planning area contribute the following portion of criteria pollutants for all sources reported within New Mexico: 19 percent of CO, 13 percent of NH_3, 8 percent of NO_x, 23 percent of PM10, 21 percent of PM2.5, 2 percent of SO_2, and 19 percent of VOC. Santa Fe County tops the planning area for emissions of CO, NO_x, PM10, PM2.5, SO_2, and VOC while Los Alamos County reports the largest emissions for NH_3 from all emission sources.

Interagency Monitoring for Protection of Visual Environments (IMPROVE) network monitors are maintained by the U.S. Forest Service at Wheeler Peak and San Pedro Parks Wilderness areas and by the National Park Service at Bandelier National Monument. These monitors collect data on pollutants which are most likely to impact visibility in these class I areas. Class I areas are designated under the Clean Air Act and maintain the most stringent degree of protection from future degradation of air quality. All areas not designated as class I, including BLM land within the planning area is designated as class II for air quality, allowing a moderate degree of degradation of air quality.

There are no areas classified as being in nonattainment of the National Ambient Air Quality Standards in the planning area. This indicates that air quality in the planning area is generally good. Exceptions can occur, especially during wildfire events and high wind days when dust is mobilized. BLM actions that impact air quality include vegetation treatments that involve prescribed burning or disking, vehicle emissions, and any mining or mineral development on agency land including oil and gas development. Emission from treatments can include smoke and dust from exposed soil. Vehicle emission sources controlled by the BLM include construction vehicles, work trucks, and off highway or all-terrain vehicles. Engines used in various phases of oil and gas development also produce emissions which can be mitigated through BMPs. Many mining activities including oil and gas also result in increases in fugitive dust.

Based on current identified sources for the area (dust, vehicles and wood smoke) and population trends, it is expected that smoke (primarily from wood heating of homes) and vehicle emissions will continue to increase. Any increase in oil and gas development will also contribute to increased emissions. While not managed by the BLM, class I areas within the planning area that may be affected by BLM activities are the Pecos Wilderness, Bandelier National Monument, and Wheeler Peak Wilderness.

Climate and Meteorology

Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. Climate within the planning area exhibits considerable variation largely influenced by elevation. Semiarid lower elevations transition into moister, cooler montane areas at higher elevations. In general, the area experiences cool summer temperatures (daytime highs in the mid to high 90's Fahrenheit) and moderately cold winters (nighttime lows below 0^{o}F).

The area is characterized by precipitation maxima occurring in the winter as snowfall and in the summer as thunderstorms associated with the Southwest Monsoon. These maxima are particularly important to resources and resource uses in the planning area. Snowmelt drives spring peak flow in area rivers and is important to aquatic fauna lifecycles. Spring peak flows are also important to the recreation community as outfitters rely on flows for whitewater boating experience. Summer monsoons are important to rangeland health and productivity.

Temperature and precipitation vary considerably across the planning area. For example, in Taos County the average annual temperature is 42^{o}F and the average annual precipitation is 17.4 inches. Santa Fe averages 48^{o}F and 14.7 inches annually, while San Miguel averages 52^{o}F and 16.2 inches annually (Western Regional Climate Center 2011a).

Temporal trends in temperature and precipitation also vary considerably. Based on the summary of precipitation and temperature by county above, it can be inferred that temporal trends tend to be consistent across the planning area, while spatial variability is high (i.e., hot years are hot and wet years are wet throughout the planning area). Portions of the planning area (especially Jemez Mountains) have shown overall temperature increases in the past 40 years while no change or a slight cooling trend has occurred in portions of the southern Sangre de Cristo Mountains (Enquist and Gori 2008). Plots of 10 year running averages for annual temperature by county show an increase across the entire planning area of 1.0-1.5^{o}F since 1990 (Western Regional Climate Center 2011a). An extended period of drought from 2000 to 2005 affected much of the state of New Mexico, including portions of the planning area. However, much of the planning

area experienced wetter conditions from 1991-2005 compared with a baseline of 1961-1990 (Enquist and Gori 2008).

Temperature variability patterns in the Pacific Ocean, referred to as the El Niño Southern Oscillation (ENSO), are important drivers of weather patterns in the planning area. During the El Niño phase, the equatorial Pacific sea surface temperatures increase to above average, while during the La Niña phase, the ocean temperature trends to below average. Events within +/- 0.5°C of average are considered ENSO neutral. Analysis of El Niño patterns indicates that precipitation in the planning area tends to be above average during the El Nino phase, with an increasing trend from north to south. During the La Niña phase, there is generally a reduction of precipitation as compared to the average, especially toward the south (Western Regional Climate Center 2011b).

3.2.2 *Cultural*

Current Conditions

Cultural resources are defined as "those fragile and nonrenewable remains of human activity, occupation or endeavor, including districts, sites, structures, buildings, objects, historical documents, artifacts, ruins, works of art, architecture, natural features, folkways, customs, legends, and oral history that were of importance in human events. These cultural resources may consist of (1) physical remains, (2) areas where significant human events occurred—even though evidence of the event no longer remains, (3) the environment immediately surrounding the actual resource, and (4) oral history or ethnographic accounts of lifeways and customs." Site types known for this area include but are not limited to Native American stone tool making scatters, rock shelters, isolated artifacts, remains of living structures (including everything from one-room field houses to large Pueblo structures of several thousand rooms), agricultural features (including gravel mulch gardens, terraces, check dams and reservoirs), pictographs and petroglyphs, rock stacked features, burials, historic homesteads/living structures or their remains, roads/trails, acequias (irrigation ditches), stock raising and management features, cemeteries, missions, Spanish colonial structures, mining features and equipment, and features related to logging activities.

The Taos Field Office contains two distinct cultural areas—the Southwest (generally west of the Sangre de Cristo Mountains) and the Great Plains (generally east of the Sangre de Cristo Mountains). The great majority of BLM-administered surface acres are located west of the Sangre de Cristo Mountains, with mostly small, scattered acreages to the east. Therefore, the Taos Field Office deals primarily with archaeological sites connected to the Southwest cultural area.

Archaeological sites dating to major cultures in the Southwest have been located within the boundaries of the Taos Field Office. The Clovis Site, located just south of the field office boundary, is the type site for the Clovis Complex (9500–9000 BC). The large, fluted Clovis spear points which were found with remains of mammoth represent some of the oldest undisputed Paleo-Indian artifacts in the country. The Folsom site, where Folsom points were found with rib bones of an extinct form of bison, is located within the boundaries of the Taos Field Office. Paleo-Indians were highly mobile hunters and gatherers living during the Late Pleistocene age. Paleo-Indians are best known from sites where now extinct Pleistocene fauna (like mammoth) were killed and butchered. Isolated Paleo-Indian artifacts have been found within the Taos Field Office, and a major site has been documented within the Santa Fe Ranch area.

The Archaic Period (5500 BC–AD 200) is well represented within the Taos Field Office. The Archaic way of life was based on hunting of small and medium-sized animals and gathering of wild plants. Archaic camp sites are common along and within the Rio Grande Gorge north of Taos, in the Galisteo Basin, and in the Santa Fe Ranch area northwest of Santa Fe.

The Taos Field Office, as well as a much larger region including the four corners, is characterized by Ancestral Puebloan (AD 600–1600) sites. The Ancestral Puebloan Culture is highlighted by the development of agriculture, architecture, ceramics, and complex social organization. Primary areas of Puebloan habitation include the Ojo Caliente Valley, the Santa Fe River valley and canyon, and the Galisteo Basin. Ancestral Puebloan sites are also located along and adjacent to the Rio Grande and its tributaries, along the Rio Chama and its tributaries and in the greater Santa Fe area.

The first Spanish explorers entered what is now New Mexico in the early sixteenth century. The Coronado expedition certainly entered what is now the Taos Field Office in 1540. Early Spanish settlement focused on the northern Rio Grande Valley. The first Spanish Colony was established at San Gabriel del Yunque near the confluence of the Rio Grande and Rio Chama at Ohkay Owingeh Pueblo. The Camino Real de Tierra Adentro (Inland Royal Road) which linked Mexico to the New Mexican Colony was developed at that time. The Spanish Colony was moved from San Gabriel to Santa Fe in 1610. Sites dating to the Spanish Colonial Period within the Taos Field Office include portions of the Camino Real, house structures, and a Mission and Spanish quarters at San Lazaro Pueblo in the Galisteo Basin.

Mexico gained independence from Spain in 1821, and after establishing more open relations with the United States, the Camino Real essentially became an extension of the Santa Fe Trail. Mexico lost New Mexico to the United States as a result of the Mexican War of 1846–1848, and adjustments of additional territory through the Gadsden Purchase ratified in 1854. The United States invested considerable effort in establishing military posts to explore and map the country, describe local resources, and identify the best routes of travel, as well as to protect settlers from Indian raids.

There are two things that make the cultural resources within the Taos Field Office stand out. First is the fact that the descendants of the people who inhabited many of the archaeological sites within the area continue to live in their active Pueblos located within and adjacent to the boundaries of the Taos Field Office. An example of this is that the large Pueblo sites located along the Ojo Caliente Valley are associated with the Tewa Pueblos of Ohkay Owingeh, Santa Clara, San Ildefonso, Pojoaque, Nambe and Tesuque. The three village sites located along the Santa Fe River within the La Cienega ACEC were inhabited by people whose descendants now live at the Keresan Pueblos of Santo Domingo, Cochiti, and Laguna. Second, there has been over 400 years of historic use of the area by Europeans. Coronado entered the Pueblo country in 1540. In 1598, Juan de Onate located the first Spanish Colony near San Juan Pueblo (now Ohkay Owingeh) which is located within the boundaries of the Taos Field Office. Important Colonial Period sites located within the Taos Field Office include portions of the Camino Real de Tierra Adentro, house structures, and a church with associated Spanish quarters at San Lazaro Pueblo in the Galisteo Basin.

The 1988 RMP designated one ACEC and nine SMAs to highlight cultural resource areas that required special management. The RMP was amended in 1992, expanding a former SMA to create La Cienega ACEC. Three national historic trails (the Santa Fe Trail, El Camino Real de Tierra Adentro, and the Old Spanish Trail) cross through the planning area. In 2004, Congress passed the Galisteo Basin Archaeological Sites Protection Act. A cultural resource management

plan for the Ojo Caliente ACEC was finished in 1990. A coordinated resource management plan was completed for La Cienega ACEC in 1995. These plans laid out important management prescriptions for these two important areas. Comprehensive management plans have been developed for the Santa Fe and the Camino Real de Tierra Adentro National Historic Trails, and a plan is being written for the Old Spanish National Historic Trail. A management plan for the Galisteo Basin Archaeological Sites Protection Act is expected to be completed by the end of 2011. All of these special designations have helped to protect the overall condition of these special resources.

A major challenge in managing cultural resources is simply to inventory, record, and evaluate them. Archaeological sites, dating to both prehistoric and historic periods of occupation in the planning area are so abundant that a total inventory is impractical. The 1988 Resource Management Plan reported that 22,100 acres had been inventoried and a total of 654 sites had been recorded. This represented only about 3.67 percent of the public land within the planning area. Currently there has been inventory on 45,980 acres with 1,323 sites recorded. After three decades of archaeological inventory, less than 8 percent of the public land in the planning area has been inventoried.

However, during the last 20 years a great deal of information has been acquired about the cultural resources within the planning area. Thousands of petroglyphs have been located and recorded by the Taos Archaeological Society, the Mesa Prieta Petroglyph Project, the Columbia University Field School, the Santa Fe Petroglyph Recording Project, and other volunteer activities. The Taos Archaeological Society has also worked with the Taos Field Office to inventory and record archaeological sites and to extensively map prehistoric and historic structures. The Columbia University Field School has located and recorded hundreds of sites along the Rio Grande Gorge between Pilar and John Dunn Bridge. Researchers have helped to document important portions of the Camino Real de Tierra Adentro and the Old Spanish Trail. Many other volunteers have helped the BLM locate and record cultural resources within the planning area.

The New Mexico Site Watch Program has become active over the last five years and has provided monitoring of archaeological sites within the Taos and Santa Fe/Galisteo areas. This has added a great deal to BLM's ability to monitor the condition of many important and vulnerable archaeological sites, including the petroglyphs located within the Rio Grande Gorge, on Mesa Prieta, in La Cienega ACEC, and in the Galisteo Basin.

The Taos Field Office has made some acquisitions of lands containing important cultural resources, including the Pueblo of Howiri in the Ojo Caliente ACEC and La Cieneguilla Pueblo in La Cienega ACEC. Acquired parcels of land within La Cienega ACEC also contain thousands of petroglyphs, habitation sites, and agricultural features.

Through the section 106 process of the National Historic Preservation Act and the BLM's protocol with the New Mexico State Historic Preservation Office, sites are identified, evaluated and avoided by authorized projects and uses. Observations by BLM staff indicate unauthorized uses have the greatest negative impact on cultural resources.

Prescribed fencing has kept grazing animals and OHVs away from fragile Pueblo structures where recommended by rangeland assessments. Increased inventory and documentation has multiplied BLM knowledge of cultural resources. National Register of Historic Places nominations have brought important national attention to the sites. Since 1988, four sites in Ojo

Caliente have been nominated and the nomination process has been completed and submitted for the 24 sites listed in the Galisteo Basin Archaeological Sites Protection Act.

Increased education and interpretation has increased public knowledge and appreciation for the resources. Trail guides have been developed and each year the cultural resource staff makes 25 to 30 outreach presentations to school groups.

There are many cultural resources in the Taos Field Office that are nationally significant and require increased management. These include cultural resources in the Ojo Caliente ACEC, La Cienega ACEC, the Galisteo Basin sites and the three historic trails, the Archaic Period sites in the Santa Fe Ranch area, the Tewa Pueblo SMAs and associated cultural features, as well as the hundreds of petroglyph sites located throughout the area. The 1988 RMP improved management through special management area designations, and setting management direction.

Through the last 20 years, the BLM has completed many of the proposed management prescriptions put forward in the 1988 RMP. Twenty-five known sites have been acquired, including the large Pueblos of Howiri in the Ojo Caliente ACEC and La Cieneguilla in the La Cienega ACEC. Two sites have been interpreted including the Ward Ranch on the Rio Chama and Posi Pueblo in Ojo Caliente. Twelve sites have been protected by fencing and signing. These actions have led to an improved conservation ethic and increased enjoyment among visitors.

Trend

Information from site forms and site monitoring reports show that archaeological sites are being impacted by roads and trails, OHV travel, overgrazing, erosion, inadvertent public uses, and vandalism. Perhaps the greatest threat to cultural resources is the dramatic increase in use of OHV and other recreational ventures near the towns and villages within the planning area. The uncontrolled use of OHVs entering public land from nearly every adjacent neighborhood is negatively affecting the condition of cultural resources. OHVs disturb soils that have been previously stable, which accelerates erosion and further damage to sites.

3.2.3 *Fish and Wildlife*

Fish—Current Conditions

The Taos Field Office manages approximately 230 miles of fish bearing streams, more fish habitat than any other field office in New Mexico. The BLM has completed fish population surveys since 2002 in perennial stream systems. Indicators of resource condition include catch per unit effort (number of a given species caught over total time or area surveyed), biomass per unit effort (cumulative weight of species caught over total time or area surveyed), native species richness, invertebrate community analysis and habitat quantification following U.S. Forest Service Region 3 habitat survey protocol (USFS 2002). Other relevant indicators not specific to fisheries are those assessed using PFC for riparian areas (BLM 1998). Water quality parameters collected by the NMED for compliance with the Clean Water Act are used to assess habitat quality.

Based on catch rates, managed perennial waters appear to have adequate fish stocks for a cold water fishery, except for rivers that experience extreme water flow fluctuations. Rivers with extreme fluctuations include the Mora River, Rio San Antonio, Rio Ojo Sarco and Rio Ojo Caliente below the town of Ojo Caliente. Fish populations in these reaches are either nonexistent or contain fish species and size classes consistent with high disturbance frequencies.

Species richness is fairly good for a cold water fishery with a total of 14 species identified along the Rio Grande (Table 3-2). However, introduced species dominate the list of species present and the Rio Grande cutthroat trout is not found within the Rio Grande or lower reaches of its tributaries. All existing game species in the planning area are introduced species. The fish most associated with displacement of desired native and game species is the white sucker, which accounts for much of the catch and biomass of the fish community in the Rio Grande.

Native species populations throughout the planning area are severely impaired. Based on analysis of catch per unit effort, native species for river systems surveyed represent a small percentage of the community on all river systems. The largest catch of native species occurred on the Upper Rio Grande above the Red River (22 percent), the Rio Pueblo de Taos (60 percent) and the Rio Embudo (25 percent). Native species contribute an extremely small amount to the total biomass due to their smaller body size when compared to introduced species. Native species comprise less than 2 percent of total biomass for all areas except the Rio Pueblo de Taos and Rio Embudo where they respectively comprise 13 percent and 12 percent of total biomass.

Table 3-2. Fish species and origin in the Rio Grande Watershed

Scientific Name	Common Name	Rio Grande Origin
Salmo trutta	Brown trout	Introduced
Catostomus commersoni	White sucker	Introduced
Cyprinus carpio	Common carp	Introduced
Gila Pandora	Rio Grande chub	Native
Rhinichthys cataractae	Longnose dace	Native
Oncorhynchus mykiss	Rainbow trout	Introduced
Cyprinella lutrensis	Red shiner	Native
Pimephales promelas	Fathead minnow	Native
Platygobio gracilis	Flathead chub	Native
Oncorhynchus clarki-mykiss	Cutthroat-rainbow trout mix	Introduced
Micropterus dolomieui	Smallmouth bass	Introduced
Esox lucius	Northern pike	Introduced
Perca flavescens	Yellow perch	Introduced
Catostomus plebeius	Rio Grande sucker	Native

Source: Scientific names and origin from Sublette et al. (1990).

Data collected by the BLM and NMDGF indicate that game fish are present throughout all perennial stream systems in the planning area. Certain reaches within a given river may contain a greater percentage of game fish. For example, of two sites on the Rio Embudo separated by approximately 5 miles, the downstream site was composed of 78 percent brown trout by catch, while the upper site contained only 37 percent brown trout by catch. The NMDFG and the BLM manage the fishery for rainbow and brown trout. Rainbow trout are actively stocked throughout the watershed. Today brown trout are only actively stocked on the Rio Grande near the Red River. However, they were stocked throughout the watershed early in the 20th century. Other game fish include small mouth bass and northern pike, which are assumed to have migrated upstream from the Cochiti Reservoir.

The other indicators of fisheries condition, habitat and invertebrates, have been surveyed only to a limited extent. Invertebrate surveys have been ongoing for approximately 5 years. Data analysis from the survey should be completed within the next year. Physical habitat surveys

completed by the BLM on the Rio Hondo and the Rio Pueblo de Taos indicate that the habitat is reasonably intact to support cold water fisheries, although irrigation use may alter natural flows on both systems. Habitat surveys on the Rio Ojo Sarco indicate a shortage of pool habitat and probably account for the lack of fish present. An instream flow study on the Rio Chama which looked at different parameters identified minimum and optimum flows necessary for brown trout habitat. It also indicated that stream substrate was imbedded (meaning spaces between gravel particles are filled with sediment), probably as a result of the operation of El Vado Dam.

Water quality is another important habitat feature. Impairments caused by sewage effluent occur on the Santa Fe River and the Rio Pueblo de Taos, and segments of the Rio Grande exceed temperature criteria for coldwater fisheries (based on 303d list and NPDES sewage permit). This supports the finding of reduced trout catch in the reach above the Red River.

Fish—Trend

Historic data is minimal for fisheries in the planning area. Old surveys employed different collection methods than currently used. Therefore, trend can only be inferred.

Trends for catch per unit effort and biomass per unit effort (kilograms/minute) cannot be determined. As stated above, most native fish populations are known to be in decline in the planning area. This can be inferred from known historic sightings of species outlined in the Fishes of New Mexico (Sublette et al. 1990). Rate of decline cannot be determined.

Game fish populations appear to be static in most areas, but evidence indicates increases in two particular reaches. Smallmouth bass appear to be increasing in the Rio Grande between Taos Junction Bridge and the Rio Embudo based on comparison of recent surveys to those completed in the 1960s. In addition, rainbow trout appear to be self-reproducing in the Red River and the Rio Grande near the confluence of the two rivers.

Current trends indicate that there is likely to be little change in fish community composition, with the exception of proposed restoration of the Rio Grande cutthroat trout in the Rio Agua Caliente. Primary factors controlling fish populations appear to be fecundity of introduced species, allowing for displacement of native species, and competition for resources between introduced nongame and game species.

Physical habitat also appears to be static. Special management designations such as wild and scenic and ACEC provide protection of many perennial reaches within the planning area. Inaccessibility of many reaches has also reduced potential habitat loss. Existing recreational impacts, such as rafting and fishing, have not been studied. However, these uses have been occurring for a number of decades and only minor changes are envisioned into the future.

Other drivers of habitat include anthropogenic (human caused) flow alteration and climate. The primary artificial flow regulation in the region occurs as a result of irrigation on acequias, which has been in operation for at least three centuries on some reaches. The planning area also contains a number of larger dams, most notably on the Rio Chama and the Santa Cruz River, which alter natural flow regime, sediment delivery, and water temperature. These operations have had significant effect on reaches downstream and no improvement in condition is anticipated. Irrigation operations combined with extended drought conditions could significantly reduce available habitat through reduced stream flows.

Water quality is one indicator that may improve in the future. NMED has developed criteria and is monitoring water quality throughout the planning area. They are also supporting stakeholder

watershed groups to address nonpoint source pollution on all streams. In addition, it is possible that water temperature impairments in the Rio Grande above the Red River would be eliminated due to an effort in Colorado to supplement flows from groundwater in the Closed Basin Project.

Invasive Aquatic Species—Current Conditions

The Taos Field Office has identified a number of invasive species throughout the planning area that occur in streams, lakes, and other perennial water areas. In addition to invasive fish species described in section 3.2.3, crayfish (*Orconectes clarkii* and *O. immunis*), bullfrogs (*Rana catesbeiana*), and *Elodea* spp. have been documented in BLM managed waters. Other species are of concern because they occur in adjacent states and may be transported by recreationists on boats or clothing. These species include quagga and zebra mussels, New Zealand mudsnail, and *Hydrilla* sp. Numerous invasive plant species have been identified in the riparian/wetland zone adjacent to the water's edge such as saltcedar (*Tamarix* sp.), Siberian elm (*Ulmus pumila*), and Russian olive (*Elaeagnus angustifolia*). Responsibility for identifying and controlling invasives is covered by the riparian, wildlife, threatened or endangered species, fisheries, and range programs within the Taos Field Office.

Wildlife

The Taos Field Office wildlife program works with Federal, state and other cooperators to protect and enhance wildlife habitat and to mitigate, where necessary, the impacts of other resource uses. Implementation actions are primarily guided by existing activity plans, coordinated resource management plans (CRMPs), and habitat management plans (HMPs). The San Antonio/Pot Mountain HMP (1992), Rio Grande Corridor CRMP (2000), and the Riparian and Aquatic HMP (2000), contain wildlife habitat goals, objectives, and management actions that provide direction for implementation of the wildlife program across the planning area.

Implementation of these plans has resulted in wildlife water projects in the Taos Plateau and Ojo Caliente planning units, fence modifications for big game migratory corridors in the Taos Plateau planning unit, and vegetation treatments to improve forage for wildlife in the Chama and Taos Plateau planning units.

Wildlife—Current Conditions

Wildlife population sizes and species diversity within the planning area vary depending upon extent and type of habitat. For example, dry upland habitat may support low species diversity and scattered populations over extensive areas, while riparian habitat and lands adjacent to them contain more plant and animal species during certain seasons than much larger areas year-round. Habitat in the planning area is presented on Map 3-5, Wildlife Key Terrestrial Habitats, and Map 3-6, Wildlife Key Aquatic Habitats.

Table 3-3. Primary land cover types (SWReGAP) associated with key habitat

SWReGAP Cover Type	Acres
Inter-Mountain Basins Big Sagebrush Shrubland	109,861
Western Great Plains Shortgrass Prairie	8,937
Western Great Plains Riparian Woodland and Shrubland	5,639
Rocky Mountain Montane Mesic Mixed Conifer Forest and Woodland	1,861
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	1,240
Rocky Mountain Montane Dry-Mesic Mixed Conifer Forest	1,149

and Woodland	
Rocky Mountain Subalpine-Montane Riparian Shrubland	166
Madrean Pine-Oak Forest and Woodland	59
Rocky Mountain Alpine-Montane Wet Meadow	62

The NMDGF used the Southwest Regional Gap Analysis (Table 3-3) to delineate landscape scale key wildlife habitats in the Comprehensive Wildlife Conservation Strategy for New Mexico (NMDGF 2005). Seven key terrestrial habitats and three key aquatic habitats are located in the planning area (see Map 3-5 and Map 3-6, respectively). Tables 3-4 and 3-5 list the kind and amount of these key habitats for wildlife by planning unit. Since ground verification of cover types has not been done across the planning area, figures presented in this and following tables in this section are approximate.

Headwater streams are 1st order streams. When two 1st order streams join, they form a 2nd order stream; when two 2nd order streams join, they form a 3rd order stream; when two 3rd order streams join, they form a 4th order stream; and when two 4th order streams join, they form a 5th order stream.

Table 3-6 lists the planning units, along with their condition (good, fair, poor), limiting factors, and current threats.

In general, priority wildlife habitats (large areas of BLM land important for big game, raptors, and special status species) are located in the Taos Plateau, Chama, Lower Gorge/Copper Hill, West Santa Fe, and Ojo Caliente planning units.

Table 3-4. Wildlife key terrestrial habitats

	Surface Acres (Subsurface Acres)						
Planning unit	Inter-Mountain Basins Big Sage-brush Shrubland	Western Great Plains Short-grass Prairie	Madrean Pine-Oak/Conifer-Oak Forest and Woodland	Riparian	Rocky Mountain Alpine-Montane Wet Meadow	Rocky Mountain Montane Mixed Conifer Forest and Woodland	Western Great Plains Sand Sagebrush Shrubland
Taos Plateau	93,113 (153,420)	N/A	0 (5)	583 (2,206)	27 (1,746)	1,945 (113,070)	N/A
Lower Gorge/Copper Hill	3,929 (0)	N/A	1 (1)	792 (14)	N/A	111 (1)	N/A
Chama	12,819 (31,148)	N/A	0 (13)	177 (7,481)	32 (5,248)	708 (172,939)	N/A
Ojo Caliente	0 (7)	N/A	N/A	783 (2,460)	N/A	3 (7,295)	N/A
El Palacio	N/A	N/A	N/A	570 (1,682)	N/A	0 (19)	N/A
West Santa Fe	N/A	N/A	0 (25)	279 (1,777)	0 (5)	0 (70,928)	N/A
Galisteo	N/A	2,125 (69,959)	2 (136)	50 (1,939)	N/A	135 (365)	N/A
East Side	0 (55)	6,812 (330,637)	56 (264)	4,329 (13,973)	3 (569)	84 (132,501)	1 (17,713)
Total	109,861 (184,575)	8,937 (400,596)	59 (444)	7,563 (31,532)	62 (7,568)	2,986 (497,118)	1 (17,713)

Table 3-5. Wildlife key aquatic habitats

Planning unit	Surface (Additional Subsurface) Miles		
	Perennial 1st and 2nd Order Streams	Perennial 3nd and 4th Order Streams	Perennial 5th Order Streams
Taos Plateau	1 (322)	4 (10)	51 (6)
Lower Gorge/Copper Hill	7 (0)	3 (4)	15 (0)
Chama	11 (440)	1 (52)	N/A
Ojo Caliente	1 (21)	6 (27)	0 (1)
El Palacio	6 (3)	0 (9)	0 (9)
West Santa Fe	6 (115)	0 (1)	1 (11)
Galisteo	1 (2)	N/A	N/A
East Side	4 (433)	5 (77)	N/A
Total	37 (1,336)	19 (180)	67 (27)

Table 3-6. Planning units with condition class, limiting factors, and threats

Name	Condition	Limiting Factor	Threats
Taos Plateau	Good	Fragmentation, vegetation	Urban development, nonnative vegetation
Lower Gorge/Copper Hill	Good	Water, vegetation	Illegal dumping and fuelwood harvest, nonnative vegetation
Chama	Good	Vegetation	OHVs, nonnative vegetation, illegal fuelwood harvest
Ojo Caliente	Fair	Soils	OHVs, nonnative vegetation
El Palacio	Poor	Soils, fragmentation	OHVs, illegal dumping, fuelwood harvest and dumping, urban development
West Santa Fe	Poor	Soils, vegetation	OHVs, livestock grazing, illegal dumping
Galisteo	Poor	Fragmentation, vegetation	Urban development, OHVs, lack of fire
East Side	Good	Vegetation	Lack of fire

Special Habitat Features

Within the cover types listed above, special habitat features occur which are important to maintain wildlife populations. These include:

Wildlife Migration Corridors

Migration corridors are important to ensure connectivity to areas of wildlife habitat, for both game and nongame species. From large mammals to amphibians unable to cross even a small area of unsuitable habitat, these connective corridors provide opportunity for genetic exchange between populations, access to dispersal habitat, and expansion of populations. Riparian areas, such as the Rio Grande and the Rio Chama and other perennial streams, represent corridors necessary for migration of amphibians, bats, migratory waterfowl, and other wildlife species. Map 3-6 shows these key aquatic habitats and Table 3-7 outlines the extent of these corridors by planning unit.

Big game corridors exist along the New Mexico/Colorado State border from the San Juan Mountain Range to the Taos Plateau, and the volcanic cones of Pot Mountain, Wind Mountain, Montoso, Chiflo, and Ute Mountain to the Sangre de Cristos. Big game migration corridors are identified in Table 3-7, as determined in specific planning units and defined by the NMDGF and resource specialists in the Taos Field Office (see Map 3-9).

Table 3-7. Big game migration corridors surface (additional subsurface) acres

Planning unit	Surface (Additional Subsurface) Acres
Taos Plateau	61,330 (24,671)
Chama	27,222 (121,106)
Ojo Caliente	0 (15,706)
East Side	183 (24,956)

For migratory birds, the Central Migratory Flyway is centered on the north/south ridges of the mountains of central New Mexico, including the Sangre de Cristo and San Juan mountains in the planning area. The Sandia Mountains have been noted for the large number of migrating raptors utilizing the prevailing winds and thermals generated by these ridges (NMAPPWG 2004). These migration patterns include the BLM land along the Rio Grande, Rio San Antonio, Rio Chama, Canadian River, Pecos River, and Santa Fe River and in the Galisteo planning unit in the vicinity of the San Pedro Mountains (see Map 3-9).

Seasonal Habitats

Critical winter range for elk and mule deer is located throughout the planning area. Table 3-8 outlines the extent of seasonal ranges for big-game species across the various planning units. Maps 3-7 and 3-8 show big game winter and summer ranges, respectively.

Table 3-8. Seasonal habitat for big game surface (additional subsurface) acres

Planning unit	Winter Range	Summer Range
Taos Plateau	218,962 (298,388)	100,191 (437,012)
Lower Gorge/Copper Hill	33,905 (1,382)	33,854 (1,381)
Chama	36,894 (1,025,514)	7,677 (713,700)
Ojo Caliente	67,011 (100,285)	43,829 (20,379)
El Palacio	N/A	830 (2,103)
West Santa Fe	15 (3,280)	0 (53,413)
Galisteo	1,213 (29,056)	1,059 (24,088)
East Side	2,993 (177,943)	3,005 (485,237)

Caves and Abandoned Mines

Caves and abandoned mines provide a unique habitat type required by certain habitat-specific species, such as many species of bats that are also listed as sensitive by the BLM. Caves can be found on scattered BLM land near Taos in the canyon near Pilar, south to Velarde, in the Copper Hill and Rio Embudo areas, the vicinity of Ojo Sarco and Rio Chama, as well as other areas near Santa Fe and Cerrillos.

Abandoned mines of various types occur in the planning area. The Taos Field Office does not maintain an inventory of abandoned mines on public land. However, the New Mexico Energy, Minerals, and Natural Resources Department maintain a website with map and mine data (http://www.emnrd.state.nm.us/MMD/GISMapandMineData.htm).

Snags and Downed Woody Material

Important snag species include ponderosa pine, Douglas fir, pinon, and juniper. Species that depend on snags include bats, woodpeckers, flickers, and most breeding birds, and eagles use them for perch sites. Data from fuelwood monitoring studies include a high density of snags in the more southern treatment sites (31 Mile), including 47 to 84 snags per acre for pinon and 5 to 15 snags per acre for juniper; while the northern portion of the planning area in the Taos Plateau has far fewer snags, as documented by 3 to 9 snags per acre for pinon and 3 to 5 snags per acre for juniper.

Downed woody material provides habitat for avian as well as small mammal species and insects. Downed woody material also provides a microhabitat for grasses and flowering plants to grow, which provides habitat for macro invertebrates, which then provides food for reptiles, birds, rodents and in some cases black bears. While woody material provides habitat for rodents and small mammals, those species represent a food source for coyotes, foxes, and other predators such as owls or mountain lions. There is no current data for amount of downed woody material in woodlands on BLM land; however, it is incorporated into prescriptions to provide for wildlife habitat.

Special Management Areas

Special management areas were delineated in prior planning efforts. Management prescriptions were developed to enhance and protect key winter ranges, improve habitat privacy, promote habitat diversity, protect and enhance riparian and aquatic habitat, and increase forage availability.

These areas include the Riparian/Aquatic SMA, Copper Hill ACEC, San Antonio SMA, San Antonio Gorge ACEC, Winter Range ACEC, Ojo Caliente ACEC, Rio Chama SMA, Rio Chama WSA, Sabinoso SMA, La Cienega ACEC, Lower Gorge ACEC, and Rio Grande and Red River WSRs.

Key management prescriptions for these areas are summarized in the Taos Resource Management Plan (1988), Rio Grande Corridor Final Plan (2000), the Riparian and Aquatic Habitat Management Plan (2000), the Rio Chama Management Plan (1990), the La Cienega ACEC Management Plan (1995), the San Antonio/Pot Mountain Habitat Management Plan (1992), and the Ute Mountain Interim Management Plan (2003). Key management prescriptions for these areas are summarized in the Rio Grande Corridor Final Plan (2000), the Riparian and Aquatic Habitat Management Plan (2000), the San Antonio/Pot Mountain Habitat Management Plan (1992) and the Ute Mountain Interim Management Plan (2003).

Species with Management Emphasis

Big Game Species

Primary big game species in the planning area are Rocky Mountain elk, mule deer, pronghorn (antelope), and as a result of recent reintroduction, Rocky Mountain bighorn sheep. The NMDGF is the agency with the authority and responsibility for managing big game populations.

The BLM works in partnership with NMDGF to establish population goals in big game management units that include public land and to manage habitats to try to achieve those goals.

Mule Deer

Much of the BLM land managed by the Taos Field Office is important winter and/or summer habitat for mule deer. Planning units containing these seasonal ranges include Taos Plateau, Chama, Lower Gorge/Copper Hill, and Ojo Caliente (see Maps 3-7 and 3-8.)

While mule deer occur throughout most of the planning area in woodland and timbered areas as well as adjacent shrublands, observations are infrequent and management emphasis in these areas is to increase potential habitat. Projects for deer include wildlife waters and vegetation treatments to increase diversity of vegetation composition and structure. Studies of deer survival rates and post-hunt fawn-doe ratios in the Colorado Plateau ecoregion indicate that declining deer numbers are primarily a result of low fawn survival from malnutrition, disease, and predation (Watkins et al. 2007).

Rocky Mountain Elk

The Taos Field Office also provides important winter and/or summer habitat for Rocky Mountain elk. The San Antonio/Pot Mountain Habitat Management Area (HMA) in the Taos Plateau Unit is particularly important because this area represents critical winter range for resident New Mexico and migratory herds of elk between Colorado and New Mexico (Smallidge et al. 2003). In winter months, estimates of total elk in the HMA are approximately 5,000 to 10,000 (Kohlmann 2006). The Chama-San Antonio Mountain elk herd has one of the largest concentrations of elk in the state, including a migratory herd of 18,000 to 22,000 elk that extends into southern Colorado and the Jicarilla Apache tribal land (NMDGF 2008b). Other planning units containing important habitat for elk are the Lower Gorge/Copper Hill, Chama and Ojo Caliente planning units. Management for elk in the HMA has included lay-down fences for winter migration routes, vegetation treatments, and seasonal closure of roads.

Elk represent significant economic, ecological, recreational, and aesthetic values to a variety of stakeholders, including natural resource agencies, area landowners, and the general public that may, at times, be mutually incompatible. Elk may also be perceived as a public nuisance destroying fences, competing for forage, causing vehicle collisions, or otherwise encroaching on human habitation. These values may fluctuate depending on the number of elk existing in the region during a given time.

Pronghorn

The bulk of pronghorn habitat in the planning area is located in the north and eastern half of the planning area (Taos Plateau and East Side planning units). Public land parcels in the eastern portion of the planning area are relatively small, widely scattered, and surrounded by private land. This situation limits management opportunities. However, pronghorn habitat is extensive in the northern San Antonio/Pot Mountain HMA.

It is estimated that the current population of pronghorn between the Rio Grande and San Antonio Mountain area (Antelope Management Unit 52) is between 900 and 1,200 animals (NMDGF 2008a). Areas east of the Rio Grande (Ute Mountain) and south of NM-64 to US-84 near Espanola and areas north of Santa Fe are closed to pronghorn hunting and population numbers in these areas are unknown. Management for pronghorn in the HMA has included installation of wildlife water developments and lay-down fences for winter migration routes. Known fawning areas for pronghorn are near Wind Mountain in the southern portion of the HMA.

Rocky Mountain Bighorn Sheep

There is no evidence that Rocky Mountain bighorn sheep historically occurred in the Rio Grande Gorge. However, over-hunting and disease transmission from domestic sheep effectively eliminated the species from New Mexico by 1906 (NMDGF, undated Wildlife Notes http://www.wildlife.state.nm.us/education/wildlife_notes/WildlifeNotes.htm).

Beginning in 2007, the BLM worked with the NMDGF to augment a recently introduced Rocky Mountain bighorn sheep population within the Rio Grande Gorge. After a feasibility study assessing habitat requirements (Dunn 1993), and a census of domestic sheep in the area prior to the release, it was determined by NMDGF that the area was suitable for Rocky Mountain bighorn sheep introduction. Twenty-three bighorn were released on BLM land in the Rio Grande Gorge in 2007. The population is currently estimated at 110 to125 animals (NMDGF, Goldstein). Indications are that the sheep are lambing and would be a self-sustaining population.

Other Big Game Species

Other big game species occupying the planning area are black bear and mountain lion. Neither species occurs in large numbers, nor has there been any specific habitat management directed toward them. Merriam's turkey, listed as a big game species by NMDGF, also inhabits the planning area.

Small Game and Waterfowl

The most common upland game bird found in the planning area is the scaled quail; however, they are not found in large numbers. Migratory bird species legally harvested include mourning dove, band-tailed pigeon, ducks, geese, coot, and other waterfowl as authorized under NMDGF rules and regulations. The planning area contains important habitat for these species in the following planning units: Taos Plateau, Chama, Lower Gorge/Copper Hill, Ojo Caliente, and West Santa Fe. Waterfowl and shore birds use the major rivers as well as impoundment areas, with the most abundant nesting species being the common merganser and mallard. Canada geese also nest in the Rio Grande and the Rio Chama.

Commonly hunted nongame species include coyotes, skunks, rabbits and rock squirrels. The Taos Field Office has conducted no habitat management programs specifically directed toward small game or waterfowl management. However, habitat treatments for other species may benefit some small game and avian wildlife species.

Nongame Species

The Taos Field Office also manages habitat for nongame species. Nongame species which have received increased management attention since the 1988 RMP include small mammals, raptors, migratory song birds, and bats.

Raptors. The Upper Rio Grande in the Taos Plateau planning unit is particularly important nesting habitat for raptors, including golden eagle, red-tailed hawk, ferruginous hawk, prairie falcon, peregrine falcon, American kestrel, osprey, northern harrier, Swainson's hawk, Cooper's hawk, and great horned owl. Other planning units with high priority raptor habitat are the Chama, Lower Gorge/Copper Hill and West Santa Fe units. Management actions to protect raptors have included seasonal restrictions for boating and guided fishing trips during critical reproductive periods on the Upper Rio Grande.

In the Upper Rio Grande in 2007, 57 raptor nest sites were monitored with 21 sites occupied and, of those, 20 nests had egg-laying pairs; one nesting territory was occupied, but no evidence of

breeding was observed. Four active nests failed for reasons that were not determined. The reproductive outcome was determined at 17 of the 20 active nests. Thirteen of the nests (76 percent) were successful, fledging a total of 25 young. The mean number of young fledged per active nest was at minimum 1.5 (Hawks Aloft 2007b).

From 2005 through 2007, the number of successful golden eagle nests has steadily declined from eight to six. This decline is probably related to natural fluctuations in nesting activity and success, and can be caused by conditions such as prey availability. The number of successful nests in 2007 is still well above the levels observed in 2003. The average productivity per breeding pair over the same time period has remained above 1.0, with pairs fledging 1.1, 1.3, and 1.1 young, respectively. The total number of young fledged was notably higher in 2006 as a result of at least five pairs (probably six) that each successfully fledged two young. In 2007, three golden eagle nests each fledged two young, which is the second highest number since monitoring began in 2003. Productivity in 2003 was particularly low, with a single golden eagle nest that fledged two young.

The number of successful golden eagle nests from 2004 to 2007 ranged from six to eight nests. The notably low productivity year in 2003 coincided with the peak of a severe drought period. The annual precipitation rates since 2003 have returned to more normal levels for the Taos study area, and nest success numbers also appear to have returned to typical levels. The long-term population trend is unclear; however, due to the lack of data prior to 2003.

Black-tailed jackrabbits *(Lepus californicus)* and cottontails *(Sylvilagus* spp.*)* have been documented as the primary prey species for golden eagles in Great Basin Desert Shrub habitats (Kochert et al. 2002). The reproductive rates of raptors can be directly influenced by prey abundance, and indirectly by climatic conditions such as precipitation (Newton 1979; Olsen and Olsen 1989). At nest sites, cottontail rabbits appear to be the only identifiable prey and appear to be the major prey species for golden eagles during the nesting season in the Upper Rio Grande.

The number of successful prairie falcon nests since 2003 followed a similar pattern to that of the golden eagles. In 2003, at the peak of the severe drought, there were two successful nests. From 2004 through 2007, the number of successful nests ranged from four to five at minimum. At the Snake River Birds of Prey Area (SRBPA) near Boise, Idaho, the amount of cliff area present per 10 kilometer stretch of survey route explained 91 percent of the variation in nesting density (Steenhof et al. 1999). This suggests that the number of breeding prairie falcons is limited by the availability of nest sites. Because the Rio Grande Gorge has a similar cliff structure, and its surrounding habitat is similar to that of the SRBPA, one would expect to find a similar correlation in nesting density relative to the amount of cliff area. However, on the upper Rio Grande Gorge, prairie falcons nest in higher densities in the northern portion of the survey area, where the cliff area is substantially lower than in the southern portion. The Rio Grande Gorge overall, appears to contain a myriad of potential nest sites. Many of these sites showed signs of previous use and that the prairie falcon populations may well have been significantly larger in the past. Nesting prairie falcons in the Rio Grande Gorge are most likely limited by prey availability, and not by a lack of suitable nest sites (Hawks Aloft 2007b). Specific studies to determine the major prey species for the prairie falcon in the Taos study area are needed, and the information gathered would be crucial in developing a sound habitat management plan for this species. A recruitment standard for prairie falcons has been estimated to be 2.0 to 2.5 young per breeding pair to maintain stable population levels (Anderson and Squires 1997). Based on this standard, it appears that the current prairie falcon population in the Taos study area is stable, but is probably considerably reduced from historic levels, but more long-term data is needed.

While peregrine falcon occupancy across New Mexico increased dramatically from 1980 to 1997, there has been little increase from 1997–2006. Since 2003, eight breeding attempts by peregrine falcon have been documented in the Rio Grande gorge (Hawks Aloft 2007b). During that same time period, the nest success rate was 37 percent. Peregrine falcons nested successfully in 2007 for the first time since 2003. It appears that peregrine falcons in the Rio Grande Gorge have a relatively high nest failure rate for reasons that are unknown. It has been hypothesized that the use of insecticides may be a cause for this downward trend (Johnson and Williams 2006**).** Lack of adequate prey could also cause this trend. The average productivity per active nest was 0.63 young, which falls well below the estimated recruitment standard of at least 1.45 young that is required to maintain a stable population (Johnson 1999). In North America, peregrine falcons primarily feed on a wide variety of other avian species. Documented prey items range from hummingbirds to small geese (White et al. 2002). Lack of adequate prey may be the reason for high nest failure rates, and studies to determine primary prey species would be useful for management planning.

A 1-year study in the upper Rio Grande Gorge by Ponton (1980) documented 12 active red-tailed hawk nests. Since monitoring began in 2003, the number of active red-tailed hawk nests identified in the Rio Grande Gorge has increased by one every year, with three active nests in 2003 and seven in 2007. Red-tailed hawks are the most ubiquitous raptors found in the southwest, primarily because they utilize such a wide variety of available prey. Hence, it seems unusual that relatively few nests have been documented since monitoring began. The only reliable historic data is for the breeding year of 1980, and this could indicate that nesting red-tailed hawk populations, like that of the prairie falcon, have decreased.

Continued monitoring is essential to establish if raptor populations are ultimately stable or declining. The Taos study area contains some of New Mexico's most important habitats for raptors as well as other wildlife (Hawks Aloft 2007b).

Migratory Birds. An estimated 103 species of migratory birds of special management concern (NMSO 2008) either nest or migrate through the planning area (see list in Appendix G). The most significant migratory bird habitat in the planning area is found along the Rio Grande corridor. The Rio Grande spans the entire state and is a migratory corridor for many bird species ranging from raptors to hummingbirds. The Rio Grande is one of the few continuous, perennial watercourses within the state. The river and its associated wetlands provide habitat for breeding and wintering for most waterfowl species. Virtually all birds that migrate through New Mexico use the Rio Grande corridor, and/or adjacent lands that provide significant foraging habitat (NMAPWG 2004). Consequently, large numbers of raptors, geese, ducks, and other birds are often seen foraging in adjacent areas during migration and winter. Because of its importance as a migration corridor, the value of the riparian habitat and the adjacent land to all species of birds, the Rio Grande ecosystem supports greater numbers of birds than any other riverine or wetland system in the state (NMAPWG 2004). There are other north-south river corridors, such as the Rio Chama, the Canadian River, and the Pecos River, that are also conduits for large numbers of birds. Planning units important to migratory birds are described below.

Taos Plateau. The Rio Grande, flowing south through this planning unit, is the primary riparian habitat. The steep, basalt cliffs of the Rio Grande Gorge provide nesting substrate for several raptor species including golden eagle, prairie falcon, great horned owl, red-tailed hawk, American kestrel, and other species, as well as nesting Canada geese. Wintering bald eagles and migrating osprey and sandhill cranes also use the Rio Grande. Ferruginous and Swainson's hawks have been observed in the grassland/shrubland of Taos County, but do not

nest here in high numbers. The flat, grassy uplands, however, may be utilized by sandhill cranes for overnight roosting during migration.

West Santa Fe. Riparian habitat is found along the Santa Fe River and the Rio Grande and their tributaries. The grasslands in the northern extension of the Estancia Valley support a number of breeding and wintering raptors including ferruginous hawk, red-tailed hawk, prairie falcon, American kestrel, Swainson's hawk, turkey vulture during the summer, and rough-legged hawk and golden eagle during the winter (NMAPPWG 2004). Raptors that utilize the cliffs associated with canyons for breeding include golden eagle, red-tailed hawk, turkey vulture, prairie falcon, and American kestrel. Great horned owl can be found along the Santa Fe River and Diablo Canyon.

The gray vireo was first detected near La Cienega and Buckman areas in 1995. As part of an ongoing management program, monitoring of gray vireo nesting areas is conducted annually. Most recently, thirteen nests of at least four pairs of gray vireos were discovered in this pinon-juniper and grassland habitat (Arbetan and Muldavin 2005).

Historical and current detection of gray vireos warrants continued attention to this species' habitat. A gray vireo nest detected during a survey in 1995 was only approximately 600 meters northwest of a nest detected in 2005. Threats to the population include habitat modification, brood parasitism, and nesting disturbances. The New Mexico Army National Guard (NMANG) conducts training exercises near gray vireo habitat, among other public land uses (grazing, recreation, etc.). NMANG follows guidelines to minimize disturbance to the gray vireo for its activities, including buffer zones around active nests, seasonal restrictions and educational outreach to participating personnel. An interagency statewide conservation plan was completed in 2007 and informs the BLM of conservation strategies recommended to promote enhancement of habitat for the species.

Chama. The larger lakes and reservoirs in this planning unit include Heron Lake and El Vado and Abiquiu Reservoirs. These lakes host a number of migrating and wintering water birds, including American white pelican, snow and Canada geese, and a variety of ducks, nesting osprey, great horned owls, red-tailed hawks, and other raptors (NMAPPWG 2004). The Rio Chama, flowing south from El Vado toward Abiquiu, provides substantial habitat for wintering bald eagles, and is also used by many species of nesting raptors including red-tailed hawk, great horned owl, and other smaller raptors and water birds including Canada geese.

Observations in upland habitats have found high avian diversity, especially in woodland habitat types. Breeding bird studies on BLM land have found that detection rates and species richness were slightly higher in habitats for ponderosa (9.9 +/- 1.3) and pinon-juniper (9.7 +/- 3.7) than for sagebrush (5.0 +/- 0.6) and grassland (4.3 +/- 0.9) (Hawks Aloft 2006b).

In most riparian areas, bird communities are consistently high in species richness and abundance due to the dense structure and limited distribution of this habitat type (NMPIF 2007). Some riparian zones, such as the Santa Fe River, have demonstrated consistent low detection rates and species richness due to the spatial extent of the riparian habitat and sheer canyon walls closely bordering the riverbank (Hawks Aloft 2006b).

Approximately 100 bird species (and 70 mammal species) can be found in sagebrush habitats (Paige and Ritter 1999). Sagebrush habitat is extensive in the northwest portion of the planning area, including the Taos Plateau and Chama planning units. Priority species

using this habitat include sage sparrow, Brewer's sparrow, and sage thrasher. In breeding bird studies conducted on BLM land in the Taos Plateau planning unit, there is an estimated 0.60 birds/2.5 acres of sagebrush habitat for these priority sage-dependent species combined (N=67). Density estimates for Brewer's sparrow (0.23 birds/2.5 acres) is low, compared to published estimates (0.50 to 5.33 birds/2.5 acres) for this species (Hawks Aloft 2006b). Because of their dependence on sage, these species have a limited breeding distribution in New Mexico as a whole and the persistence of sage habitat is important for maintaining these populations in the state (USDI BLM 2004b).

Management actions to improve habitat for migratory birds in the Taos Field Office have primarily been a byproduct of riparian habitat improvement projects. Specifically, seasonal restrictions on removal of vegetation or ground disturbing activities during the migratory bird breeding season (April through September) are imposed where feasible, and if work cannot be avoided during those timeframes, nest searches are conducted in vegetation that may be disturbed during authorized public land activities.

Bats. In the past two decades, considerable research emphasis has been placed on bat habitat relationships and population characteristics in the western states. The BLM signed a memorandum of understanding with Bat Conservation International in 1993 which increased BLM efforts to consider bat habitat protection in its management activities, particularly those related to abandoned mine reclamation.

Important habitat for bats can include cliffs, trees, caves and abandoned mines. One species with potential to occur in the planning area, Townsend's big-eared bat, has received management attention in other areas because of its tendency to roost in abandoned mines. Pinon-juniper habitats can also serve as important habitat for several species of bats (Chung-MacCoubrey 2003). Of the 28 species of bats in New Mexico (Balistreri 1995), the Taos Field Office is known to contain habitat for 15 of those species, as outlined in Table 3-9. Auditory inventories of bats in the Rio Grande Gorge have documented over 900 passes in one night over three survey dates.

Table 3-9. Bat species located in the planning area (Gannon 1997)

Species Captured	Common Name	County	Regional Priority [3]	Habitat
Antrozous pallidus	Pallid bat	Rio Arriba	Low	Multiple
Corynorhinus townsendii	Townsend's big-eared bat	Los Alamos, Taos	High	Cave
Eptesicus fuscus	Big brown bat	Rio Arriba	Low	Multiple
Lasionycteris noctivagans	Silver-haired bat	Rio Arriba, Taos	Medium	Tree
Lasiurus cinereus	Hoary bat	Rio Arriba, Taos	Medium	Tree
Myotis californicus	California myotis	Taos	Low	Multiple
Myotis ciliolabrum	Small-footed myotis	Rio Arriba, Taos, Los Alamos	Low	Multiple
Myotis evotis	Long-eared myotis [1]	Taos, Los Alamos	Low	Multiple
Myotis occultus (lucifugus)	Arizona myotis	Taos	Low	Multiple
Myotis thysanodes	Fringed myotis	Taos	Medium	Multiple
Myotis volans	Long-legged myotis	Rio Arriba, Taos	Low	Multiple
Myotis yumanensis	Yuma myotis	Taos	Medium	Multiple
Nyctinomops	Big free-tailed bat	Rio Arriba	Low	Cliff

Species Captured	Common Name	County	Regional Priority [3]	Habitat
macrotis				
Parastrellus (Pipistrellus) hesperus	Canyon bat	Taos	Low	Cliff
Tadarida brasiliensis	Mexican free-tailed bat [2]	Taos	Low	Multiple

[1] Indicates BLM Sensitive Species.
[2] Unpublished survey report on Carson National Forest (USDA 2001).
[3] Per Regional Priority Matrix of Western Bat Working Group (1998).

Prairie Dogs. Prairie dog towns serve as important habitat for many wildlife species. Several species of birds, such as horned larks, ferruginous hawks, and golden eagles frequent prairie dog towns in search of food. Three species of wildlife of management concern are very closely associated with prairie dog towns: the mountain plover, burrowing owl, and black-footed ferret.

Studies have shown that black-footed ferret and burrowing owl populations are declining or are nonexistent because fewer prairie dogs remain to create and maintain these unique patches of habitat (Hygnstrom and Virchow 2002). Vacant prairie dog burrows serve as homes for cottontail rabbits and several species of small rodents. Gunnison's prairie dog towns have been mapped and are monitored in Taos and Rio Arriba counties. Black-tailed prairie dogs, which may inhabit some BLM land in scattered parcels to the east side of the Taos Field Office, are not readily known, mapped, or monitored. The montane subspecies of Gunnison's prairie dog is discussed below in section 3.2.7, Special Status Species.

River Otter. Pursuant to the management objectives listed in The Rio Grande Corridor Final Plan (2000), river otters were reintroduced to the Upper Rio Grande under a joint effort with the Taos Pueblo and New Mexico Friends of River Otters in 2008. Twenty-three animals have been released over a three year period and, to date, three known mortalities have occurred: two from accidental trapping in beaver traps, and the other from a motor vehicle collision. Since the animals are not radio tracked, monitoring is accomplished from incidental sightings and reports to the BLM. Reproduction and total population numbers are not completely known; however, numerous records of otters have been made as far south as White Rock Canyon and north to John Dunn Bridge.

Other Mammals. The most common medium-sized mammal across the planning area is the coyote, which is abundant across all habitat types. Other small predators include the ringtail, gray fox, and bobcat, but they do not occur in large numbers. Small mammal productivity varies considerably from site-to-site and year-to-year depending on habitat conditions. For the most part, small mammal productivity is considered low. Occasional "boom" years can be observed in such species as cottontail and prairie dog; however, in most species high production years are not obvious or easily observed.

Habitat Trends

Increasing residential and recreational development presents a source of change and potential departure from management objectives for wildlife habitat in the planning area. Change in the extent of various land cover types has been driven primarily by human land and water uses over the past 400 years, and is now possibly affected by climate change (see section 3.2.1, Air and Atmospheric Values). Habitat conversion in the form of development and aquatic habitat

alteration due to draining and channelization are priority conservation management issues in the Rio Grande watershed (NMDGF 2005).

While there is no recent habitat monitoring data available, observations by BLM staff suggest most suitable mule deer habitat is in a static to downward trend due to lack of fire, the early successional vegetation component, and edge habitat upon which the species depends.

BLM staff and NMDGF observations suggest habitat conditions on public land in the planning area for elk and bighorn sheep are in an upward trend, while pronghorn habitat remains static. Improvement projects are targeted for mule deer and elk habitats to increase cool season grasses and forbs, as well as a mosaic of habitat types.

Based on BLM staff observations and rangeland assessments, many rangelands throughout the planning area have higher densities of pinon and juniper trees than occurred historically. Current range conditions are likely due to reduced natural fire regimes and livestock grazing impacts. Piñon-juniper encroachment is occurring across the planning area resulting in the replacement of some grassland and shrub-steppe animal species with woodland species types. Improvement projects are targeted for mule deer and elk habitats to increase cool season grasses and forbs, provide a mosaic of habitat types, as well as identify, enhance and develop early seral vegetation.

The eastern portion of the planning area contains small parcels of BLM-administered land inside large private tracts of land where management and BLM control of grazing practices and vegetation treatments are minimal. The northern and western portions of the planning area contain larger contiguous blocks of BLM land and receive higher levels of management, resulting in greater ground cover and more vegetative diversity.

The southern section of the planning area has limited grazing activity due to urban/suburban development. Ground cover in the southern section of the planning area is primarily influenced by increased dispersed use of public land in the wildland urban interface resulting in unpermitted fuelwood cutting, off-road vehicle traffic, and illegal dumping. Expansion of the wildland urban interface also results in more unconfined and feral pets which then kill or harass wildlife.

Habitats have been fragmented by roads, highways, and utility corridors; and lost because of human population growth and development. Continued encroachment of subdivisions and roads into previously undisturbed areas is an important factor in habitat fragmentation (Rost and Bailey 1979; Wisdom et al. 2005). Not all roads have been mapped in the planning area; therefore, habitat fragmentation by roads is only partly captured by existing maps. Additional road inventory is needed to avoid underestimating fragmentation in the planning area. To date, exploration for energy or mineral materials has not had a major influence on habitat fragmentation or threatened traditional big game ranges in the planning area.

Given the synergistic effects of these and other factors, the planning area has a lesser ability to produce and maintain wildlife habitat when compared to the past; however, conditions improve for wildlife as meaningful cooperative relationships with other agencies and organizations are developed, appropriate objectives are incorporated into grazing allotment management plans, and stipulations are provided for BLM-approved authorizations to mitigate impacts and protect and/or enhance wildlife habitat.

3.2.4 *Geology*

Current Conditions

Physiography, Structural Geology and Tectonics

Four physiographic provinces are found within the boundaries of New Mexico: the Colorado Plateau, Basin and Range, Southern Rocky Mountains, and Great Plains. The Taos Field Office planning area is centered at the juxtaposition of three provinces: the Great Plains, Southern Rocky Mountains, and Colorado Plateau provinces. The geology, terrain, climate and vegetation in each province are unique, and provide a diverse assemblage of landforms and surficial processes that establish the framework for the occurrence of mineralization within the planning unit (see Figure 3-2).

East of the Sangre de Cristo uplift, the Great Plains province is characterized by low-standing, low-relief topography that rises from 1,100 meters in the northeast, to over 2,500 meters in the western portion of the province, where rugged terrain of the Rio Grande Rift defines the western boundary of the Great Plains province.

The Taos and Santa Fe ranges of the Sangre de Cristo Mountains are situated within the southern extension of the Southern Rocky Mountain province. This province is characterized by rugged, high-standing mountain ranges cored by Precambrian crystalline rocks with well-developed pediment and piedmont surfaces.

West of the Southern Rocky Mountains province, a middle to late Cenozoic extensional tectonic feature known as the Rio Grande Rift, forms a north-south series of mostly asymmetrical grabens or basins (e.g., the Santo Domingo, Española, and San Luis basins) which are dextrally-offset and are characterized by high-angle faults.

In the extreme western margin of the planning area lies the Chama basin, a broad shallow basin along the eastern margin of the Colorado Plateau. The Colorado Plateau has been a relatively stable block in the earth's crust for at least 600 million years; consequently, rocks in the Chama basin area are generally flat-lying and are only mildly deformed by broad-scale folding and localized faulting with stratigraphic offsets of less than 120 feet.

Rock Units

The lithology, areal extent and thickness of major rock types present in the planning unit are described in the following publications: The Geology of New Mexico, A Geologic History, New Mexico Geologic Society, Special Publication 11; Geology of the Taos Region, New Mexico Geological Society Fifty-fifth Annual Field Conference, 2004; Geology of the Santa Fe Region, New Mexico Geological Society Forty-sixth Annual Field Conference, 1995; and, Mesozoic Geology and Paleontology of the Four Corners Region, New Mexico Geological Society Forty-eighth Annual Field Conference, 1997.

A general stratigraphic nomenclature chart for north-central New Mexico, prepared by Anderson et al. (1995), is presented in Figure 3-1. Geologic maps of the planning area can be obtained from the New Mexico Bureau of Geology and Mineral Resources. Brief mention of the rock types associated with mineral deposits is given in the following descriptions:

Precambrian rocks typically host metallic and other locatable minerals, primarily gold and silver, that have been mined at various locations in the planning area.

Pennsylvanian rocks host Great Plains Margin-type gold and silver deposits, and sedimentary copper deposits, that occur in various places in the planning area.

Permian rocks host Great Plains Margin and Rio Grande Rift-type metallic, sedimentary copper, and sandstone-type uranium deposits at various locations in the planning area. In northeastern New Mexico, Permian-aged Tubb sandstone produces large volumes of CO_2 for enhanced oil recovery in Oklahoma and Texas oil fields.

Triassic rocks host sedimentary copper, and breccia pipe and sandstone uranium deposits.

In New Mexico, Jurassic strata contain important mineral resources including gypsum, uranium, and industrial materials. In northern New Mexico, the Jurassic Entrada formation is commercially oil productive. Regionally important aquifers in northern New Mexico are found in Jurassic stratigraphy.

Cretaceous rocks host Great Plains Margin-type gold-silver deposits, and sandstone uranium deposits. In northern New Mexico, upper Cretaceous rocks are regionally important for extensive coal deposits. Cretaceous coal reserves are more prolific than any other rock unit in this area. Regionally, Cretaceous rocks with structure and/or stratigraphic traps contain some of the most prolific and important hydrocarbon resources. Also, in north-central New Mexico, Mesa Verde equivalent sequences of mostly shale comprise the Niobrara which is known to contain oil and natural gas.

Tertiary rocks host Great Plains Margin gold-silver, volcanic-epithermal metallic, porphyry copper and molybdenum, and sandstone uranium deposits. Scoria and perlite also occur in Tertiary rocks.

Quaternary deposition consists of volcanic rocks, and alluvial fan deposits, valley-fill alluvium and terrace gravels. These provide pumice, perlite, scoria, and aggregate materials for the building and construction industries, and host placer gold deposits in the planning area.

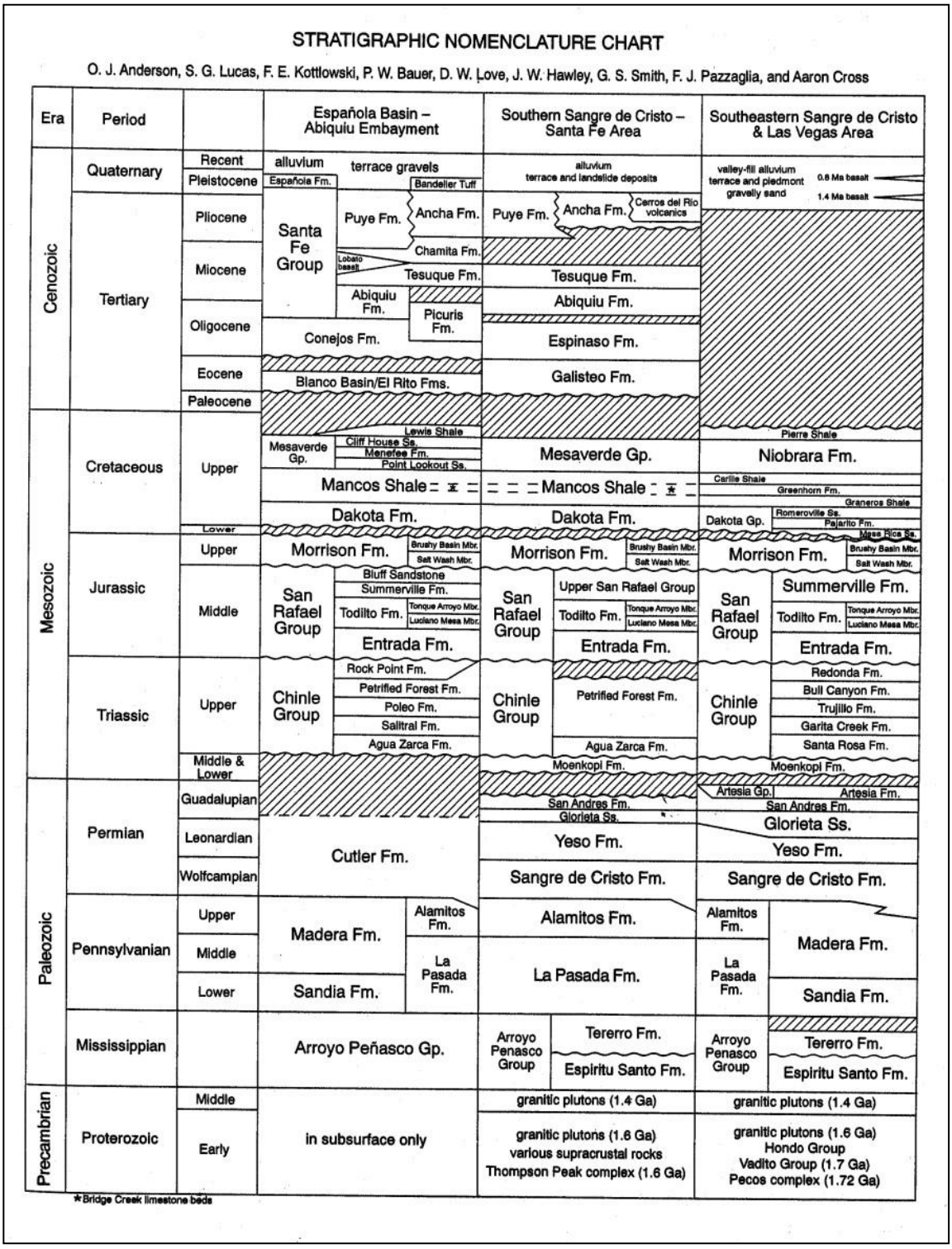
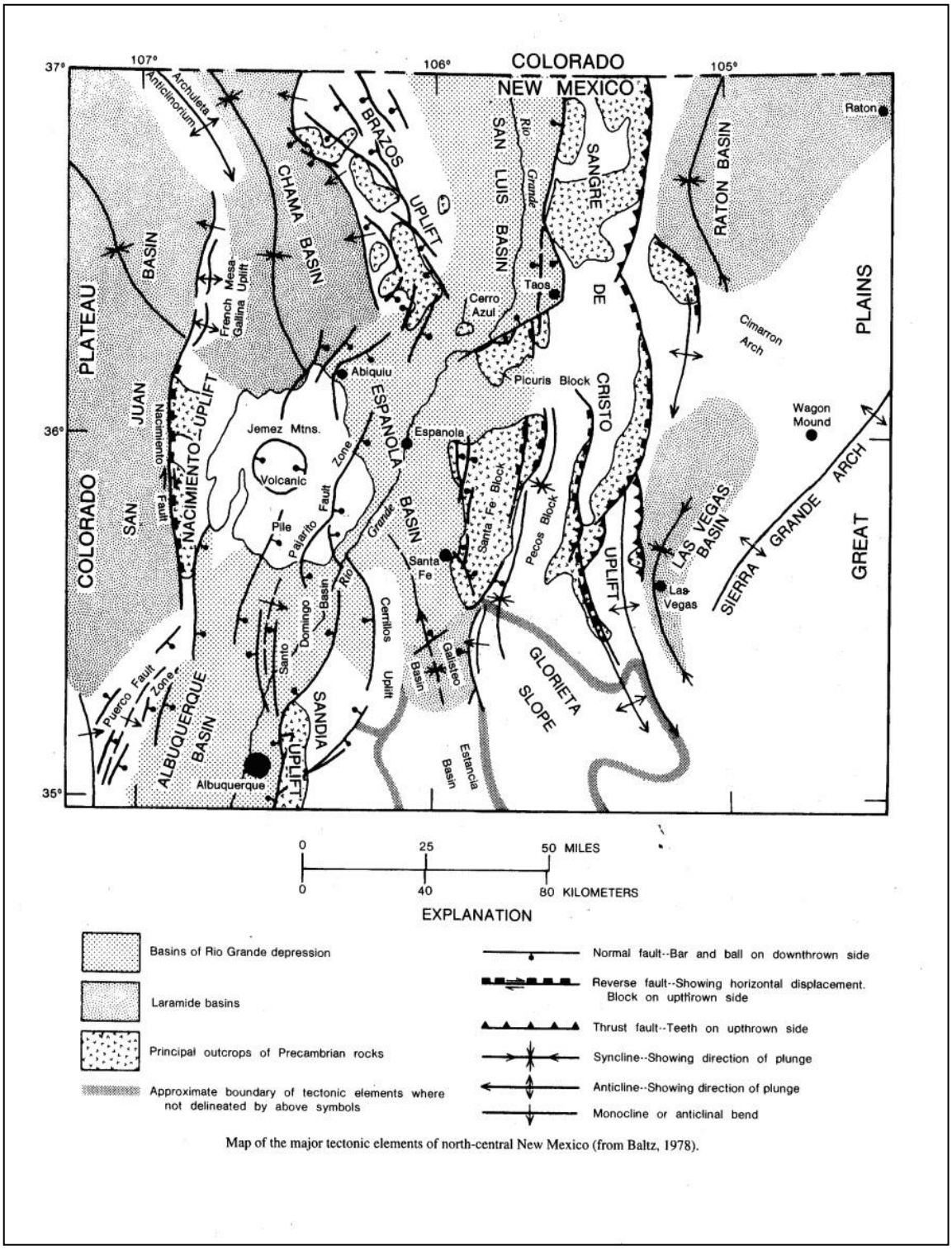


Figure 3-1. Rock units within the planning area



Map of the major tectonic elements of north-central New Mexico (from Baltz, 1978).

Figure 3-2. Major tectonic elements of north-central New Mexico (from Baltz [1978])

3.2.5 *Paleontology*

Current Conditions

Fossils may be extensively distributed both vertically and horizontally throughout the geological units in which they occur. Fossil localities noted to occur within a given geologic unit indicate that the unit may yield fossils throughout its entire areal extent, which may be several hundred or several thousand miles. Thus, knowledge of the outcrop pattern of geologic units and the kinds and quality of the fossils produced by such units, is a critical management tool for land-use decision-making.

To provide management and resource specialists a tool to consider paleontological resources, a five class system for potential fossil yield has been developed for the Taos Field Office. The system was developed using geologic maps, known locality data, and professional judgment. Professional judgment was used to evaluate geologic units' potential to produce important paleontological resources based on literature reviews, described depositional environments, and locality data available through the New Mexico Museum of Natural History and Science database. Since the best available map was at a 1:500,000 scale, no class 5 was defined. For planning and implementation purposes, all class 4 and 3 areas within these units should be considered critical areas. Although a predicative model, the classification system cannot identify every possible occurrence. The possibility of discovering important fossils in an area of lower sensitivity does exist. For example, in an area of basaltic lava flows, with little opportunity to preserve fossils, there is potential for fossil resources to be associated with caves.

A paleo-sensitivity map has been developed for use at the field office level and for land use planning. Consultation and coordination with the BLM regional paleontologist and paleontology coordinators within the field office is done to meet BLM management responsibilities for these natural and nonrenewable resources. Table 3-10 summarizes management concerns by class and will be used to discuss planning units within the planning area.

The Taos Field Office contains a variety of paleontological resources including vertebrates and invertebrates to petrified wood and trace fossils. These occur in the Late Jurassic and Cretaceous continental sediments up through the Tertiary age sediments of the Eocene, Miocene, Pliocene and Pleistocene Periods.

In the 1988 RMP, the Sombrillo area was designated an ACEC for paleontological resources. Within this ACEC are extensive exposures of the three most fossiliferous subdivisions of the Tesuque Formation: the Nambe, the Skull Ridge, and the Pojoaque. Fossils found here are almost entirely mammalian. They include a mixture of essentially modern forms, primitive representatives of some modern groups, and unfamiliar mammals which are now extinct. Collection permits may be issued for research, museum, or educational projects.

Table 3-10. Management concerns by fossil yield classification

Potential Fossil Yield Classification	Management Concern by Class	Other resources available
5	Management concern for paleontological resources on class 5 acres is high. Class 5 acres have produced important fossils and site specific mitigation would be required. Class 5 acres are determined as more data is collected.	For known occurrences, check the NMMNHS online database by county and verify by USGS topographic map. Other screening tools can be used; DOQQs for outcrop exposure and soil maps for depth to bedrock.
4	Management concern for paleontological resources on class 4 acres is towards management and away from unregulated access. Proposed ground-disturbing activities require assessment to determine whether significant paleontological resources occur in the area of proposed action.	For known occurrences, check the NMMNHS online database by county and verify by USGS topographic map. Other screening tools can be used; DOQQs for outcrop exposure and soil maps for depth to bedrock.
3	Management concern for paleontological resources on class 3 acres may extend across the entire range. Ground-disturbing activities need to be evaluated on a case-by-case basis for the need to mitigate.	For known occurrences, check the NMMNHS online database by county and verify by USGS topographic map. Other screening tools can be used; DOQQs for outcrop exposure and soils.
2	Management concern for paleontological resources on class 2 acres is low. Ground disturbing activities not likely to require mitigation.	Paleontological resources may be associated with caves.
1	Management concern for paleontological resources on class 1 acres not required.	Paleontological resources may be associated with caves.

3.2.6 *Soils*

The soil resource is a key component of public land health. Productive stable soils are important to maintaining other resource programs and uses and soil condition is a key consideration affecting many land use decisions. The Taos Field Office soil program focuses on maintaining intact soils, reclaiming disturbed soils, reducing erosion, and working with other programs to maintain or improve soil health.

The preservation of topsoil and the productivity of public land are a high priority for the BLM. The BLM manages soil health by assessing indicators and prescribing actions to restore function or mitigate soil impacts. Indicators of the status and trends of the soil resources are relevant to a number of land management decisions. The BLM has published, in cooperation with other Federal/state/local agencies, universities, and other resource scientists, several technical manuals that detail the conditions and indicators of destructive erosion and deposition on rangelands (Pellant et al. 2000), in riparian areas (Pritchard 1998), and within watersheds (MacCammon et al. 1998).

These documents have supported the underlying philosophy behind the BLM Standards for Public Land Health and Guidelines for Livestock Grazing Management (Standards and Guidelines, USDI-BLM 2000a). By maximizing rangeland health, the BLM has adopted a

specific strategy for increasing general ecological health because the indicators of erosion and sedimentation can be used to assess many activities on public land.

Current Conditions

The planning area contains three of six major soil regions found in New Mexico. The majority of BLM-administered land in the area is contained within the Western Soil Region that includes mesas, plateaus and lava flows interspersed with steep canyons with topographic and geomorphic complexity that has resulted in diverse soil types. The eastern half of the planning area is in the East Central Plains Soil Region, characterized by undulating to rolling uplands, and less variation in topography. The northern and central portion of the planning area is in the Mountain Soil Region containing mesas, foothills, and lava flows incised by deep canyons.

The public land within the planning area contains 76 soil map units as derived in the State Soil Geographic Database known as STATSGO (NRCS 1993). These units are equivalent to the General Soil Units found in NRCS Soil Surveys. Table 3-11 lists general soil map unit acreage by planning unit. Soils comprising less than 1 percent of BLM land in the planning unit area were excluded.

The BLM uses detailed soil surveys to assess soil capability for a given use during project level analysis. Soil surveys are mapped by the Natural Resource Conservation Service (NRCS, formerly Soil Conservation Service) and results are published in soil surveys by county area. Available soil surveys for the planning area are:

Soil Survey of Mora County Area, New Mexico, 1985

Soil Survey of Taos County and parts of Rio Arriba and Mora counties, New Mexico, 1982

Soil Survey of San Miguel County Area, New Mexico, 1981

Soil Survey of Union County, New Mexico, 1981

Soil Survey of Rio Arriba County Area, New Mexico,

Soil Survey of Santa Fe Area, New Mexico, 1975

Soil Survey of Colfax County, New Mexico, 1981

Soil Survey of Harding County, New Mexico, 1973

Although most soils in the planning area are subject to increased wind or water erosion resulting from surface disturbances, some soils have higher susceptibility due to small soil particle size and/or slope. Soils in the Lower Gorge/Copper Hill and El Palacio planning unit are most at risk of loss because of slope and sparse vegetation cover. Heavy summer rains move erosive soils in these units, resulting in increased turbidity in adjacent perennial waters.

Table 3-11. General soil map units by planning unit

Map Unit Name	Acres
Taos Plateau	
Travelers-garita-luhon	139,259.98
Fernando-silva-tenorio	43,562.53
Raton-rock outcrop-orejas	32,232.09
Servilleta-prieta-petaca	13,858.75
Graypoint-platoro-dunul	7,156.84
Typic haplustalfs-eutric glossoboralfs-rock outcrop	3,821.26
Royosa-sedillo-orejas	3,045.66
Chama	
Berryman-menefee-calendar	22,021.04
Typic haplustalfs-eutric glossoboralfs-rock outcrop	5,132.83
Elpedro-peney-ransect	4,595.54
Goldvale-valto-hesperus	2,937.96
Typic eutroboralfs	1,652.43
Typic ustochrepts-typic haplustalfs-rock outcrop	1,366.85
Typic haplustalfs	1,109.25
Ruko-morapos-goldvale	747.19
El Palacio	
Florita-rock outcrop-pinavetes	33,298.72
Sedillo-montecito-badland	2,2013.32
Pojoaque-el rancho-fruitland	10,310.08
Pojoaque-fruitland-badland	5,441.85
Lithic ustorthents-typic dystrochrepts-rock outcrop	3,329.3
El rancho-fruitland-bluewing family	2,204.32
Rock outcrop-devisadero-sedillo	828.71
East Side	
Rock outcrop-tuloso-sombordoro	29,082.97
Sombordoro-tuloso-rock outcrop	5,621.48
Partri-carnero-tricon	4,917.48
Vibo-ribera-rock outcrop	2,274.52
Typic haplustalfs-eutric glossoboralfs-rock outcrop	1,787.71
Apache-rock outcrop-ayon	1,519.13
Redona-quay-conchas	1,451.09
Conchas-latom-badland	1,274.62
Swastika-colmor-mion	1,081.55
Capulin-charette-ayon	960.62
Galisteo Basin	
Rock outcrop-pena-chimayo	3,187.85
Panky-pojoaque-fivemile	2,411.33
Sombordoro-tuloso-rock outcrop	1,469.69
Rednun-pena-fivemile	1,401.29
Harvey-dean-tapia	1,379.67
Typic haplustalfs	887.79
Las lucas-persayo-rock outcrop	702.33
Vibo-ribera-rock outcrop	489.72

Map Unit Name	Acres
Travessilla-rock outcrop-rednun	446.14
Witt-harvey-clovis	423.94
Travessilla-ortiz-bernal	390.04
Typic ustochrepts-lithic ustochrepts	319.27
Fivemile-riverwash-galisteo	256.21
Laporte-silver-witt	236.57
Lower Gorge/Copper Hill	
Rock outcrop-devisadero-sedillo	26,326.39
Fernando-silva-tenorio	4,629.83
Royosa-sedillo-orejas	3,263.58
Maes-etoe-derecho	2,617.54
Sedillo-montecito-badland	1,989.98
Florita-rock outcrop-pinavetes	498.04
Ojo Caliente	
Florita-rock outcrop-pinavetes	44,590.88
Royosa-sedillo-orejas	10,015.6
Typic ustochrepts-typic haplustalfs-rock outcrop	9,998.53
Rock outcrop-hackroy-totavi	6,950.09
Fruitland-abiquiu-pinavetes	3,505.63
Typic haplustalfs-typic ustochrepts-typic dystrochrept)	888.43
West Santa Fe	
Pojoaque-fruitland-badland	19,979.37
Apache-clovis-calabasas	12,095.54
Panky-pojoaque-fivemile	2,154.3
Typic ustochrepts-typic haplustalfs-rock outcrop	769.17
Typic haplustalfs	1,068.91

Historic use of land in the planning area, especially in the last century, appears to have resulted in changes in composition and density of vegetative cover, which has exposed soils to destructive erosion. Nonetheless, most range areas are meeting standards for soils. BLM staff has noted poor soil conditions in a small number of allotments throughout the planning area in areas where soils are most at risk due to slope, vegetative cover, and/or soil type. Changes in fire regime and improper grazing management were identified as likely reasons for those poor soil conditions.

Current management actions used to protect soil resources include, but are not limited to:

- Restrict surface disturbance on slopes. Restrictions depend on amount of slope, proposed activity and type of soil.
- Restrict surface disturbance when soils are saturated or when watershed damage is likely to occur.
- Require that new permitted roads conform to Gold Book Standards.
- Assess the need for rehabilitation and restoration following wildfire events.
- Require reseeding on projects that remove surface vegetation.
- Implement Storm Water Prevention Plans (SWPP) for surface disturbing projects.

Trend

Although a summary database of soil condition and trend has not been maintained, condition and impact analysis has been completed at the project level by staff during rangeland site assessments using the categorical indicators from Rangeland Standards and Guidelines.

In general, soil conditions on public land in the planning area appear to be static. Historic practices such as intensive grazing and fire suppression in many areas appear to have altered vegetative species richness and density of cover as compared to soil survey reference conditions. These vegetative conditions have been noted by the range assessment team, although data is not available to establish clear trends. Vegetation directly affects soils by reducing and slowing overland runoff. Thus, static vegetative cover is considered to result in static soil conditions.

3.2.7 *Special Status Species*

Special status species are (1) species listed or proposed for listing under the Endangered Species Act, including designated critical habitat, and (2) species designated as BLM sensitive by the State Director, requiring special management consideration to promote their conservation and reduce the need for future listing under the ESA. All Federal candidate species, proposed species, and delisted species for five years following their delisting will be considered BLM sensitive species (USDI 2008).

Under the Endangered Species Act, an *endangered* species is an animal or plant species in danger of extinction throughout all or a significant portion of its range. A *threatened* species is a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. A *proposed* species is a species of animal or plant that is proposed in the Federal Register to be listed under section 4 of the Endangered Species Act, while a *candidate* species is one on which the USFWS (or the National Oceanic and Atmospheric Administration's fisheries service) has sufficient file information regarding its biological vulnerability and threats to support a proposal for listing as endangered or threatened.

In addition, the BLM maintains a list of special status species that include species listed or proposed for listing under the Endangered Species Act, and species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the Endangered Species Act. These latter are designated as BLM *sensitive* by the respective State Director.

The BLM must ensure the recovery of listed species on BLM land and that any Federal action authorized, funded, or carried out is not likely to jeopardize the continued existence of listed species or result in destruction or adverse modification of critical habitat (USDI 1988). These commitments are met by applying appropriate stipulations (timing or location limitations, seasonal restrictions, etc.) or by not authorizing the action altogether. Under section 7 of the ESA, consultation is initiated with the USFWS for actions where an evaluation indicates a "may affect" situation (may affect includes both beneficial and adverse impacts) on a federally listed species or their habitats and the adverse impacts cannot be eliminated.

Currently, within the planning area, 27 plant or animal species have special status as listed by the USFWS (endangered, threatened, proposed, or candidate) or BLM (sensitive), as well as one federally designated critical habitat (Southwestern willow flycatcher). This list is made up of 4 plant species, 5 fish species, 9 mammal species, and 9 kinds of birds.

Priority habitats for special status species are located within the Taos Plateau, Chama, West Santa Fe, Lower Gorge/Copper Hill and Ojo Caliente planning units.

Table 3-12 contains the current special status species plants or animals that could have potential habitat on public land in the planning area (see narrative descriptions for species specific information). The Taos Field Office maintains maps that identify the locations of listed species or potential habitat. These maps are updated as new species are identified as threatened, endangered, or proposed for listing under the Endangered Species Act or BLM sensitive species.

Table 3-12. Special status species with potential habitat in the planning area

Common Name	Scientific Name	Status
Rio Grande cutthroat trout	*Oncorhynchus clarki virginalis*	USFWS Candidate; BLM Sensitive
Arkansas River shiner	*Notropis girardi*	USFWS Threatened (Arkansas River basin); BLM Sensitive
Plains minnow	*Hybognathus placitus*	BLM Sensitive
Flathead chub	*Platygobio gracilis*	BLM Sensitive
Southwestern willow flycatcher (with designated critical habitat)	*Empidonax traillii extimus*	USFWS Endangered; BLM Sensitive
Bald eagle	*Haliaeetus leucocephalus alascanus*	BLM Sensitive
Northern goshawk	*Accipiter gentilis atricapillus*	BLM Sensitive
Ferruginous hawk	*Buteo regalis*	BLM Sensitive
Mountain plover	*Charadrius montanus*	USFWS Proposed; BLM Sensitive
Burrowing owl	*Athene cunicularia hypugaea*	BLM Sensitive
Loggerhead shrike	*Lanius ludovicianus excubitorides*	BLM Sensitive
Black-footed ferret	*Mustela nigripes*	USFWS Endangered; BLM Sensitive
Gunnison's prairie dog (montane population)	*Cynomys gunnisoni*	USFWS Candidate; BLM Sensitive
Long-eared myotis	*Myotis evotis evotis*	BLM Sensitive
Pale Townsend's big-eared	*Corynorhinus townsendii pallescens*	BLM Sensitive
Small-footed myotis	*Myotis ciliolabrum*	BLM Sensitive
Fringed myotis	*Myotis thysanodes*	BLM Sensitive
Long-legged myotis	*Myotis volans*	BLM Sensitive
Yuma myotis	*Myotis yumanensis*	BLM Sensitive
Big free-tailed bat	*Nyctinomops macrotis*	BLM Sensitive
Ripley's milkvetch	*Astragalus ripleyi*	BLM Sensitive
Santa Fe cholla	*Opuntia viridiflora*	BLM Sensitive
Grama grass cactus	*Sclerocactus papyracanthus (*Synonyms include: *Echinocactus papyracanthus, Pediocactus papyracanthus,* and *Toumeya papyracanta)*	BLM Sensitive

Rio Grande Cutthroat Trout. Rio Grande cutthroat trout is a Federal candidate and BLM sensitive species. The Rio Grande cutthroat trout (RGCT) is an intermountain west trout species of the family Salmonidae. Historic range is believed to include current trout waters including

reaches on the Rio Grande, Pecos River, Canadian River, and coldwater tributaries. This species is now limited to the upper reaches of tributaries to these rivers. This species can hybridize with rainbow trout (*Oncorhynchus mykiss*), a species stocked throughout Rio Grande cutthroat range, as they are closely related and spawn during spring. This fact combined with the introduction of competitive species such as brown trout (*Salmo trutta*) and alteration of habitat are believed to have resulted in a reduction of species distribution. Pure and hybrid populations of RGCT are present in the Rio Grande within the planning area in reaches managed by the BLM. The BLM is active in range-wide interagency conservation and has identified a RGCT restoration project in the Agua Caliente.

Arkansas River Shiner. Arkansas River shiner is a Federal threatened and BLM sensitive species. The Arkansas River shiner (ARS) is a small, heavy-bodied minnow with a rounded snout and small mouth. The shiner is native to wide, sandy-bottomed streams of the Arkansas River drainage in Arkansas, Kansas, New Mexico, Oklahoma, and Texas. It is threatened by habitat destruction and modification from stream dewatering or depletion due to diversion of surface water and groundwater pumping, construction of impoundments, and water quality degradation. There are no current records of ARS occurring in the planning area, though there are historic records of its presence in the Canadian River.

Plains Minnow. Plains minnow is a BLM sensitive species. The plains minnow is a medium sized minnow with a silver and white colored body, and a black stripe along each side. In the planning area, the minnow is native to the Canadian River and the Dry Cimarron. The Taos Field Office has not collected survey data for this species, but it is assumed to occur in BLM managed reaches. Threats to the minnow have not been identified, but it is likely that habitat modification and non-native species may impact minnow populations. Further information about status will be available upon completion of a fish survey report for the Canadian River, currently being prepared for the NMDGF.

Flathead Chub. Flathead chub is a BLM sensitive species. The flathead chub is a member of the family Cyprinidae, which covers minnows and carps. Generally small in size (110 millimeters total length), this species is native to the Rio Grande, Canadian River, Pecos River, and tributaries to these systems within the planning area. The BLM has documented this species in the Rio Grande near Ute Mountain and in the Santa Fe River in La Cieneguilla. This species may occur in greater abundance in the Rio Grande, but collection methods limit our ability to collect small fish on this river. Reasons for decline in numbers of this species are unclear, but may be the result of competition from introduced species or hydrologic changes in the Rio Grande. There is currently no interagency conservation plan for this species. The BLM will continue to consider flathead chub in analysis of fish communities and work with the NMDGF to maintain populations and increase distribution where appropriate habitat occurs.

Southwestern Willow Flycatcher (with Critical Habitat). The only critical habitat designation within the planning area is that for the Southwestern willow flycatcher. The Final Rule establishing critical habitat for the southwestern willow flycatcher was published on October 19, 2005 (*Federal Register*, Volume 70, Number 201), for land identified along the Rio Grande from Taos Junction Bridge to the border of the Pueblo of Ohkay Owingeh.

The Southwestern willow flycatcher is a Federal endangered and BLM sensitive species and is the highest priority special status species for BLM Taos due to the riparian habitat found along the major river systems. The Southwestern Willow Flycatcher Management Plan (1998)

describes the background and history of the species and outlines various tasks to be accomplished to protect, improve or reestablish nesting/foraging habitat on BLM-administered land within the planning area.

Flycatcher habitat is defined as those areas that the species uses or could use for nesting and foraging during the breeding season (April 15 through September 15). Approximately 5 miles of habitat is known to be occupied by migratory Southwestern willow flycatchers (Rio Grande and the Santa Fe River), there is approximately 7 miles of short-term potential habitat (Rio de Truchas), and 12 miles rated as long-term potential habitat (various stream reaches throughout the planning area).

The Southwestern willow flycatcher frequents the area during summer migration and ongoing protocol surveys occur annually to monitor and report status of the species to the USFWS. The designated critical habitat incorporates developed campgrounds; a portion of the most highly used whitewater rafting area in the state, a popular fly-fishing area and carries a "scenic" river designation under the Wild and Scenic Rivers Act. The vegetation in the area is a dense tamarisk/willow association. An active native plant restoration plan is in place, in cooperation with the USFWS, to maximize willow and cottonwood while controlling the exotic vegetation without adversely affecting the Southwestern willow flycatcher.

Across the Southwest, the Southwestern willow flycatcher has declined in extent of range occupied and population size as a result of habitat loss, modification, and fragmentation. Riparian habitats by nature are dynamic, with their natural distribution in time and space governed mostly by flood events and streamflow patterns. Natural or historic flow patterns have been greatly modified and reduced in rivers and streams, including those in the planning area. Historic patterns of river hydrology and hydraulics have been altered and regulated. Water management and flood control facilities have reduced peak discharges during seasons of high flows and have increased the duration and occurrence of minimum flows. Some watersheds are degraded, many stream channels are highly degraded, floodplain and riparian communities are reduced in extent, and the species composition of riparian communities has been modified by exotic species and livestock grazing. These conditions have significantly diminished the potential for rivers and streams to develop suitable habitat for the Southwestern willow flycatcher.

Historic nesting of the Southwestern willow flycatcher occurred along the major river systems within the planning area, although never high in numbers. During the late 1800s, overgrazing of sheep and cattle and homesteading along riparian areas, and water diversions along the river systems, profoundly influenced riparian habitat in the planning area. The Rio Grande is an important migratory stopover habitat for the Southwestern willow flycatcher as it moves from its winter grounds in Mexico and Central America to the northeast extent of its range in San Luis, Colorado. Periodic unsuccessful nesting has been documented along the Rio Grande in the vicinity of Orilla Verde since 2005; however, prior to this there had been no documented nesting of the species in this or any other area within the Taos Field Office since 1997.

A portion of the critical habitat designated along the Rio Grande for the Southwestern willow flycatcher is actively being managed to control saltcedar and other herbaceous weed species, while planting native vegetation to provide the structure and ecosystem functions needed by the flycatcher and a properly functioning riparian area. The balance of existing potential Southwestern willow flycatcher habitat in the planning area contains a higher percentage of

exotic vegetation than what was found there in the past. While it may provide vertical structure and nesting capability for the Southwestern willow flycatcher, studies have shown that insect availability and type in exotic vegetation is not a significant factor affecting Southwestern willow flycatcher population viability (Owen et al. 2005).

Additional surveys for Southwestern willow flycatcher habitat along more dispersed riparian areas in the planning area are needed.

Recovery rates of breeding populations of Southwestern willow flycatcher is a function of local population dynamics (i.e., total population size, annual reproductive success and mortality rates, rates of dispersal from other breeding locations) and habitat suitability. Because local populations are widely separated and small in size, stability may be difficult to achieve in the short term. These factors, combined with the small size of flycatcher populations, indicate that this species' resilience to additional disturbance is low and that recovery rates are anticipated to be slow.

Management of riparian areas where Southwestern willow flycatcher and bald eagle habitat exist, combined with seasonal restrictions in key areas, reduce habitat damage, minimize disturbance and improve overall habitat conditions for these species, and should result in long-term population increases. The Taos Field Office Riparian and Aquatic Habitat Management Plan (2000) presents an adaptive management strategy for maintaining, restoring, improving, protecting, and expanding riparian areas in the planning area, including actions for the restoration and protection of threatened and endangered species habitat.

Bald Eagle. Bald eagle is a BLM sensitive species. The bald eagle was removed from Federal threatened status in 2007. Bald eagles are known to migrate to the planning area during the winter, and can be observed along the Rio Grande and Taos Plateau and Chama planning units, as well as Ojo Caliente, West Santa Fe and other areas adjacent to major river systems. Populations are small but stable. There are no known roost trees, but frequent observations of bald eagles along the Rio Grande from Orilla Verde south to Velarde are common. Formal surveys are not conducted during the winter for this species, although reports are made.

Northern Goshawk. Northern goshawk is a BLM sensitive species and there is only one known nest location in the planning area in the Taos Plateau planning unit. Further surveys are needed to determine the location of the occupied nest and any alternate nests within the area, and mitigation measures to apply when land use activities are proposed in this area.

Ferruginous Hawk. Ferruginous hawk is a BLM sensitive species and there is only one known location of a nesting pair in the Taos Plateau planning unit. Additional surveys of this area would continue and mitigation measures applied when land use activities are proposed in this area.

Mountain Plover. Mountain plover is a Federal proposed and BLM sensitive species. Mountain plovers are migratory birds known to breed in the Taos Plateau planning unit. While the mountain plover density in this area is lower than those reported for other regions, the large size of the planning unit likely contains the largest population in New Mexico under a single management authority (Hawks Aloft 2010). BLM monitors mountain plovers in active grazing allotments in the Taos Plateau planning unit and the population seems to be stable or increasing since 2005 (Hawks Aloft 2007c).

Burrowing Owl. Burrowing owl is a BLM sensitive species and is known to nest in the Taos Plateau planning unit. A minimum of 14 adults and 11 young owls were documented in 2006, a sizeable increase over a total of 5 observations from 2003–2005 (Hawks Aloft 2006b). Future monitoring would determine if the apparent increases continue and provide a better understanding of the prevailing factors influencing this population in this area. Habitat for the species can also be found in the Chama and West Santa Fe planning units. Populations have not been monitored intensely in those areas, although sightings in 2003 in Chama and 2008 in West Santa Fe suggest they persist.

Loggerhead Shrike. The loggerhead shrike is a BLM sensitive species and has been documented on USGS Breeding Bird Survey routes in Sabinoso and La Cienega. In the Rocky Mountains, it ranges altitudinally from agricultural lands on the prairies to montane meadows, nesting in sagebrush areas, desert scrub, pinon-juniper woodlands, and woodland edges (BISON-M). Open country interspersed with improved pastures, grasslands, and hayfields is primary shrike habitat throughout its range. In the planning area, loggerhead shrikes have also been documented on lands in the West Santa Fe and Taos Plateau planning units, which are characteristic of these vegetation types. Populations seem to be stable, but no intensive surveys have been conducted for this species. It is quite possible they occur throughout the planning area during the migratory bird breeding season.

Long-Eared Myotis. The long-eared myotis is listed as a BLM sensitive species. This species is found predominately in coniferous forests between 7,000 and 8,500 feet, roosting in tree cavities and beneath exfoliating bark in both living trees and snags. Pregnant long-eared myotis often roost at ground level in rock crevices, fallen logs, and even in the crevices of sawed-off stumps, but they do not rear young in these vulnerable locations. There have been documented reports of this species in the Taos Plateau and Chama planning units (Gannon 1997).

Pale Townsend's Big-Eared Bat. The Pale Townsend's big-eared bat is a BLM sensitive species and a Federal species of concern. This species occurs in semi-desert shrub lands, pinon-juniper woodlands, and open montane forests. The species may occupy caves, mine tunnels, or large rock shelters ranging from low desert to mixed conifer woodland. Townsend's big-eared bat has occurred on BLM land in Taos and Los Alamos counties (Gannon 1997).

Small-Footed Myotis. The small-footed myotis is a BLM sensitive species and occurs in deserts, chaparral, riparian zones, and coniferous forests. It is most common above pinon-juniper forests. Individuals are known to roost singly or in small groups in cliff and rock crevices, buildings, concrete overpasses, caves, and mines. Small-footed myotis has been documented in Rio Arriba, Taos and Los Alamos counties on BLM land (Gannon 1997).

Fringed Myotis. The fringed myotis is a BLM sensitive species and appears to be most common in drier woodlands (oak, pinon-juniper, ponderosa pine), but is found in a wide variety of habitats including desert scrub, mesic coniferous forests, grassland, and sage-grass steppe. The fringed myotis has been documented in Taos County on BLM land (Gannon 1997).

Long-Legged Myotis. The long-legged myotis is a BLM sensitive species and uses abandoned buildings, cracks in the ground, cliff crevices, exfoliating tree bark, hollows within snags as summer day roosts, and caves and mine tunnels as hibernacula. The long-legged myotis has been documented in Taos and Los Alamos counties on BLM land (Gannon 1997).

Yuma Myotis. The Yuma myotis is a BLM sensitive species and is usually associated with permanent sources of water, typically rivers and streams. It occurs in a variety of habitats including riparian, scrublands, deserts and forests. The species roosts in bridges, buildings, cliff crevices, caves, mines, and trees. The Yuma myotis has been documented on BLM land in Taos County (Gannon 1997).

Big Free-Tailed Bat. The big-free tailed bat is a BLM sensitive species and appears to be mainly an inhabitant of rugged, rocky habitats in arid landscapes. It has been found in a variety of plant associations, including desert shrub, woodlands, and evergreen forests. It appears to be associated with lowlands, but has been documented at around 8,000 feet in New Mexico (WBWG 2009). This species is a seasonal migrant and roosts mainly in the crevices of rocks in cliff situations, although there is some documentation of roosting in buildings, caves, and tree cavities. The species forms maternity colonies, and maternity roosts have been documented in rock crevices, with evidence of long term use of the crevices reported (WBWG 2009). The big free-tailed bat has been documented on BLM land in Rio Arriba County (Gannon 1997).

Black-Footed Ferret. The black-footed ferret is a federally listed endangered and BLM sensitive species. In 1998, Vermejo Park Ranch and the Ted Turner Endangered Species Fund partnered with the USFWS to restore the species to the wild. Beginning with pen-based breeding facilities, the project evolved into an experimental release site and after 10 years resulted in permanent release on the Vermejo Park Ranch. Although the black-footed ferret has been extirpated from the state of New Mexico for some time, alerts beginning in 2006 have been issued by the USFWS to action agencies to survey for this species where projects are proposed in prairie dog towns or complexes. In the planning area, this would include those prairie dog colonies located in the Taos Plateau (see description for Gunnison's prairie dog below). To date, there have been no documented sightings of black-footed ferret on BLM land in the planning area, nor does potential habitat currently exist for the species.

Gunnison's Prairie Dog. Gunnison's prairie dog (montane population) is a Federal candidate and BLM sensitive species and its habitat occurs in the north-central and northwest part of the planning area. There has been an upward trend in the population in the Taos Plateau, increasing from an average estimated cumulative spatial coverage of 363 acres in 2005 to 1,587 acres in 2008, including additional sightings in the Chama planning unit in 2006 (Hawks Aloft 2006b). The major threat to this subspecies is plague due to the isolated nature of the colonies and inability to repopulate after a colony is wiped out by the disease.

Ripley's Milkvetch. Ripley's milkvetch is a BLM sensitive species. It has been known to occur in a 600-square mile area along the southwestern perimeter of the San Luis Valley in southern Colorado and northern New Mexico. It is apparently restricted to volcanic substrates in open-canopy ponderosa pine or along the edges of mixed coniferous woodland/forest where Arizona fescue is dominant (Naumann 1990). It is typically found from 7,000-8,250 feet (NMDNR 2009); however, vegetation is a better indicator than absolute elevation. It is characterized by small population sizes (less than 10 to 1,000 individual plants) in a moderately limited range and has fairly specific habitat requirements. Ripley's milkvetch was reported on BLM and Forest Service lands in the Taos Plateau planning unit in 1990; however, no known populations exist today.

Santa Fe Cholla. Santa Fe cholla is a BLM sensitive species. The species has been documented on public land and would require special management actions, including minimizing ground disturbance, closing the area to motorized vehicles and retention of ownership, to protect this population in the future. Santa Fe cholla has only been observed in three separate populations in northern New Mexico, one of which was recently extirpated. The population on public land in the planning area is small, previously unknown, so there are now two known populations of the species in the region once again.

Grama Grass Cactus. Grama grass cactus is listed as a BLM sensitive species. The cactus grows in open flats in grasslands and pinon-juniper woodlands associated with grama grass in Arizona and New Mexico. The plant is restricted to fine sands, clay loams and red sandy soils; rarely gypseous (AGFD 2003). The species has been documented in Rio Arriba and Santa Fe counties. Grama grass cactus is considered to be declining and the BLM observations indicate that it is limited in isolated pockets. Inventories need to be conducted and may require special management actions, including minimizing ground disturbance, closing areas to motorized vehicles, and retention of ownership, to protect populations into the future.

Trend

The trend of special status species varies by species. In some cases there is not enough data to determine trend. More information would need to be gathered to determine the presence, location, and direction of a species.

The trend of the Rio Grande cutthroat in BLM-managed waters within the planning area over the past 10 years is static, with no populations present (NMDGF and BLM surveys). Likely causes are predation by and hybridization with introduced game fish. Recent improvements in hatchery operations for the NMDGF will allow some stocking of cutthroat into BLM waters. Plans to restore isolated streams such as the Agua Caliente with Rio Grande cutthroat should result in future increases in stable populations.

The flathead chub trend is noted as stable to increasing across the planning area (NMDGF BISON-M [database] 2008d), though trend information is 10-years old. The BLM manages very few miles of perennial streams in the planning area with historic collection of this species (Sublette et al. 1990; NMDGF BISON-M 2008d). NMDGF and BLM surveys over the past 5 years have identified one small population of flathead chub in the Rio Grande near Cerro, New Mexico, but have not identified other areas with this species. More information is needed for trend determination of the flathead chub on BLM managed waters. Since New Mexico has not included this species as a species of greatest conservation need (NMDGF 2006b), the BLM New Mexico should reassess its determination.

For the Southwestern willow flycatcher, riparian management plans and vegetation manipulation across the planning area would provide habitat for the species. Improved habitat should show improving trend for the species, albeit slow. Monitoring would need to continue to determine direction.

The trend for the bald eagle is increasing across northeast New Mexico.

Inventories and more information are needed to determine the trend for the northern goshawk in the planning area. The trend for the ferruginous hawk is stable in the planning area; however, more information is needed. There appears to be an increase in the number of burrowing owls

across the planning area and therefore an upward trend for this species. Reasons for this are unknown and need further study. Loggerhead shrike populations appear to be stable in the planning area.

To date there have been no documented sightings of black-footed ferret on BLM land in the planning area. Therefore, trend data is not available for this species. There has been an upward trend in the Taos Plateau planning unit for Gunnison's prairie dog (montane population).

Currently there are no known populations of Ripley's milkvetch in the planning area. There are three know populations of the Santa Fe cholla in the planning area. Those populations are stable but could decline.

Inventories for grama grass cactus species need to be conducted to determine the status of the species within the planning area. The species is found in New Mexico and Arizona and is thought to be in decline within original range.

The overall trend for special status species is the reduction in the number of species federally listed and therefore improving. This is expected due to the BLM's policy of managing federally listed, candidate and proposed and BLM sensitive species such that their special designations are no longer required. For rangelands, actions that move towards attainment of Rangeland Health Standards would restore, protect, and enhance resources needed to allow native species to flourish in their historical proportions. Sound conservation practices incorporated in land use and activity level plans identify and resolve conflicts with special status species such that the species and their habitats may no longer require the provisions of the ESA and future listings would not be necessary. An ecosystem approach that extends beyond Federal land facilitates coordination and cooperation with others to reduce, eliminate, or mitigate threats to proposed, candidate or sensitive species.

Under the land acquisition program, opportunities are sought to conserve areas containing listed species, designated critical habitat, proposed species, or proposed critical habitat in order to prevent their listing or ensure progress towards delisting. Recommendations from the USFWS for modification of actions help to avoid the likelihood of adverse effects and contribute to achieving recovery and conservation objectives.

3.2.8 *Vegetative Communities*

3.2.8.1 Riparian

Current Conditions

Riparian-wetland areas, though they comprise a small percent of the total land base, are the most productive resources on BLM land. Riparian areas make up less than 2 percent of the land base in New Mexico, but are critical areas in relation to the total amount of land administered by the Taos Field Office. These areas represent important flyways and nesting areas for threatened and endangered species and have been found to contain large populations of bird species in desert areas (USDA 2005).

Riparian areas are a form of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent

surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

Riparian zones are the most critical wildlife habitats in managed rangelands. More wildlife species depend entirely on or spend disproportionately more time in this habitat than any other. The zone is also disproportionately important for grazing, recreation, fisheries production, road location and other similar developments, and water quality and quantity.

Three major watersheds occur in the planning area, the Rio Grande, Pecos, and Canadian. To support assessment of wetland and riparian ecosystems for the state of New Mexico, a database of reference sites was developed (Muldavin et al. 1998), including locations inside the planning area in the Rio Grande watershed. All of these were rated as "good" to "excellent" due to a diverse mosaic of natural vegetation and minimal human disturbance. Reference areas sampled in the Canadian and Pecos watersheds (outside the planning area) were rated at "fair" to "poor" due to varying levels of exotic vegetation, disturbance and/or fragmentation.

Aquatic and riparian habitats are relatively extensive in the planning area compared with other BLM field offices in New Mexico. Rivers and creeks include: the Rio Grande, Chama, Hondo, Quemado, Truchas, Embudo, Medio, Cebolla, Nutrias, Frijoles, and Pueblo, as well as Ojo Caliente, San Antonio and Ocate Creeks, Agua Caliente, Los Pinos, and the Santa Cruz, Santa Fe, Mora, Red and Canadian rivers. Riparian areas also occur along small drainages and around stock ponds and springs, as well as an area adjacent to the Conchas Reservoir.

Because riparian and aquatic zones traverse portions of public, state, and private land, not all habitats have been completely mapped and studied and the total acreage and miles associated with each system is undetermined. Riparian monitoring and management emphasis is based upon the degree to which that portion of the riparian area has existing use and impact, or the potential for increased use and impact.

A great deal of variation occurs between riparian zones and even within (or along) the same drainage. The two most extensive riparian zones occur along the Rio Grande and Rio Chama canyons. These areas are primarily used by wildlife and recreating public.

Dominant native riparian vegetation in the planning area includes Rio Grande and narrowleaf cottonwood, coyote and bluestem willow, thinleaf alder, boxelder, rushes, sedges, horsetail, and bluegrass. Nonnative riparian vegetation includes saltcedar, Russian olive, Siberian elm, perennial pepperweed, Canada thistle, teasel and Russian knapweed, among others. Riparian zone diversity ranges from extremely narrow brush lines along waterways to wide bands that include mixed conifer/oak associations and mature cottonwood gallery forests.

The Riparian and Aquatic Habitat Management Plan presents an adaptive management strategy for maintaining, restoring, improving, protecting and expanding riparian areas in the planning area. Table 3-13 lists mapped riparian areas in the field office including approximately 132 stream miles and 1,572 acres of adjacent riparian vegetation.

Based on the information gathered by the Taos Field Office over the past 15 years, approximately 102 surveyed stream miles are in PFC, 20 miles are functioning at risk, and approximately 13 stream miles were rated at nonfunctional. A riparian area functioning at risk

may possess some or even most of the elements in the definition of PFC, but at least one of its attributes or processes gives it a high probability of degradation with a relatively high flow event. A nonfunctional riparian area clearly lacks the indicators referenced above and results in channel characteristics so far out of balance to be essentially nonfunctioning.

Riparian-wetland improvement projects in the planning area include:

- Stewart Meadows, a joint cooperative effort with the Forest Service to provide waterfowl/habitat improvement;
- Spring riparian planting program, placing approximately 300 native trees and shrubs annually between the Rio Chama and Rio Grande;
- Orilla Verde Recreation Area Saltcedar/Noxious Weed Project, a collaborative effort with private, state, local and government entities to control nonnative vegetation and rehabilitate the riparian zone along 5 miles of the Rio Grande; and
- The Invasive Plant Control Project on the Santa Fe River, to improve flood attenuation, water storage and wildlife habitat.

Table 3-13. Riparian areas within the planning area

Name	Miles	Acres
Agua Caliente	2	6
Arroyo Hondo Horseshoe Bend; Below Highway	0.25	1
Arroyo Hondo Horseshoe Bend; Lower	0.25	1
Canada de Agua	0.2	0.5
Canadian River	1	36
Cow Creek	1	1.8
Rio Embudo Box	3	22
Rio Embudo Lower	0.3	3
Rio Las Trampas	1.2	8
Rio Los Pinos	0.4	5
Rio San Antonio	4	29
Lobo Canyon	0.8	1.4
Tierra Amarilla Creek	0.25	1
Puerto Chiquito	0.5	1
Rio Medio	0.5	4
Ojo Caliente (Demonstration Area)	1.25	325
Ojo Caliente Lower	1	5
Ojo Caliente Upper	0.5	1
Rio Nutrias	2.5	12.5
Canada Ojo Sarco	1.5	9
Carrizo Creek	0.5	1.5
Chico Creek	1	1.5
Cieneguilla	2.2	15
Mora River	1.5	36
Santa Fe River	5	32.7
Santa Cruz Lake	2.5	135
Arroyo Hondo Horseshoe Bend; Upper	0.25	1
Arroyo Petaca Allot. 959	1	4.5
Arroyo Petaca Mallete	1	5
Chamisal Creek	0.3	0.5
Manueles Creek (also known as Ocate Creek)	0.75	7
Piedra Lumbre	0.5	1
Red River	4	41
Rio Cebolla	2.3	8.3
Rio Chama	7.5	136
Rio de Truchas	0.4	4
Rio Grande Buckman	1.5	18
Rio Grande South	12	218
Rio Grande Wild and Scenic	61.5	395
Rio Hondo	0.5	4.8
Rio Quemado	2.3	20
Santa Cruz River Above Dam	1	9
Santa Cruz River Below Dam	0.5	4
Total Riparian	132.4	1572

The BLM continues to acquire new critical riparian areas through land exchanges with the state and private groups or individuals (approximately 7.5 miles acquired since 1988); managing areas

with riparian values through partnerships with Federal, state, and private cooperators. In addition, the field staff conducts ongoing training, public outreach and research efforts to promote awareness of the importance of healthy riparian-wetland areas.

Trend

Up to 90 percent of natural riparian communities in New Mexico have been lost or significantly altered due to human activity (USDA 2005), resulting in loss of habitat for wildlife, increased/decreased streamflows, increased erosion, and altered stream channel configurations. More recently, streams and rivers have been impounded for flood control, irrigation water storage, agriculture, and municipal uses. Floodplains have been constricted and wetland areas drained for development. The resulting hydrologic changes (drop in water tables, diminished flow rates, lack of overbank flooding, and reduced in-channel scouring) have decreased natural regeneration of native vegetation (cottonwood and willows), and allowed for uncontrolled growth of exotic, nonnative vegetation. Invasive species, especially Russian olive, Siberian elm and saltcedar trees are outcompeting native cottonwood and willows.

The presence of water often acts as a "magnet" which attracts people for recreation activities, especially in the desert southwest where water is scarce and its presence creates a unique ecosystem. Riparian habitats support a diversity of plant and animal communities, which also attracts human use.

The Rio Grande and Rio Chama represent large unfragmented riparian corridors within the planning area, with high species diversity and quality wildlife habitat. Thick stands of willow, sedges and rushes are typical in both of these systems. Invasive, nonnative vegetation threatens both reaches, with more diversity of exotics found in the Rio Grande. Currently, the Rio Chama contains sporadic and small patches of saltcedar on BLM land. Restoration potential exists on both rivers to restore native vegetation where invasive species can be controlled. Old growth stands of cottonwood exist along the lower Rio Grande where the floodplain widens and stream gradient decreases, mostly on private land.

The Rio Grande and Rio Chama have been altered by human use, but the recreational and aesthetic attributes of these areas are clearly tied to maintenance of the river and diversity of riparian vegetation and wildlife habitat. Given the overriding management goal of protecting these river systems (USDI 2000; USDA 1990), recreation opportunities are focused on those that require a relatively natural setting that is not significantly more modified than at present. It is, therefore, important to avoid actions that further compromise the naturalness of these river corridors, including developments that might decrease primitiveness or change the character of the area through dramatic increases in use.

Improper livestock grazing in and around riparian areas may harm the stream and the rich diversity of wildlife that thrive in these environments. Overgrazing reduces water quality; changes stream flow, compacts and erodes soil, and affects native plants and animals that live alongside and in streams. To protect critical areas, livestock access to some riparian zones are limited (see Table 3-14) and alternate water sources are provided (USDI 2000a; USDI 2000b).

Table 3-14. Protected riparian areas (USDI 2000)

Riparian Area	Current Management Practices and Activities	Acres/Miles
Lobo Canyon	Fenced in 1998, domestic livestock grazing unavailable	1.4/0.8
Ojo Caliente Demonstration Area	Fenced in 1987, riparian area demonstration project, domestic livestock grazing unavailable	325/1.25
Rio Cebolla	Fenced on east side of riparian area, domestic livestock grazing unavailable	8.3/2.3
Rio de los Pinos	Domestic livestock grazing unavailable	77.3/5.8
Rio Nutrias	Grazing unavailable	12.5/2.5
Rio San Antonio	Water gaps installed in 1995, domestic livestock grazing unavailable	120.1/13.2
Rio de Truchas	Dormant season grazing only	1,033/7.5
Santa Cruz Lake	Grazing unavailable	135/2.5
Santa Cruz Lake Above	Grazing unavailable	9/1
Santa Fe River	Fencing to exclude trespass domestic livestock grazing was completed in 2000. Domestic livestock grazing would be excluded from the riparian area. Collect data until recovery occurs. Thereafter, dormant season grazing may occur with limitations on levels of use.	32.7/6
Total		1,754.3/42.85

The condition of the entire watershed, including uplands and tributary watershed systems, must be considered when determining whether a riparian-wetland area is functioning properly. The entire watershed can influence the quality, abundance, and stability of downstream resources by controlling production of sediment and nutrients, influencing streamflow, and modifying the distribution of chemicals through the riparian-wetland area. In a healthy condition, the channel networks adjust in form and slope to handle increases in stormflow/snowmelt runoff with minimal disturbance of channel and associated riparian-wetland plant communities.

According to proper functioning condition assessments conducted by the Taos Field Office over the years, twelve riparian areas within the planning area have comparative trend data, with five showing an upward trend (Aqua Caliente, Canadian River, Rio de Truchas, Santa Cruz Lake, and Santa Cruz Lake Below Dam), three showing a downward trend (Lobo Canyon, Ojo Caliente Demonstration Area, and Tierra Amarilla Creek) and four showing no change (Manueles Creek, Ojo Caliente Lower, Ojo Caliente Upper, and Rio Medio). Therefore, it is likely that most areas are stable or improving. However, without further data collection it is difficult to predict what effects the watershed might be contributing to specific stream health situations.

Climatic, vegetative and hydrologic processes provide a unique setting for riparian ecosystem interactions. Most streamflow at lower elevations is intermittent, and riparian vegetation frequently occupies channels that are dry at least part of the year. As a result, water table fluctuations in relation to streamflow and their subsequent effects on the establishment and maintenance of healthy riparian vegetation are key processes.

Intermittent streamflow, coupled with discontinuous storage and movement of sediment through channel systems, and varied responses to fire and other disturbances (grazing, recreation, urban development), makes it extremely complex and difficult to interpret and assess responses of riparian systems to management.

Ongoing invasive weed projects would develop and protect riparian ecosystems by controlling and removing invasive, nonnative vegetation; restoring native plant cover; and improving wildlife habitat for a variety of terrestrial and aquatic species. BLM biologists and range conservationists monitor riparian areas to determine if land use plans and subsequent management actions are meeting the resource objectives. Fishery biologists conduct long-term studies of fish populations in various watersheds and hydrologists monitor water quality. Field staff use a variety of techniques, including photo points, vegetation transects, aerial photography, and breeding bird surveys to determine the health of riparian systems. This information advises managers on the effectiveness of land use and activity plans and recommends where changes in management strategies are needed.

By using the adaptive management approach and specific field activity guidance, the Riparian and Aquatic Habitat Management Plan provides a road map for achieving specific desired future conditions for all riparian habitats that occur within the Taos Field Office. Management prescriptions for riparian habitat would provide for the enhancement and protection of key riparian zones while promoting habitat diversity. Long-term monitoring would facilitate understanding effects of different land uses on the landscape, people, and wildlife species.

3.2.8.2 Terrestrial

Vegetation types throughout the field office are delineated in the Southwest Regional Gap Analysis Project (SWReGAP). Initiated in 1999 as a multi-institutional cooperative effort to map and assess biodiversity for a five-state region (Arizona, Colorado, Nevada, New Mexico, and Utah), the SWReGAP project developed a seamless landcover map for the region. Landcover classes are drawn from NatureServe's Ecological System concept and are discussed later in this section.

Current Conditions

Indicators of condition for terrestrial vegetation communities within the field office operate in two ways when assisting in the description of a community, (1) they describe trends in vegetation community composition relative to historic, or reference, conditions and (2) they serve as an index of vegetation community health at a given point in time. Primary indicators for terrestrial vegetation communities include:

- *Seral Stage*: description of where in the ecosystem successional stages a given vegetation community may be (early succession versus late succession) and is determined by the frequency and intensity of natural and human-caused disturbance.
- *Condition Class*: described as the degree of departure from historic conditions (see Wildland Fire Ecology section)
- *Standards for Public Land Health*: expressed as the level of physical and biological condition or degree of function required for healthy and sustainable lands, and defined minimum resource conditions that must be achieved (see Livestock Grazing section).

Current conditions of terrestrial vegetation communities on BLM land in the planning area can be described by, (1) existing vegetation communities; (2) the ecosystem health within each community; and (3) the current departure from "historic" conditions, which are normally viewed as the healthiest condition for that vegetation type operating within the parameters of a natural disturbance regime caused by variations in weather, insects/disease, grazing, and fire.

Existing Vegetation Communities

Southwest Re-Gap data for all BLM land within the Taos Field Office has identified 56 different land cover types. Table 3-15 shows these different types and the acreage for each.

Table 3-15. SWReGAP vegetation categories

Code	Description	Surface Acres	Sub-surface Acres
S038	Southern Rocky Mountain Piñon-Juniper Woodland	169,316	169,876
S079	Inter-Mountain Basins Semi-Desert Shrub Steppe	118,870	118,804
S054	Inter-Mountain Basins Big Sagebrush Shrubland	109,861	109,849
S074	Southern Rocky Mountain Juniper Woodland and Savanna	79,339	79,375
S090	Inter-Mountain Basins Semi-Desert Grassland	44,747	44,701
S036	Rocky Mountain Ponderosa Pine Woodland	14,343	14,147
S006	Rocky Mountain Cliff and Canyon	13,018	12,730
S071	Inter-Mountain Basins Montane Sagebrush Steppe	9,265	9,101
S088	Western Great Plains Shortgrass Prairie	8,937	8,925
S085	Southern Rocky Mountain Montane-Subalpine Grassland	5,856	5,846
S095	Western Great Plains Riparian Woodland and Shrubland	5,639	5,513
S046	Rocky Mountain Gambel Oak-Mixed Montane Shrubland	3,808	3,797
S086	Western Great Plains Foothill and Piedmont Grassland	2,516	2,415
S034	Rocky Mountain Montane Mesic Mixed Conifer Forest and Woodland	1,861	1,853
S047	Rocky Mountain Lower Montane-Foothill Shrubland	1,696	1,632
N80	Agriculture	1,267	1,257
S093	Rocky Mountain Lower Montane Riparian Woodland and Shrubland	1,240	1,182
S010	Colorado Plateau Mixed Bedrock Canyon and Tableland	1,191	1,169
S032	Rocky Mountain Montane Dry-Mesic Mixed Conifer Forest and Woodland	1,149	1,133
S065	Inter-Mountain Basins Mixed Salt Desert Scrub	922	867
S008	Western Great Plains Cliff and Outcrop	748	720
N11	Open Water	745	744
S096	Inter-Mountain Basins Greasewood Flat	711	678
S012	Inter-Mountain Basins Active and Stabilized Dune	510	503
S011	Inter-Mountain Basins Shale Badland	448	432
S138	Western Great Plains Mesquite Woodland and Shrubland	383	348
S023	Rocky Mountain Aspen Forest and Woodland	371	368
D06	Invasive Perennial Grassland	322	315
S091	Rocky Mountain Subalpine-Montane Riparian Shrubland	166	160
S039	Colorado Plateau Piñon-Juniper Woodland	131	127
D09	Invasive Annual and Biennial Forbland	120	114
S062	Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	87	85
N21	Developed, Open Space-Low Intensity	78	79
D02	Recently Burned	76	76
S102	Rocky Mountain Alpine-Montane Wet Meadow	62	53
S112	Madrean Piñon-Juniper Woodland	60	53
S035	Madrean Pine-Oak Forest and Woodland	59	56
S100	North American Arid West Emergent Marsh	58	57

Code	Description	Surface Acres	Sub-surface Acres
N22	Developed, Medium-High Intensity	46	43
S056	Colorado Plateau Mixed Low Sagebrush Shrubland	27	23
S042	Inter-Mountain West Aspen-Mixed Conifer Forest and Woodland Complex	26	27
S025	Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	20	20
S028	Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	17	17
D10	Recently Logged Areas	16	15
S020	North American Warm Desert Wash	16	16
S115	Madrean Juniper Savanna	16	15
S075	Inter-Mountain Basins Juniper Savanna	11	12
S092	Rocky Mountain Subalpine-Montane Riparian Woodland	10	8
S030	Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	7	8
S113	Chihuahuan Sandy Plains Semi-Desert Grassland	5	4
S077	Apacherian-Chihuahuan Piedmont Semi-Desert Grassland and Steppe	3	3
S080	Chihuahuan Gypsophilous Grassland and Steppe	3	3
S083	Rocky Mountain Subalpine Mesic Meadow	2	1
S016	North American Warm Desert Bedrock Cliff and Outcrop	2	2
S048	Western Great Plains Sandhill Shrubland	2	2
S018	North American Warm Desert Active and Stabilized Dune	0	0

Although there are 56 categories of vegetation identified for the field office, approximately 88 percent of the terrestrial vegetation landcover is comprised of only five categories: Southern Rocky Mountain Piñon-Juniper Woodland (31 percent), Inter-Mountain Basins Semi-Desert Shrub Steppe (21 percent), Inter-Mountain Basins Big Sagebrush Shrubland (20 percent), Southern Rocky Mountain Juniper Woodland and Savanna (14 percent), and Inter-Mountain Basins Semi-Desert Grassland (8 percent).

Ecosystem Health within Each Community

Indices of ecosystem health for vegetation alone have not been identified for use by the BLM within the field office; however, a variety of resource disciplines use indices that are specific to a resource in the description of vegetation condition. Table 3-16 shows the multi-resource indices that relate to current terrestrial vegetation condition. These current conditions are found in each specific resource section of this chapter.

Table 3-16. Current condition indices for multi-resource disciplines

Resource	Indices of Vegetation Condition
Range	▪ Proper functioning condition ▪ Measures of forage production
Wildlife	▪ Wildlife surveys ▪ Habitat conditions (vertical and horizontal structure, cover, forage, etc.)
Fire	▪ Fire regime condition class
Forest	▪ Stand density index ▪ Species composition

Current Departure from Historic Condition

Prior to effective fire suppression in the late 1800s, foothill grasslands were maintained free of invading trees and shrubs by periodic fires. With successful fire suppression, many grasslands are becoming woodlands or shrublands, and many shrublands are being converted to woodlands.

Fire Management planning has identified current vegetation conditions using the fire regime condition class concept, which describes vegetation communities by their degree of departure from "historic" conditions (see section 3.2.12, Wildland Fire).

Effective management of terrestrial vegetation requires an interdisciplinary assessment of conditions and objectives on a watershed or landscape scale, including terrestrial vegetation conditions and trends on adjacent lands not managed by the BLM.

Trend

Trends in a specific vegetation type indicate either a shift from one vegetation type to another on a given site, or a change in the health or condition of a given vegetation type. Trends for each of the eight dominant terrestrial vegetation types within the Taos Field Office vary depending on location and associated factors. These factors include resource uses of the site, special area designations, and special management priorities such as wildland urban interface vegetation management or special status species habitat management.

Table 3-17 summarizes trends found in each of the five dominant vegetation types in the planning area, and which resource or resource use sections of this chapter address these trends in further detail. The table is a summary of trends and is not intended to provide a complete record of trends for terrestrial vegetation. For example, some grazing allotments within the North Unit, which include a variety of vegetation types, have shown positive trends towards PFC based on qualitative analysis.

Table 3-17. Trends of dominant terrestrial vegetation types

Vegetation Type	Summary of Observed Trends	Resource or Resource Use
Southern Rocky Mountain Piñon-Juniper Woodland	Stand density index increasing to exceed 35% maximum.	Forest and woodland products
Inter-Mountain Basins Semi-Desert Shrub Steppe	Condition class approaching 2 or 3.	Wildland fire
Inter-Mountain Basins Big Sagebrush Shrubland	Condition class approaching 2 or 3, resulting in decreased forage production.	Wildland fire; livestock grazing; wildlife management
Southern Rocky Mountain Juniper Woodland and Savanna	Condition class approaching 2 or 3, resulting in higher tree densities, reduced fire return intervals, and increased fire intensities.	Wildland fire
Inter-Mountain Basins Semi-Desert Grassland	Condition class approaching 2 or 3. Lack of disturbance from fire resulting in a shift towards a sagebrush shrubland.	Wildland fire; livestock grazing; wildlife management
Inter-Mountain Basins Semi-Desert Grassland	Condition class approaching 2 or 3. Lack of disturbance from fire resulting in a shift towards a sagebrush shrubland.	Wildland fire; livestock grazing; wildlife management

3.2.8.3 Noxious Weeds/Invasive Species

Weeds are plants that interfere with management objectives for a given area at a given point in time. Noxious weeds are designated by Federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease or nonnative, new, or not common to the U.S.

Invasive plants are plants that are not part of (if exotic), or are a minor component of (if native) the original plant community or communities that have the potential to become a dominant or co-dominant species on the site if their future establishment and growth are not actively controlled by management interventions, or are classified as exotic or noxious plants under state or Federal law.

Species that become dominant for only one to several years (e.g. short term response to drought or wildfire) are not invasive plants. Examples of invasive plants within the planning area include pinon, juniper, mesquite, big sage brush, and cholla cactus. These species are or were minor components of the uplands. Either through man caused effects such as overgrazing and fire suppression or natural climate change, these species are encroaching on the uplands. Saltcedar, Russian olive, and tree of heaven are examples of nonnative species that have invaded riparian areas. Where there is sufficient moisture, Siberian elm has invaded both uplands and riparian areas.

Current Conditions

Noxious weeds are designated by the state and county entities. Thirty-eight species are designated in New Mexico. The species are divided into class A, B, and C categories. Class A weeds are species that currently are not present in New Mexico or have limited distribution; preventing new infestations of these species and eradicating existing infestations is the highest priority. Class B weeds are species that are limited to portions of the state. In areas that are not infested, these species should be treated as class A weeds. In areas with severe infestations, management plans should be designated to contain the infestations and stop further spread. Class

C weeds are species that are wide-spread in the state. Management decisions for these species should be determined at the local level based on feasibility of control and level of infestation.

Of the 38 species listed, 31 are known to occur within the Taos Field Office area. Table 3-18 below identifies the state-listed weeds within the planning area.

Table 3-18. State listed noxious weeds in the planning area

Scientific Name (Symbol)	Noxious/Common Name	State Weed Status	Native/ Introduced
Acroptilon repens (ACRE3)	Russian knapweed	B	I
Aegilops cylindrica (AECY)	Jointed goatgrass	C	I
Ailanthus altissima (AIAL)	Tree of heaven	A	I
Bromus tectorum (BRTE)	Cheatgrass	C	I
Cardaria draba (CADR)	Hoary cress	A	I
Carduus nutans (CANU)	Musk thistle	B	I
Centaurea calcitrapa (CECA2)	Purple starthistle	A	I
Centaurea diffusa (CEDI3)	Diffuse knapweed	A	I
Centaurea maculosa (CEMA4)	Spotted knapweed	A	I
Centaurea solstitialis (CESO3)	Yellow starthistle	A	I
Cirsium arvense (CIAR4)	Canada thistle	A	I
Cirsium vulgare (CIVU)	Bull thistle	B	I
Conium maculatum (COMA2)	Poison hemlock	A	I
Convolvulus arvensis (COAR4)	Field bindweed	C	I
Dipsacus fullonum (DIFU2)	Teasel	B	I
Elaeagnus angustifolia (ELAN)	Russian olive	C	I
Elytrigia repens (ELRE4)	Quackgrass	A	I
Euphorbia esula (EUES)	Leafy spurge	A	I
Halogeton glomeratus (HAGL)	Halogeton	B	I
Hydrilla verticillata (HYVE)	Hydrilla	A	I
Hyoscyamus niger (HYNI)	Black henbane	A	I
Isatis tinctoria (ISTI)	Dyer's woad	A	I
Lepidium latifolium (LELA2)	Perennial pepperweed	A	I
Leucanthemum vulgare (LEVU)	Oxeye daisy	A	I
Linaria genistifolia ssp. *daimatica* (LIGED)	Dalmatian toadflax	A	I
Linaria vulgaris (LIVU2)	Yellow toadflax	A	I
Lythrum salicaria (LYSA2)	Purple loostrife	A	I
Myriophyllum aquaticum (MYAQ)	Parrotfeather	A	I
Myiropphyllum spicatum (MYSP)	Eurasian watermilfoil	A	I
Onopordum acanthium (ONAC)	Scotch thistle	A	I
Tamarix (TAMAR2)	Saltcedar	C	I
Ulmus pumila (ULPU)	Siberian elm	C	I

Disturbed areas provide opportunities for weed establishment. Fire, overgrazing, areas of human impact and areas periodically inundated by water are all events that provide opportunities for weeds. The indicators for the weeds program are divided into two areas of analysis:

- *Corridors/Vectors*: those areas such as roads, rivers, streams, acequias (irrigation ditches), livestock trails, recreation areas, hiking trails and municipalities that would provide weeds a method/avenue to spread and propagate and are usually human caused.
- *Uplands/Terrestrial*: those areas on a broad landscape scale where weed propagation results from natural causes such as wildlife and wind.

  Within the planning area, noxious weeds are more of a concern along the corridors/vectors while invasives are more of a concern in the uplands/terrestrial.

  Healthy watersheds are less inclined to provide habitat for weeds. As of 2007, approximately 90 percent of the active grazing allotments in the field office have completed rangeland health assessments. Based on these assessments, 15 percent of the allotments are more susceptible to weed infestation because they are not meeting standards or making significant progress toward meeting the standards (see section 3.3.4, Livestock Grazing).

  There have been no comprehensive weed surveys conducted on the land managed by the Taos Field Office. Individual locations such as the Orilla Verde Recreation Area, the Santa Fe River area, and the Santa Cruz Lake area are known for concentrations of multiple weed species.

  The three major urban areas in the Taos Field Office of Santa Fe, Espanola, and Taos are major contributors to the spread of weeds. This is due to the travel corridors going in and out of the areas and the recreational use and trash dumping associated with them. The continued growth of these areas and the exurban and rural residential development provide opportunities for weeds due to the corridors and ground disturbance required for construction activities. Although these activities occur primarily on private land, weeds do not recognize political and private boundaries. The dumping of trash on public land from individuals cleaning yards and fields provides avenues for expansion of weeds.

Trend

The increase in size of the urban and rural residential areas and the increased use of public lands will likely result in an expansion of weed populations. A good education program and participation in coordinated weed management areas (CWMAs) by all of the stakeholders would greatly assist in the control of weeds. All ground disturbing activities, acequias that cross public land, riparian areas, developed recreation sites and areas adjacent to communities are key areas to focus weed prevention efforts.

3.2.9 *Visual Resources*

A diverse variety of landscapes exist in the planning area. The Taos Plateau is the second largest volcanic field in the Rio Grande Rift; landforms include isolated peaks, cinder cones, shield volcanoes, and sheet flows. The sheet flows are well-exposed in the Rio Grande gorge. The most prominent shield volcano is Ute Mountain; rising to 10,093 feet. Sweeping southwest, the steep Rio Chama canyon offers striking color contrast with fading orange cliff walls stained black patina and vivid green riparian vegetation. Downstream near Ojo Caliente the converging floodplains of the Ojo Caliente, Rio Chama, and Ojo Oso are broad and flat defined by a meandering band of cottonwoods, willow, New Mexico olive and saltcedar. The texture of foothills, weathered cliffs, and arroyos are fine, sandy alluvium deposits in muted tans, buff, pale orange, and pink. The slopes of Mesa Prieta (Black Mesa) contain a coarseness of large, dark grey and black volcanic boulders.

Continuing southeast is the Chimayo Valley which offers complexity and harmony from green valley bottoms, to light red cliffs, to blue mesas and mountains. Panoramic views of the valley from woodland foothills near Cerro Piñon are expansive and extend to the Sangre de Cristos on the east and Black Mesa on the west. It is a rural valley of many repeating, small, meandering cliffs and bluffs with light tan, pink and rust exposed alluvium slopes.

Moving south again near Santa Fe, Diablo Canyon with its dramatic vertical tan, rust, and dark brown patina cliffs leads to the Rio Grande. From the flat top of La Bajada Mesa, are views into the Galisteo Basin. The Cerrillos Hills appear as a repeating series of steep, oblong and symmetrical hills rising sharply and giving Santa Fe a prominent and well known landmark on the horizon.

The BLM evaluates and manages scenic resources through the Visual Resource Management Program. Visual resource indicators as defined by the Visual Resource Inventory Handbook H-8410-1 are inventoried as a baseline for monitoring. Landscapes are divided into three distance zones: foreground/middleground, background, or seldom seen. Views of these zones are measured in miles from travel routes or observation points. Scenic quality is a measure of the visual appeal of a piece of land while viewer sensitivity is a measure of public concern for scenic quality. These indicators are combined to determine visual resource inventory (VRI) classes.

Landscapes in the planning area were rated and described in detail as part of the visual resource inventory conducted in 2006. A comprehensive overview of the inventory documented in the Scenic Quality and Public Interest Summary 2006 is available at the Taos Field Office.

Map 3-21 illustrates the results of the 2006 inventory, which is essentially the same as the visual resource management (VRM) classes presented as the no action alternative, illustrated on Map 2-1 and discussed in section 2.5.2.8. The inventory identified 49,190 acres as VRI class I, 167,520 acres as VRI class II, 272,990 acres as VRI class III, and 105,400 acres as VRI class IV.

While inventory classes portray the relative value of scenic resources, management classes are determined through the land use planning process and portray visual resource management (VRM) objectives. A range of alternatives for how visual resources may be managed is presented in Chapter 2. The following are the objectives for VRM classes:

Class I: The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

Class II: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class IV: The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Trend

There is no monitoring data available of visual resources in the planning area over the last 20 years. However, general assessments can be made from the continuity of BLM staff resource specialists. We know that few changes in landscape character or users have occurred in more dispersed and less developed areas such as the Chama and Palacio areas. Although Taos County remains rural with a small population, changes may be viewed as dramatic over the last 20 years. Where there was no development for miles in the past, residential development is now occurring right along public land boundaries or visible from public land on the Taos Plateau. This is already creating a need for improvement of roads and development of sand and gravel.

Buckman Road in Santa Fe is the urban interface with the BLM. At the southern boundary of public land are the landfill, a golf course, and an animal shelter. The city has leased part of it for recreation facilities. Homes are now visible to the east. It is a utility area for wells, water pipelines, powerline upgrades, an electric substation, booster stations, and a water treatment plant. In addition, utilities are visible near many travel corridors across the planning area.

Looking to the future, citizens of Santa Fe County have demonstrated a value for scenic and other aesthetic values through planning efforts. In 1995 Santa Fe County Land Use and Planning Department completed the Santa Fe County Visual Resources Inventory and Analysis. The county conducted an inventory and analysis of visual resources to determine which places and landscape features the community thinks are important due to widespread concern for the loss of scenic quality in the county. Residents of the county believe that conservation of important visual resources and sensitive areas is critical to the maintenance of quality of life. Recommendations were put forward to set up a visual resources management system that would identify zoning, create map overlays, and revise development regulations.

An extensive list of BLM areas were identified as having some type of scenic value or identified for conservation. Among the areas referenced were the Buckman area, including Diablo Canyon, Calabasas Arroyo, Alamo Creek, Camel Tracks, Cieneguilla, and the Santa Fe River Corridor areas around the Chimayo Valley (such as Cundiyo, Sombrillo, Arroyo Seco, La Puebla, El Potrero, Rio Medio, and Santa Cruz Lake); areas around the Galisteo Basin, including San Marcos Pueblo and Burnt Corn; and the San Pedros and Cerrillos Hills.

Importance of historical context and unique character of community, strategies for protection of open space and trails, identification of local and rural character, provision of buffers and transition zones, protection of historic sites and landmarks are all considerations in The Santa Fe County Ordinance No. 2002-3 of the Land Development Code.

The Rio Arriba County Comprehensive Plan of 2007 provides for the protection of historic irrigated agricultural land, the acequia system, and traditional culture. Recent land use regulations include the Timber Harvest Ordinance of 1998, the Sand and Gravel Ordinance of 1999, and the Agricultural Protection and Enhancement Ordinance of 2002, which encourage cluster development to mitigate sprawl and development in agricultural areas. There is concern

over the impact of cell towers, billboards, and rural lighting (CBD). They also have goals to invest in alternative energy sources such as solar and wind energy.

Although residents of the county value scenery and alternative energy development, they anticipate the need to develop resources, utilities, and infrastructure which can have negative effects on scenic quality and require extensive areas of land. Mutual domestic water associations are unable to keep up with water demand, so they plan to invest in water, wastewater, and utility improvements since "domestic and commercial needs are projected to double over the next 40 years" (CBD). With 63 percent of land within the county in Federal ownership, it is probable that these communities would request the BLM to supply additional land ownership, easements or rights-of-way.

Several plans aim to designate land to be used for purposes that leave it natural and restrict it from industrial, commercial, or residential development. In its Vision 20/20 Master Plan, the town of Taos will comprehensively protect wetlands, wildlife habitat, scenic views, and ecologically important areas, and preserve and create walking paths, bike trails, linkages, and neighborhood parks that are accessible and include opportunities for both active and passive recreation (1999).

Taos County's Green Infrastructure planning is an effort underway which could vastly improve recreation opportunities. While the plan would include historic and agricultural components as well, the recreation component would entail a network of parks, and trails for recreation and alternative transportation (USDI 2004). The Green Infrastructure Plan is driven by citizens through the Taos Trails Alliance with leadership provided by the town of Taos and the National Park Service Rivers, Trails and Conservation Assistance Program.

Approximately 2,500 acres of land, called the Taos Valley Overlook, was acquired through local stewardship efforts and incorporated into the Orilla Verde Recreation Area. It was purchased for public use and to protect the views of the overlook and the Rio Grande Gorge from development. It has traditionally been used for a variety of recreation activities.

Visitors to public land for recreation also value scenery and the land based setting where they can engage in a variety of activities. The highest use in Wild Rivers Recreation Area was sightseeing at 65 percent in 2003 (USDI 2003). In 2004, viewing natural scenery was among the top five activities nationally (USDA 2004).

3.2.10 *Water Resources*

The BLM has no specific regulatory authority with regard to use of water or enforcement of water quality laws. Water use is regulated through the New Mexico Office of the State Engineer. Water quality is regulated by the Environmental Protection Agency Region 6 and administered by the NMED. The BLM's role in water management is to acquire water use permission from the state engineer sufficient to fulfill its management purposes and to manage activities in compliance with the Clean Water Act, Wild and Scenic Rivers Act, and other applicable laws and regulations.

Current Conditions

Within the planning area, the BLM manages land on three major river systems: the Rio Grande, the Pecos River and the Canadian River and tributaries (Table 3-19). The mountains in the planning area provide a large amount of the surface water used in the state as well as ground water recharge for northern New Mexico.

The BLM also manages extensive ephemeral water resources in the area, including arroyos and playas. Ephemeral water resources are those that are inundated periodically in response to precipitation events, but which do not maintain surface water throughout the year. Playas (dry lakes) are most common in the Taos Plateau planning unit and are not connected to surface channels (i.e., there is no evidence of inflow or outflow). Inundation appears to occur primarily from snowmelt runoff or summer precipitation events in the immediate vicinity. Connection to subsurface flow has not been assessed.

Arroyos (dry washes) are the most predominant water features that the BLM manages in the planning area. In the planning area, arroyos are ephemeral water channels that are directly connected to surface waters. Flow in arroyos may persist for weeks during snowmelt and can create flood hazards during heavy rain storms. Since they are connected to surface waters, management in arroyo watersheds can affect water quality in perennial streams.

Indicators associated with water use include acre-feet per year for groundwater wells and surface catchment and cubic feet per second for surface water resources. The BLM is responsible for monitoring water use at three recreation facilities. Surface water data for streams is collected continuously by the United States Geologic Survey at numerous gauging stations. The BLM occasionally collects surface flow data for specific needs—projects, water rights adjudications—while collecting other survey data such as water quality or fish habitat. Range waters such as wells and tanks often have production or capacity data available in lease files.

Indicators for water quality depend on the use. BLM water uses include: noncommunity domestic, livestock domestic, high quality cold water fishery, marginal cold water fishery, and secondary human contact via recreation.

Water quantity is quite variable within the planning area. Although the planning area provides a large percentage of water for the state of New Mexico, it is highly dependent on precipitation, which varies from year to year. Reductions in precipitation can affect all water sources, including wells and springs, which are often recharged by surface sources. Recent drought periods from 2001 to 2003 resulted in an overall decrease in water levels in many wells in Taos County, reduced annual flow, peak flow and base flow in perennial streams, and resulted in dry range tanks. Map 3-10 illustrates the perennial streams, listed in Table 3-19, within the planning area.

Table 3-19. Perennial rivers in the planning area

River Name	Miles on BLM
Cañones Creek	1.3
Canadian River	8.1
Canjilon Creek	1.3
Rio Cebolla	3.0
Rio Chama	12.0
Chico Creek	4.5
Cienega Creek	1.3
Cimarron River	0.3
Corazon Creek	5.8
Cow Creek	2.2
Embudo Creek	12.5
Rio Fernando de Taos	1.4
Rio Frijoles	1.5
Rio Grande	77.5
Rio Hondo	1.9
Rio Medio	2.7
Mora River	30.9
Navajo River	4.9
Rio Nutrias	7.3
Canada de Ojo Sarco	5.8
Rio del Oso	1.1
Pecos River	13.0
Rio Quemado	5.3
Red River	5.4
Santa Cruz River	2.1
Santa Fe River	6.6
Rio de las Trampas	3.4
Rio Tusas	6.8
Total Mileage	229.9

The BLM is required to meet water quality standards under the Clean Water Act. The NMED is responsible for monitoring perennial surface waters for compliance with the Clean Water Act, and has identified surface waters and water quality criteria to define limits and collect water quality data. For any stream reach or lake that does not meet standards, lists are updated for specific water bodies and their associated impairments (see Table 3-13). The NMED then develops a total maximum daily load report that includes the reasons for impairment and potential mitigation to reduce the load.

The BLM works under a memorandum of understanding with the state to meet water quality standards on public land and follow permitting requirements. The BLM also maintains its own hydrologic data to provide a higher resolution of analysis for management decisions. In general, the BLM managed perennial waters are impaired by activities outside of the BLM's management authority. The BLM resource uses in the planning area that have been identified in the past as contributing to local impairment are grazing, OHV use, and road conditions.

The BLM is also required to monitor water quality of well water used for domestic purposes in recreational areas. The primary contaminants identified are bacteria, including both *E. coli* and fecal coliform. Positive results for bacteria indicate either ground-surface water interactions or contamination within the water system. The BLM follows conventional treatment of water for bacteria using chlorination systems. Results of bacterial samples and residual chlorine may be obtained at the Taos Field Office, or the NMED Drinking Water Bureau. Other groundwater sources used for stock watering purposes are not monitored.

Trend

Trends for water quantity indicate that availability of water from year-to-year is highly dependent on precipitation. Precipitation trends follow cyclical patterns on the scale of decades and are related to global influences such as Pacific Ocean conditions and the jet stream. For most of the 1990s, the BLM was able to meet its management needs with available water in the planning area. During the late 1990s and through 2004, average to below average precipitation combined with above average temperatures impacted the range condition and recreation opportunities.

No consistent data is available to determine water quality trend except for the Red River and campground wells. The Red River has been identified as impaired for aluminum by the NMED, but mitigation actions imposed on some upstream sources may reduce loading. The NMED schedules each river system for survey on a 7-year rotating basis, but has only completed one round throughout the planning area. Trends can be assessed following the next data collection round for rivers in the planning area.

Primary drivers of water quality include land use, sewage effluent, and floodplain/watershed condition. Land use regulations enforced in New Mexico should reduce water quality impairments from construction activities, but are generally not applicable to agriculture, a major activity in the area. Many stream reaches are affected by sewage effluent, either directly from municipal facilities or indirectly from improperly functioning septic systems. Management of municipal septage is controlled by the NMED through NPDES permits. Septic systems are also permitted and must meet certain requirements for approval; however, older systems installed before current guidance are often not easily regulated. NMED water quality monitoring has been valuable in identifying areas where septic systems are contributing to water quality impairments.

Current management requires that the BLM meet all Federal water quality regulations administered by the NMED. The NMED also has authority over other landowners within the state except for tribal lands, which are administered either by the EPA or by tribal environmental offices. Given NMED's current authority and monitoring program, the forecast would be for no net decline in water quality within the planning area and a decrease in impaired reaches throughout.

A listing of impaired streams identified by the NMED is in Table 3-20.

Table 3-20. New Mexico Environment Department list of impaired streams within the planning area

Reach ID and Name	Designated Use	Impairment Category*	Miles of BLM
NM-2116.A_030 - Canjilon Creek (Perennial reaches Abiquiu Res. to headwaters)	high quality coldwater aquatic life (fish culture)	5/5A	0.42
NM-2116.A_010 - Cañones Creek (Abiquiu Reservoir to headwaters)	high quality coldwater aquatic life (fish culture)	5/5A	0.46
NM-2214.A_090 - Cow Creek (Pecos River to Bull Creek)	high quality coldwater aquatic life (fish culture)	4A	0.24
NM-2111_40 - Embudo Creek (Canada de Ojo Sarco to Picuris Pueblo boundary)	marginal coldwater aquatic life	5/5C	3.05
NM-2111_41 - Embudo Creek (Rio Grande to Canada de Ojo Sarco)	marginal coldwater aquatic life	4A	2.06
NM-2118.A_10 - Galisteo Creek (intermittent reaches above Santo Domingo boundary)	high quality coldwater aquatic life	5/5B	0.36
NM-2213_00 - Pecos River (Tecolote Creek to Canon de Manzanita)	marginal coldwater aquatic life	5/5A	1.08
NM-2119_10 - Red River (Rio Grande to Placer Creek)	coldwater aquatic life	4A	3.49
NM-2120.A_900 - Rio de los Pinos (New Mexico reaches)	high quality coldwater aquatic life (fish culture)	4A	0.32
NM-2111_00 - Rio Grande (Cochiti Reservoir to San Ildefonso boundary)	marginal coldwater aquatic life	5/5A	1.05
NM-2111_10 - Rio Grande (non-pueblo Santa Clara to Embudo Creek)	marginal coldwater aquatic life	5/5C	2.74
NM-2119_05 - Rio Grande (Red River to Colorado border)	coldwater aquatic life	5/5C	27.31
NM-2120.A_600 - Rio Hondo (Rio Grande to USFS boundary)	high quality coldwater aquatic life (fish culture)	4A	0.44
NM-2116.A_060 - Rio Nutrias (Rio Chama to headwaters)	high quality coldwater aquatic life (fish culture)	5/5A	1.19
NM-2119_20 - Rio Pueblo de Taos (Rio Grande to Arroyo del Alamo)	coldwater aquatic life	4A	0.25
NM-2118.A_52 - Rio Quemado (Santa Cruz River to Rio Arriba County boundary)	high quality coldwater aquatic life	5/5C	2.34
NM-2111_50 - Santa Cruz River (Santa Clara Pueblo boundary to Santa Cruz Dam)	marginal coldwater aquatic life	5/5C	0.2
NM-9000.A_061 - Santa Fe River (Santa Fe WWTP to Nichols Reservoir)	aquatic life	5/5C	0.39
NM-2110_00 - Santa Fe River (Cochiti Reservoir to Santa Fe WWTP)	marginal coldwater aquatic life	5/4A	6.05

*Impairment categories are defined as follows:
1. Attaining the water quality standards for all designated and existing uses.
2. Attaining some of the designated or existing uses based on numeric and narrative parameters that were tested, and no reliable monitored data is available to determine if the remaining uses are attained or threatened.
3. No reliable monitored data and/or information to determine if any designated or existing use is attained.
4. Impaired for one or more designated uses, but does not require development of a TMDL because:
   a. TMDL has been completed
   b. Other pollution control requirements are reasonably expected to attain the water quality standard in the near future
   c. Impairment is not caused by a pollutant
5. Impaired for one or more designated or existing uses:
   a. A TMDL is underway or scheduled
   b. A review of the water quality standard would be conducted
   c. Additional data would be collected before a TMDL is scheduled

3.2.11 *Lands with Wilderness Characteristics*

The BLM is using the land use planning process to determine how to manage lands with wilderness characteristics as part of the BLM's multiple-use mandate. FLPMA requires the BLM to prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values, which includes wilderness characteristics. Consistent with FLPMA

and other applicable authorities, the BLM will consider the wilderness characteristics of public lands when undertaking land use planning. An area contains wilderness characteristics if it possesses sufficient size, naturalness, and outstanding opportunities for either solitude or primitive and unconfined recreation. It may also possess supplemental values, such as ecological, geological, or other features of scientific, educational, scenic, or historical value.

The planning area was reviewed for the presence of wilderness characteristics in 2007 in order to update the wilderness inventory. Acquired lands (i.e., in the Ute Mountain, Taos Valley Overlook, and La Cienega areas), roadless areas identified by the BLM in the 1970s but not designated as WSAs, land adjacent to WSAs, areas identified by the public during the 2006 scoping period for this planning effort, and other areas identified by BLM staff were considered. Seventeen areas were deemed worthy of consideration in the field during the inventory update process.

As indicated, the following criteria were used to evaluate these areas during the field review:

Size. Does the area have at least 5,000 acres of contiguous BLM land, or is it of sufficient size to make practical its preservation and use in an unimpaired condition? Smaller areas may include islands, land adjacent to other Federal land where wilderness characteristics are being protected (for example, adjacent to a WSA or a national forest wilderness), or natural areas where topography clearly makes possible the opportunity to experience outstanding opportunities for solitude and there is strong public agreement with this conclusion (for example, canyons where all of the land within the defining canyon rim are Federal).

Naturalness. Are the lands and resources affected primarily by the forces of nature? Is the imprint of human activity substantially unnoticeable? Attributes may include the presence or absence of roads and trails, fences or other improvements; the nature and extent of landscape modifications; the presence of native vegetation communities; and the connectivity of habitats. Range improvement maps and master title plats were consulted to identify fences, water tanks, rights-of-way and other improvements on the ground. Field visits were also conducted to each area to assess current conditions.

Outstanding Opportunity for Solitude or Primitive/Unconfined Recreation. Are sights, sounds, and evidence of other people rare and infrequent, or are they common? To what extent can visitors be isolated, alone or secluded from others? Are there no or minimal developed recreation facilities?

After review in the field, seven of the areas, totaling approximately 93,413 acres, were determined to meet all three criteria, and were considered during the development of the RMP alternatives. All of these areas are identified for protection of their wilderness character in one or more of the alternatives. Table 3-21 summarizes these findings, followed by a more detailed narrative organized by planning unit.

Table 3-21. Areas inventoried for wilderness characteristics

Planning unit/ Area	Size	Naturalness	Solitude or Primitive Recreation	Meets Criteria, Should be Considered
Taos Plateau/Upper Gorge				
Adjacent to San Antonio WSA	9,210	Yes	Yes	Yes
Cerro de la Olla (Pot Mt)	13,820	Yes	Yes	Yes
Chiflo/ North of Chiflo	17,340	Yes	No	No
Rio Costilla	3,540	No	Yes	No
Ute Mountain	13,190	Yes	Yes	Yes
Windmill	11,470	No	No	No
Lower Gorge/Copper Hill				
Rio Embudo Canyon	2,900	Yes	Yes	No
Taos Valley Overlook	2,440	Yes	No	No
Chama				
Adjacent to Rio Chama WSA	2,499	Yes	Yes	Yes
Ojo Caliente				
Cerro Colorado	31,352	Yes	Yes	Yes
Rincon del Cuervo	10,912	Yes	Yes	Yes
El Palacio				
Arroyo Seco (Sombrillo)	8,600	Yes	No	No
Mesa de la Cejita	12,430	Yes	Yes	Yes
Adjacent to Santa Cruz Lake	--	Yes	No	No
West Santa Fe				
Santa Fe River Canyon	< 2,000	Yes	No	No
Galisteo Basin				
Burnt Corn	2,080	Yes	No	No
East Side				
Vicinity of Sabinoso Wilderness	3,490	Yes	Yes	No

Taos Plateau planning unit

Adjacent to San Antonio WSA. This 9,210-acre area was separated from the San Antonio WSA to the west by a right-of-way (now relinquished) that is the WSA's east boundary. Portions of the unmaintained telephone line remains, but the associated maintenance road has deteriorated to where parts of it no longer exist. Once the remainder of the telephone line and poles are removed, the area could be managed for wilderness character in association with the contiguous San Antonio WSA. The area has a natural condition in a setting with some ways, fences, and range improvements. It was identified during public scoping as an area with wilderness characteristics.

Cerro de la Olla (Pot Mountain). This area covers 13,820 acres, with the main feature being the Cerro de la Olla, an extinct shield volcano. In the 1970s, this area was identified as roadless, but failed to meet the naturalness criterion due to the physical appearance of wood cutting areas around the base of the volcano, access roads, and the presence of several grazing or wildlife improvements such as guzzlers or water catchments and fences. Recent fires and controlled burns have re-established a more natural-appearing mosaic pattern to the vegetation. Human activity is seasonal in nature (wood cutting and hunting), providing good opportunities for solitude and primitive recreation. This area received support during public scoping for management to protect is wilderness characteristics.

Chiflo North. This 17,340-acre area was mentioned during scoping as having important wilderness characteristics. It includes Cerro Chiflo which is due west of the Wild Rivers Recreation Area, and lands to the north which can be characterized as 'sagebrush flats'. In 2007, this area was reviewed, and found to not meet the roadless criteria. A number of roads were

inventoried in the early 1990s and designated open for use, primarily for livestock grazing operations, hunting, and sightseeing. The area otherwise appears natural, and has a low incidence of vehicle use, some opportunities for solitude, and high scenic quality in the vicinity of Cerro Chiflo. Cerro Chiflo is the most naturally-appearing part of this inventory unit, and offers the highest value land for primitive recreation and solitude, but is too small by itself (about 3,000 acres) to be considered on its own for management of wilderness character.

Rio Costilla. This 3,540-acre area is north of Ute Mountain and was acquired at the same time. Costilla Creek is the major feature, and for its last mile is in a small gorge about 300 feet deep where it joins the Rio Grande. With the exception of this gorge, the rest of the inventoried area has been altered by disking and seeding of nonnative grasses. As a whole, the area does not meet the naturalness criteria. The opportunity for primitive recreation and solitude is outstanding in the Costilla Creek Gorge, but limited elsewhere.

Ute Mountain. This area was acquired in 2004–05 for its wildlife, wilderness character, and scenic resources. The inventory found the main part of the acquired land, plus some adjacent land already managed by the BLM, had high-quality wilderness characteristics, retaining a predominately natural character and having outstanding opportunities for solitude and primitive and unconfined recreation. The Ute Mountain area having wilderness character covers 13,190 acres.

Windmill. This 11,470-acre roadless area was inventoried in the late 1970s when it was determined that opportunities for solitude were not outstanding. The gently rolling topography and sparse vegetation cover do not offer an internal buffer for user groups to achieve a feeling of isolation or avoid the sights and sounds of others, although recreation use is low in the area due to its remoteness. There are numerous ways, fences, and other range improvements used by livestock permittees which alter the area's natural character.

Lower Gorge/Copper Hill planning unit

Rio Embudo Canyon. Much of this 2,900-acre area is located in a very rugged canyon referred to as the Rio Embudo Box. The Rio Embudo Canyon area has been identified as eligible and suitable for designation as a wild unit of the WSR system. Some of the land adjacent to this 0.5-mile wide corridor remain roadless and have a natural character. When in the canyon, no sign of human activity can be seen, and opportunities for solitude are outstanding. The topographic relief enhances outstanding opportunities for solitude, also, even though the area is less than 5,000 acres in size. However, a state trust section divides the area, making it difficult to consider managing for wilderness character. If the BLM should acquire the state land through a future exchange, the area's suitability for management of wilderness characteristics could be reconsidered through an RMP amendment.

Taos Valley Overlook. The Taos Valley Overlook, acquired in 2001-04, covers 2,440 acres of land from NM-68 west to the Rio Grande, which does not meet the size criterion. The topography is defined by a series of low ridges and valleys that trend east-west, and vegetative cover of sage and scattered pinon-juniper. No part of the property is more than a mile from NM-68 or NM-570, so the sights and sounds of the modern world are evident and outstanding opportunities for solitude or primitive recreation are only present sporadically. The area has been incorporated into the Orilla Verde Recreation Area and is managed for nonmotorized recreation.

Chama planning unit

Adjacent to Rio Chama WSA. An area along the northern edge of the Rio Chama WSA covers 2,499 acres and has similar wilderness characteristics. Opportunity for solitude is excellent, and the area retains its natural appearance even though the mesa top has been fenced, and a few two-track ways have been used for access to range improvements. Although it does not meet the size criterion by itself, its location nest to the WSA warrants consideration of managing its wilderness characteristics

Ojo Caliente planning unit

Cerro Colorado. North of the Rincon del Cuervo there is a 31,352-acre parcel of land around Cerro Colorado with opportunities to access the area on several washes or arroyos that cut through the landscape. However, away from these access ways the area does possess natural character with opportunities for primitive recreation and solitude. Uses include livestock grazing and some wood cutting near the northern boundary.

Rincon del Cuervo. The Rincon del Cuervo area covers 10,912 acres, and was identified during scoping as warranting consideration for management of its wilderness character. The area is rugged, difficult to access, and is relatively free of human intrusions. Outstanding opportunities exist over much of the area for solitude and primitive recreation.

El Palacio planning unit

Arroyo Seco (Sombrillo). Designated the Sombrillo ACEC, this area contains 8,600 acres of heavily eroded badlands with very little evidence of man. Inventoried for wilderness in the 1970s, the area was found to offer outstanding opportunities for solitude, but not for primitive recreation. This area is used for nonmotorized recreation, primarily hiking and horseback riding. Because the area is surrounded by roads and settlements, the sights and sounds of human activity are very evident. Houses have been built adjacent to the inventory unit since the 1970s, further compromising the area's opportunity for solitude.

Mesa de la Cejita. This 12,430-acre area east of Velarde and north of the Truchas Arroyo has fantastically eroded badlands and hills covered in pinon-juniper with the southern Sangre de Cristo Mountains as a backdrop. This area has several county roads, utility rights-of-way, fences, and other range improvements, but retains a natural character, opportunities for solitude, and scenic quality.

Adjacent to Santa Cruz Lake. Several small blocks of contiguous public land in the vicinity of Santa Cruz Lake were examined. All appear natural, and one—the Rio Quemado area east of the village of Rio Chiquito—contains a stream found eligible for consideration as a WSR. Each area in itself is too small to provide a wilderness experience.

West Santa Fe planning unit

No areas with wilderness characteristics were identified. There are small areas undisturbed by man where solitude can be experienced in the Santa Fe River canyon and the northern portion of the proposed Santa Fe Ranch ACEC, but none are of sufficient size to manage for wilderness character.

Galisteo Basin planning unit

No areas were identified that meet the criteria for wilderness character. The blocks of public land examined were the San Pedro Mountains, the Cerrillos Hills, and the Burnt Corn Pueblo. In

the San Pedro Mountains and the Cerrillos Hills, there is evidence of human use, roads, trails and old mines. The 2,080-acre Burnt Corn Pueblo area has no roads or trails, but the size of the area is insufficient to allow for outstanding opportunities for solitude or primitive recreation.

East Side planning unit

Vicinity of Sabinoso Wilderness. The Sabinoso Wilderness covers 16,030 acres of remote canyons and mesas. Approximately 3,490 acres in several blocks of public land in the vicinity of the wilderness retain a high degree of naturalness and possess outstanding opportunities for solitude. This public land is separated from the wilderness by private and state land, and by itself does not meet the size criteria. Some of the private landowners have approached the BLM with an interest in selling; if the BLM acquires these lands and a contiguous area adjacent to the wilderness results, the area could be reconsidered for management of wilderness character.

3.2.12 *Wildland Fire*

Current wildland fire ecology and management guidance for the planning area is provided by the 2004 Fire and Fuels Management Plan Amendment for Public Land in New Mexico and Texas (USDI-BLM 2004a), which amended the 1988 Taos RMP. Once completed, the revised Taos RMP will provide management guidance to which subsequent, routinely updated fire management plans are tiered.

Wildland fire ecology and management indicators are placed in two separate categories: *ecological management objectives* and *social management objectives*. Many of the objectives identified in both categories are affected by the same factors of ecosystem and social change, lending to the complexity in describing this field of ecology as it relates to both the natural and the human environment.

3.2.12.1 Ecological Indicators

Fire Regime. The nature of fire in ecosystems is often used as an indicator of how well ecosystems are adapted to fire and can be discussed in terms of fire regime, which is the combination of fire frequency, predictability, intensity, seasonality, and extent characteristic of fire in an ecosystem. Objectives for each fire management unit would focus on restoring fire regimes to historic return intervals, where possible. A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning. The five natural (historical) fire regimes are classified based on average number of years between fires, described as fire frequency, combined with the severity, or the amount of replacement, of the fire on the dominant overstory vegetation. The five natural fire regimes are described in Table 3-23 below.

Ecosystem Sustainability. Allow wildland fire to function as an essential ecological process and natural change agent in fire-dependent ecosystems when possible.

Wildlife. Protect, maintain, preserve, and/or restore habitats necessary for the conservation of special status species and the ecosystems upon which they depend. Maintain viable and diverse populations of special status native terrestrial and aquatic species.

Vegetation. Improve ecosystem health by maintaining or restoring the range of ecological conditions on which native floral and herbaceous components depend. Maintain or improve special status plant species. Decrease noxious and invasive weed presence on public lands within the planning area.

Designated Special Areas. Protect the characteristics that warranted designation of ACECs, SRMAs, WSAs, and SMAs. Enhance or maintain the wilderness values of the Wilderness Areas and WSAs.

Air. Meet Federal and state air quality standards through proper management of emissions.

Water/Watersheds. Meet Federal and state water quality standards and prevent degradation through BMPs during and after fires and vegetative treatments. Enhance and protect watersheds.

3.2.12.2 Social Indicators

Human Life. Protect human life, both the public and firefighters, as the highest priority in fire management.

Property and Resources. Protect human communities, their infrastructure, and the natural resources on which they depend. The risk of wildfire to communities and property would be reduced using the full range of options available to fire managers.

Cultural, Historical, and Paleontological. Protect high value cultural, historical and paleontological resources.

Visual. Meet established VRM class objectives through appropriately planning fuel reduction treatments. VRM would be a consideration in any post-fire erosion control and other burned area rehabilitation and restoration needs.

Current Conditions

Current conditions as they relate to wildland fire management are described by the following components.

1) **Fire Management Units:** The primary purpose of developing fire management units (FMUs) in fire management planning is to assist in organizing information about complex landscapes. The process of establishing FMUs divides the landscape into smaller geographic areas that more easily describe physical, biological, and social characteristics, and guide and depict associated planning based on these characteristics.

The development of FMUs allows fire to play its role as a natural disturbance factor within social constraints. FMUs are predetermined areas that have similar fuels, topography, management objectives, and resource needs that allow each area to be managed as a unit. In terms of fire management, FMUs are important planning categorizations that allow managers to determine how to respond to wildfire in a given area and where to focus resources in the case of multiple ignitions. FMUs are delineated with consideration of public safety concerns first and natural resource values second.

Public land in the Taos Field Office is assigned to one of four FMU categories as described in Table 3-22. FMUs were delineated based on BLM ownership continuity, wildfire protection priorities, and resource management considerations.

2) **Fire Regime:**
A natural fire regime is a general characterization of the role fire would have played, across a landscape in the absence of modern human mechanical intervention, but which includes the possible influence of aboriginal use.

Five natural fire regimes have been identified and are classified based on the average number of years between fires, combined with characteristic fire severity. Fire severity reflects the percent destruction, and subsequent replacement of dominant overstory vegetation. The five natural fire regimes are presented in Table 3-23 below.

3) **Fire Regime Condition Classes:** For a given vegetation type, the Fire Regime Condition Class (FRCC) concept describes the degree of departure from reference conditions, as defined by the historic fire regime classification above. Such a departure may both result from, and lead to, changes to key ecosystems components, such as vegetation structure, fuel composition, fire frequency/severity, and other disturbances, such as insect and disease mortality. For instance, historical total-suppression policies in some areas has resulted in increased stand density and fuel accumulation, which in turn has led to fire regimes of reduced frequency and increased severity. Table 3-24 describes the attributes characteristic of each FRCC and example management options associated with each. Table 3-25 is a summary of fire regime condition classes (FRCC) for the predominant vegetation types found in the planning area.

It is recognized that no ecosystem is static through time and is instead quite variable. However, departure estimates are based on a *central tendency* (or mean). To help estimate departure and the resultant condition class described below, reference conditions have been identified and written descriptions for biophysical settings (BpS) have been developed and can be found on the FRCC website (www.frcc.gov).
The three Fire Regime Condition Classes are categorized using the following criteria:

FRCC 1 represents ecosystems with low (less than 33 percent) departure from reference conditions, and that are still within the estimated historical range of variability during a specifically defined reference period.

FRCC 2 indicates ecosystems with moderate (33 to 66 percent) departure.

FRCC 3 indicates ecosystems with high (greater than 66 percent) departure from reference conditions.

Table 3-22. Fire management units

Fire Management Unit	Management Option Category[1]
1. Taos Field Office-Rest of Field Office	C
2. North Unit/Pot Mountain	C
3. RGC- ACEC	C
4. San Antonio Gorge WSA and ACEC	C
5. Cerro del Aire	B
6. Wild Rivers	B
7. Cebolla/Abiquiu	C
8. Black Mesa/ Ojo Caliente	B
9. RGC-Well Developed Riparian	A
10. Copper Hill ACEC	C
11. Copper Hill WUI	B
12. 31 Mile	B
13. Fun Valley/Chimayo	C
14. Sombrillo SMA	B
15. Chimayo Scout Camp	B
16. Buckman	B

17. Sabinoso WSA	D
18. La Cienega	B
19. Archuleta Mesa	C
20. Ute Mountain	D

[1] Fire Management Unit Category Descriptions:
A - Areas where unplanned wildland fire is completely undesirable
B - Areas where unplanned wildland fire is not desired because of current conditions
C - Areas where unplanned wildland fire is desired, but there are significant constraints that must be considered for its management to achieve resource objectives
D - Areas where unplanned wildland fire or planned ignitions are desired, and there are few or no constraints for its management to achieve resource objectives

Table 3-23. Fire Regime Groups and Descriptions

Group	Fire Frequency (years)	Severity	Description
I	0–35	Low/Mixed severity	Generally low-severity fires replacing less than 25% of the dominant overstory vegetation; can include mixed-severity fires that replace up to 75% of the overstory.
II	0–35	Stand replacement	High-severity fires replacing greater than 75% of the dominant overstory vegetation.
III	35–100+	Mixed/Low severity	Generally mixed-severity; can also include low-severity fires.
IV	35–100+	Stand replacement	High-severity fires.
V	200+	Stand replacement/Any Severity	Generally replacement-severity; can include any severity type in this frequency range

Table 3-24. Fire Regime Condition Class description

Condition Class	Attributes	Management Options
FRCC 1	FRCC's are within or near a historical range. The risk of losing ecosystem components is low. Fire frequencies have departed from historical frequencies by no more than one return interval. Vegetation attributes (species composition and structure) are intact and functioning within a historical range.	Where appropriate, these areas can be maintained within the historical fire regime by treatments such as management of unplanned ignitions for resource benefit.
FRCC 2	FRCC's have been moderately altered from their historical range. The risk of losing key ecosystem components has increased to moderate. Fire frequencies have departed (either decreased or increased) from historical frequencies by more than one return interval. This results in moderate changes to one or more of the following: fire size, frequency, intensity, severity, or landscape patterns. Vegetation attributes have been moderately altered from their historical range.	Where appropriate, these areas may need moderate levels of restoration treatments, such as management of unplanned ignitions for resource benefit and hand or mechanical treatments, to be restored to the historical fire regime.
FRCC 3	FRCC's have been significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals, resulting in more dramatic changes to one or more of the following: fire size, frequency, intensity, severity, or landscape patterns.	Where appropriate, these areas may need high levels of restoration treatment, such as hand or mechanical treatments. These treatments may be necessary before fire is managed to restore the historical fire regime.

Table 3-25. Fire regime condition class

Vegetation Type	Fire Regime(s)	FRCC(s)	Approximate % of Planning Area
Shrubland/grassland (Plain-mesa grassland/great basin desert scrub)*	I, II	2, 3	30%
Piñon-juniper savannah (Open conifer woodland)*	I, II, III	2, 3	20%
Piñon-juniper woodland (Closed conifer woodland)*	II, III, IV	2	30%
Ponderosa pine forest (Lower montane conifer forest)*	I	2, 3	12%
Mixed conifer + (Upper montane conifer forest)*	III, IV	1, 2	6%
Riparian areas (Southwest and plains forested/shrub wetland)*	IV	1	2%

*This is the bureau technical term for each vegetation community.
+This includes even-aged stands of aspen as an early-seral stage.

Trend

Current trends for vegetation types throughout the planning area are shown in Table 3-26. In general, trends of vegetation types are moving towards a higher fire regime condition class category or categories. Higher fire regime condition class ratings indicate a decreased ability for managers to accomplish the fire and fuels management goals.

Table 3-26. Vegetation type trends by fire regime/condition class

Vegetation Type	Fire Regime(s)	FRCC(s)	Trending Towards FRCC(s)
Shrubland/grassland (Plain-mesa grassland/great basin desert scrub)*	I, II	2, 3	3
Piñon-juniper savannah (Open conifer woodland)*	I, II, III	2, 3	3
Piñon-juniper woodland (Closed conifer woodland)*	II, III, IV	2	3
Ponderosa pine forest (Lower montane conifer forest)*	I	2, 3	3
Mixed conifer + (Upper montane conifer forest)*	III, IV	1, 2	1,2
Riparian areas (Southwest and plains forested/shrub wetland)*	IV	1	1

*This is the bureau technical term for each vegetation community.
+This includes even-aged stands of aspen as an early-seral stage.

Wildland fire management actions in the planning area have been effective in accomplishing fire and fuels management goals; however, the total area treated to date via fuels and prescribed fire is relatively small in comparison to the total acreage requiring some management action.

Forecast. The full range of fire management activities would continue to help achieve ecosystem sustainability, including its interrelated ecological, economic, and social components.

The field office fire staff would conduct fuels treatments, community assistance, education/ mitigation programs, and rehabilitation/restoration actions to implement management plan direction.

Fire, as a critical natural process, would be integrated into land and resource management plans and activities based on a landscape scale and across agency boundaries. Response to wildland fire should be based on the ecological, social, and legal consequences of the fire. The circumstances by which the fire occurs, and the resulting consequences, dictate the appropriate response to it. Table 3-27 shows expected future targets based on current forecast of funding for fuels and fire projects.

Table 3-27. Annual fuels targets for each fire management unit (acres)

Fire Management Unit	Broad-cast Burn	Pile Rx	Mech-anical	Non-fire/ Fuels	Bio-mass Utili-zation	Cultural Clearance	Mon-itoring	NEPA
TAFO-Rest of Office	200	200	200	200	200	200	200	200
North Unit/Pot Mountain	400	200	200	0	0	200	200	200
Rio Grande Corridor ACEC	10	10	10	0	0	10	10	10
San Antonio Gorge WSA and ACEC	210	210	110	0	0	210	210	210
Cerro del Aire	200	200	200	0	0	200	200	200
Wild Rivers	200	200	200	0	0	200	200	200
Cebolla/Abiquiu	500	0	1,000	1,000	0	1,000	1,000	1,000
Black Mesa/Ojo Caliente	0	0	100	0	100	100	100	100
RGC-Well Developed Riparian	0	10	10	0	10	10	10	10
Copper Hill ACEC	200	100	200	0	200	200	200	200
Copper Hill WUI	200	200	200	0	200	200	200	200
31 Mile	200	200	200	0	200	200	200	200
Fun Valley/Chimayo	100	0	100	0	100	100	100	100
Sombrillo SMA/Santa Cruz Lake	100	70	100	0	100	100	100	100
Chimayo Scout Camp	200	200	200	0	200	200	200	200
Buckman	0	100	100	0	100	100	100	100
Sabinoso Wilderness	0	0	0	0	0	0	0	0
La Cienega	200	0	0	0	200	200	200	200
Archuleta Mesa	200	0	0	0	200	200	200	200
Ute Mountain	0	0	0	0	0	200	200	200
Project Targets	3,120	1,900	2,110	1,200	1,810	3,830	3,830	3,830
Target Range*	3,000–5,000	600–2,000	600–2,000	1,000–3,000	2,000	3,000–8,000	3,000–8,000	4,000–5,000

* Vary depending upon weather, budget, staffing, etc.

Future management considerations include urban interface concerns in all fuel types. Seventy percent of the planning area is within 2 to 3 miles of structures. Although the field office has not reported a significant number of acres burned on an annual basis, there is great potential for structural and resource damage by wildfires. Much of this land is pinon-juniper woodland with trees at concentrations of 500 to 1,500 stems per acre with considerable beetle (*Ips confuses*) caused mortality. Most fires in the planning area are wind-driven events and vary in size and intensity. Generally, high intensity fires occur in the heavily wooded areas and lower intensity fires occur in grassland and sagebrush rangeland.

The predominant vegetation zones fall under a fire regime with either a high fire return interval (I or II) or with variability in fire frequency that may include a high fire return interval (III or IV). Condition classes of these predominant vegetation zones show the highest departure from historic conditions.

Combined, these vegetation zones comprise approximately 90 percent of the planning area, with an average fire regime condition class of "High 2" or "Low 3." If the fire management program were to restore these vegetation zones to a fire regime condition class (FRCC) of 1 or 2, and maintain them over time using either active management or natural disturbance, then disturbance would have to be comparable to the natural fire regimes of each of these zones. Assuming a general fire return interval of 35 years (an average between the high to mid-fire return interval fire regimes), a given area would require an average yearly treatment of approximately 3 percent of the total area. In a vegetation zone with a very high fire return interval of 4 years, such as some cases found in fire regimes I and II, annual disturbance would have to be 25 percent.

Table 3-28 illustrates the annual acreage targets required to successfully maintain the high fire return interval vegetation types found in the planning area. This is a very general analysis of acreage targets, but when compared to current acreage targets, it shows that the program would fall significantly short in accomplishing our objectives of converting areas of FRCC 2 and 3 to FRCC 1 and 2.

Table 3-28. Pre-settlement condition annual disturbance regimes (acres)

High Fire Return Interval	Current Annual Targets	3% (35 year FRI)	25% (4 year FRI)
761,348	4,030	22,869	190,339

If funding and staffing levels remain the same, strategies would have to change in order to accomplish forest and range restoration objectives on a landscape and watershed scale. Future strategies would need to place more priority on managing wildland fires to achieve resource objectives which would include the administrative support for planning and inventory associated with each.

Key Features

Each FMU has been prioritized according to different ecological and social indicators and needs, and assigned a ranking in each of the following management activities: prescribed fire, wildfire suppression, non-fire fuels treatments and community protection/assistance (Table 3-29). The rankings are High, Medium or Low priority. A general ranking of management priority (prioritization number) throughout the field office has been assigned to each FMU, with 1 being the highest priority and 21 being the lowest.

Table 3-29. Fire management unit prioritization

Prioriti-zation Number	Fire Management Unit	Suppres-sion	Prescribed Fire	Non-fire Fuels Treatments	Community Protection/ Assistance
1	15. Chimayo Scout Camp	High	High	High	High
2	5. Cerro del Aire	High	High	High	High
3	6. Wild Rivers	High	High	High	High
4	11. Copper Hill WUI	High	High	High	High
5	12. 31 Mile	High	High	High	High
6	16. Buckman	High	Med	Med	High
7	1. TAFO-Rest of Field Office	High	Med	Med	Med
8	7. Cebolla/Abiquiu	Med	Med	Med	Med
9	19. Archuleta Mesa	Med	Med	Med	Med
10	9. RGC-Well Developed Riparian	High	Low	Med	High
11	3. RGC-ACEC	Med	Low	Low	Med
12	17. Sabinoso Wilderness	Low	High	Low	Med
13	10. Cu Hill ACEC	Med	Med	Low	Low
14	2. North Unit/Pot Mountain	Low	High	Med	Low
15	4. San Antonio Gorge WSA and ACEC	Low	Med	Med	Low
16	20. Ute Mountain	Low	High	Low	Low
17	8. Black Mesa/ Ojo Caliente	Low	Low	Med	Low
18	18. La Cienega	Low	Low	Low	Med
19	13. Fun Valley/Chimayo	Low	Low	Low	Low
20	14. Sombrillo SMA	Low	Low	Low	Low

3.3 Resource Uses

3.3.1 *Forestry and Woodland Products*

The forestry program within the planning area consists of managing limited ponderosa pine stands and extensive pinon-juniper woodlands. Forest management activities employ silvicultural practices and recognize the principles of multiple use. The protection of streams, wildlife, and other forest values are taken into account in forest management.

The forestry program is primarily administered by the fire management program of the Taos Field Office and the forestry program from the state office program lead. The Taos Field Office would hire a forester through the fuels program.

Current Conditions

Forests are important for providing ecosystem services such as wildlife habitat, forage, watershed requirements, recreational values as well as renewable wood products. In northern New Mexico, woodlands on BLM land are a vital source of fuelwood for heating and cooking. The following factors are used in the assessment of current levels yielded by this resource:

- Number of acres moved into fire regime condition classes. FRCC is described as the degree of departure from historic conditions, and falls into one of the three following categories: FRCC

1—generally within historical ranges; FRCC 2—fire regimes on these lands have been moderately altered from their historic range by either increased or decreased fire frequency; FRCC 3—fire regimes on these lands have been significantly altered from their historic return interval.

- Appropriate mix of seral classes and stand structure for forests and woodlands (percentages of forest and woodlands in early and late seral stages).
- Presence of management actions to restore ecosystem health to forests and woodlands (acres thinned, regenerated, and/or prescribed burned).
- Susceptibility to insect and disease on available forests and woodlands (acres treated and acres at risk).
- Contribution to the economic base of local communities by providing a sustained yield of special forest products at a level consistent with sound economic principles, local market demands, and desired ecological conditions. Areas suitable for harvest (typically those of less than 40 percent slope) offer for sale a range of 400 to 3,200 hundred cubic feet per acre.

  Stand density index (SDI) is an index of competitive interaction. Expressed as a maximum, it indicates the maximum density that a given species can attain at a given reference diameter.

The current condition of forest and woodlands is described in part by a forest inventory conducted in 1999 by the USFS Forest Inventory Analysis (FIA) Group (Table 3-30). Stand data for these plots was collected primarily in pinon-juniper woodlands in northern New Mexico, the predominant woodland type found throughout the planning area. Size classes inventoried are presented in Table 3-31.

Table 3-30. Forest inventory analysis (FIA) for Taos Field Office-BLM 1999 data, by county

County	# of Plots	Age	Slope	Elev. (ft.)	Aspect	Basal Area	Trees/ acre	QMD	Cu. Ft.	Growth cf/ac/yr
Taos	8	79	30	7,700	191	89.1	442.1	7.8	618.0	23.4
Mora	1	21	8	6,200	189	17.0	192.0	4.1	63.0	9.6
Rio Arriba	33	98	16	6,730	117	72.1	135.9	11.0	576.5	25.7
San Miguel	2	133	6	6,350	23	77.0	402.5	5.8	497.0	32.0
Santa Fe	4	55	7	6,225	124	36.2	155.0	7.6	197.0	14.2

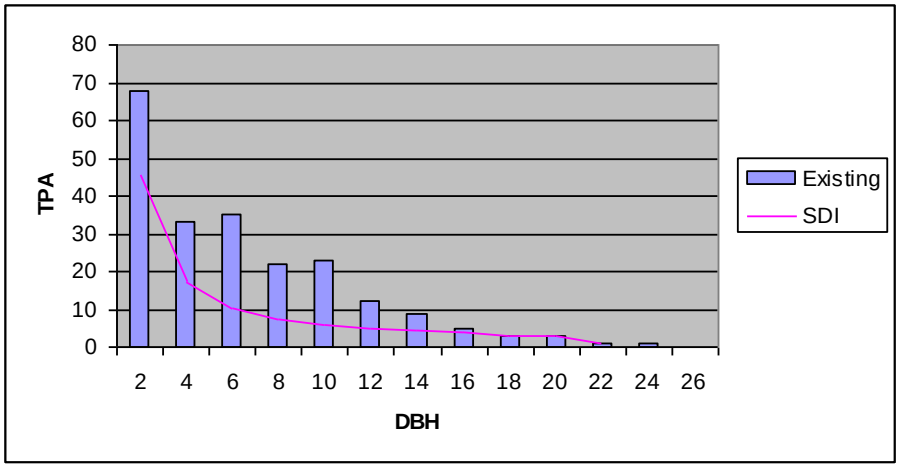


Figure 3-3. Age class distribution of inventoried pinon-juniper woodlands

Table 3-31. Forest inventory analysis by size class (all plots combined and averaged)

Diameters	Trees/acre	Existing Basal Area	Stand Density Index	Target Stand Density Index
1.0-2.9	68	1.5	5.1	3.1
3.0-4.9	33	2.9	7.6	3.6
5.0-6.9	35	6.9	15.4	4.1
7.0-8.9	22	7.6	15.3	4.7
9.0-10.9	23	12.5	23	5.4
11.0-12.9	12	9.4	16	6.2
13.0-14.9	9	9.6	15.4	7.1
15.0-16.9	5	6.9	10.6	8.1
17.0-18.9	3	5.3	7.7	9.2
19.0-20.9	3	6.5	9.12	10.5
21.0-22.9	1	2.6	3.5	12
23.0-24.9	1	3.1	4.1	
Totals	215	74.8	132.82	74

At 25 percent of maximum stand density index, trees begin competing with each other (and begin to out-compete understory species). At 35 percent of maximum SDI, trees fully occupy the site. At higher densities, competition between trees either results in reduced growth and vigor of individual trees or may result in competitive stress and tree mortality (perhaps due in part to secondary agents such as insects that are attracted to stressed trees). Currently the planning area forest types are at 32 percent of maximum.

Current productivity levels of woodlands throughout the planning area are further described under section 3.2.12 in discussions on fire regimes and fire regime condition class.

Trend

Currently, optimal forest health and productivity as expressed by the stand density index method can be achieved in pinon-juniper woodlands by reducing forest density through the removal of trees in the young to middle age classes as measured by diameter at breast height (DBH). These

age classes would provide the majority of woodland products in the form of fuelwood or other biomass utilization.

Restoring the ecosystem requires both the restoration of process and structure. This includes re-establishing the forest understory of herbaceous plants, shrubs, snags, and dead and downed materials. The forest understory is critical for wildlife habitat, tree re-generation patterns, biodiversity, and watershed function. All of these are critical elements in the ecosystem and are critical elements in proper soil microorganism functions. Natural disturbance processes including wildland fire, droughts, and insect infestations are the natural change agents of the forests and woodlands. Fire regimes and stand structure are interrelated. Mechanical treatments alone would not re-establish the natural disturbance regime. In altered stands though, mechanical treatments may well be needed as a precursor to re-establishing the pre-suppression structure and process.

Other forecasts relevant to forest and woodland products are found under section 3.2.12, where the trends in fire regime condition class are discussed in relation to current woodland condition, forecasts are described, and treatment objectives are identified.

Topics that this program would have to address include:

- Refining and updating forest/woodland inventories to include possible identification of old-growth stands: Current woodland inventories are limited throughout the planning area.
- Fuelwood demand by local communities: A large portion of the local population relies on fuelwood (primarily pinon and juniper) as a source of heat and for cooking. As the population increases, the demand for quality fuelwood will also increase.
- Biomass Utilization: Demands for biomass energy or other wood products (small diameter utilization) would likely increase, adding to the existing pressures of fuelwood gathering.
- Forest Health: Stand density index measurements have shown that lack of disturbance in many of the pinon-juniper woodlands is reducing overall forest ecosystem health. Management actions such as mechanical treatments or prescribed fire may be used to improve woodland health. Forest health may also be achieved through fuelwood gathering activities and biomass utilization when these activities are properly designed and monitored accordingly.

Key Features. The following is a summary of forest/woodland types within the resource area and acreages for each (Table 3-32). The majority of woodlands within the resource area need to be assessed for potential management options. Further details on forest/woodland vegetation types as described in the Southwest Re-Gap data can be found in the Vegetative Communities section of this chapter.

Table 3-32. Summary of forest/woodland types

Woodland Type	Acres <30% slope	Acres >30% slope	Acres Total	% Total
Aspen	335	32	367	0.5
Spruce-Fir	27	16	43	0.4
Mixed Conifer	2,517	398	2,915	1
Ponderosa Pine	13,141	1,087	14,228	5
Pinon-Juniper	161,395	6,911	168,306	62
Juniper Savannah	75,180	3,665	78,845	29
Gambel Oak/Shrub	3,313	467	3,780	1
Lower Montane Riparian/Shrub	1,200	41	1,241	1
Madrean Pine-Oak	46	15	61	0.1
Totals	257,154	12,632	269,786	100

3.3.2 *Land Tenure*

Land tenure refers to those actions that result in the disposal of public land and/or the acquisition of non-Federal land or interests. The 1988 RMP designated broad areas as BLM retention and disposal areas. Retention areas are generally relatively concentrated blocks of public land that include scattered or isolated parcels of state trust land, or special designations, such as WSAs and ACECs. Disposal areas include isolated, unmanageable public land parcels near and within well-blocked areas of private and state trust land, and areas that include scattered parcels of public land that have proven difficult to manage.

The acquisition of land and interests in land including access easements, conservation easements, mineral rights, and water rights, allows the BLM to manage key natural resources, acquire legal ownership of land to enhance the management of existing public land and resources, provide public access, enhance recreation opportunities, preserve open space, and help consolidate management areas to strengthen resource protection.

Acquisition through exchange, purchase, and donation is an important component of the BLM's land management policy. The BLM acquires land and easements when it is in the public's interest and consistent with the applicable land use plan. The BLM's land acquisition program is designed to:

- Improve management of natural resources through consolidation of Federal, state, and private lands.
- Increase recreational opportunities and preserve open space.
- Secure key property necessary to protect endangered species and promote biological diversity.
- Preserve archeological and historical resources.
- Implement specific acquisitions authorized by acts of Congress.

Current Conditions

Since the 1988 Taos RMP and 2000 Rio Grande Corridor Plan were adopted, approximately 17,382 acres have been acquired as listed below.

San Antonio SMA/Upper Gorge

T. 27 N., R. 11 E.,
Sec. 1: lots 1 to 4, S1/2N1/2, SW, NESE, W1/2SE, N1/2N1/2SESE;
T. 28 N., R. 9 E.,
Sec. 3: lots 1 to 4, S1/2N1/2, S1/2;
Sec. 11: NE, E1/2NW;
T. 28 N., R. 10 E.,
Sec. 5: lots 1 to 4, S1/2N1/2, S1/2;
Sec. 6: lots 1, to 3;
T. 28 N., R. 11 E.,
Sec. 1: lots 1 to 4, S1/2N1/2, S1/2;
Sec. 7: lots 1 to 4, E1/2E1/2W1/2;
Sec. 11: W1/2;
Sec. 24: all;
T. 29 N., R. 9 E.,
Sec. 11: N1/2NE;
Sec. 12: N1/2, NESE, N1/2N1/2NWSE, N1/2SESE, SESESE;
Sec. 13: SENE, SWNW, NESW, W1/2SW, S1/2SESW, SE, NENENE, S1/2NENE, N1/2SESW;
Sec. 23: W1/2W1/2, NESW, E1/2SE, NWSE;
Sec. 24: E1/2, W1/2NW, SENW, N1/2NENW, E1/2SWNENW, W1/2SENENW, SW, E1/2SENENW, W1/2SWNENW;
Sec. 25: all;
Sec. 26: W1/2NW;
Sec. 27: S1/2NE;
Sec. 34: lots 8 and 9, E1/2, E1/2SW;
T. 29 N., R. 10 E.,
Sec. 1: lots 1 to 4, S1/2N1/2, N1/2S1/2;
Sec. 6: split diagonally from NE corner to SW corner and includes lands from SE corner to diagonal line;
Sec. 8: E1/2;
Sec. 9: S1/2S1/2;
Sec. 17: NENW, W1/2NW;
Sec. 18: lots 3 and 4, E1/2SW, SE;
Sec. 19: all;
Sec. 21: W1/2NE, W1/2, W1/2SE;
Sec. 22: N1/2NE, NW;
Sec. 23: N1/2N1/2;
T. 29 N., R. 10 E.,
Sec. 25: NE, NW, SW;
Sec. 26: SENE, N1/2SE;
Sec. 29: all;
Sec. 31: lots 2, 3, 4, NENE, S1/2NE, SENW, E1/2SW, SE;

Sec. 35: all;
T. 29 N., R. 11 E.,
Sec. 2: SE;
Sec. 11: E1/2E1/2, E1/2W1/2NE, NENWSE;
Sec. 30: lot 1, NENW;
Sec. 31: lots 1 and 2, NE, E1/2NW;
Sec. 33: all;
T. 30 N., R. 8 E.,
Sec. 35: N1/2, SW, N1/2SE, SWSE;
T. 30 N., R. 10 E.,
Sec. 12: S1/2SW;
Sec. 13: N1/2NW, S1/2NW, SW, W1/2SE;
Sec. 14: SE;
Sec. 24: S1/2, S1/2N1/2;
Sec. 25: N1/2;
Sec. 26: S1/2NE;
T. 30 N., R. 11 E.,
Sec. 2: lots 3, 4;
Sec. 19: lots 1 to 4, SENW, SE;
Sec. 22: SESW, SWSE;
Sec. 27: W1/2NE, E1/2NW, NESW, NWSE;
Sec. 30: lots 1 to 4, E1/2, E1/2W1/2;
T. 31 N., R. 9 E.,
Sec. 10: SWNW, NWSW, SESW, N1/2SE;
Sec. 24: all (except 10 acres);
T. 31 N., R. 10 E.,
Sec. 21: N1/2;
Sec. 22: N1/2 (except 10 acres);
Sec. 23: E1/2, E1/2W1/2;
T. 31 N., R. 11 E.,
Sec. 17: SW, NWSE, S1/2SE;
Sec. 21: E1/2E1/2;
Sec. 22: E1/2, SW;
Sec. 27: NE, W1/2;
T. 31 N., R. 11 E.,
Sec. 28: E1/2;
Sec. 30: lots 1 to 4, E1/2, E1/2W1/2;
Sec. 31: lot 1, N1/2NE, NENW;
Sec. 33: E1/2;
Sec. 34: W1/2;
Sec. 35: SWNE, N1/2NW, SENW, SW, NWSE;
T. 32 N., R. 11 E.,
Sec. 22: lots 1 to 4, S1/2S1/2;

Sec. 23: lots 1 to 4, S1/2S1/2;
Sec. 26: all;
Sec. 27: all.

Wild Rivers Recreation Area

T. 28 N., R. 11 E.,
Sec. 1: lots 1 to 4, S1/2N1/2, S1/2;
Sec. 11: W1/2;
T. 29 N., R. 12 E.,
Sec. 10: NESW, NWSE;
Sec. 19: lots 3 and 4, E1/2SW, SE;
Sec. 20: NWSW;
Sec. 30: lot 1, NE, E1/2NW.

Upper Gorge/Ute Mountain

T. 31 N., R. 11 E.,
Secs: 1, 2, 11, 12, 13 (portion of Sangre de Cristo Grant);
T. 31 N., R. 12 E.,
Secs: 3, 4, 5, 6, 7, 8, 9, 10, 16, 17, 18, 20, 21, 28 (portion of Sangre de Cristo Grant);
T. 32 N., R. 11 E.,
Secs: 24, 25, 36 (portion of Sangre de Cristo Grant);
T. 32 N., R. 12 E.,
Secs: 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33, 34 (portion of Sangre de Cristo Grant).

La Cienega ACEC (Amendment)

T. 15 N., R. 8 E.,
Sec: 6: portion of lot 5;
T. 16 N., R. 8 E.,
Secs: 17, 20, 29, 30: in La Cieneguilla Grant.

Orilla Verde Recreation Area (Amendment)

T. 24 N., R. 11 E.,
Secs: 1,2,10, 11, 12, 13, 14, 15, 23: (portion of Gijosa Grant);
T. 24 N., R. 12 E.,
Secs: 6, 7, 18: (portion of Gijosa Grant).

Rio Chama SMA

T. 27 N., R. 2 E.,
Sec. 27: W1/2W1/2SW, SW;
Sec. 28: S1/2NW, SW, SE;
Sec. 33: W1/2.

Rio Grande Wild and Scenic River

T. 26 N., R. 11 E.,
Sec. 1: lot 7, S1/2NW, portion of E1/2NE, NENE, S1/2NE, N1/2SW, SWSW, SESW, SE; portion of E1/2SE;
Sec. 2: lots 1 to 4, S1/2N1/2, S1/2;

Sec. 12: lots 1 to 4 (portion of Antonio Martinez Grant), S1/2N1/2, S1/2, portion of E1/2NW, NE, N1/2NE, NENW, SESW;

T. 26 N., R. 12 E.,

Sec. 6: W1/2NW;

T. 27 N., R. 11 E.,

Sec. 1: S1/2N1/2SESE, S1/2SESE;

Sec. 26: SESE;

Sec. 36: lots 1 to 4, W1/2E1/2, W1/2;

T. 27 N., R. 12 E.,

Sec. 31: SWNE, S1/2NW, N1/2SW, SWSW;

T. 30 N., R. 12 E.,

Sec. 29: S1/2SW;

Sec. 32: N1/2NW.

Ojo Caliente ACEC

T. 23 N., R. 8 E.,

Sec. 13: portion of SWNW, W1/2SW;

Sec. 14: portion of SENE, E1/2E1/2SE.

Sabinoso Wilderness/SMA

T. 17 N., R. 23 E.,

Sec. 14: SESW;

Sec. 23: E1/2NW, SWNW;

Sec. 27: S1/2SW;

Sec. 34: E1/2NW, NESW, NWSE.

Since the 1988 Taos RMP and 2000 Rio Grande Corridor Plan were adopted, minor adjustments to surface ownership have occurred as a result of certain realty actions including acquisitions, sales, and patents under the R&PP Act. Sales of BLM-administered land in the planning area have been limited since the publication of the 1988 RMP and have been undertaken primarily to resolve inadvertent, unauthorized use and development of the BLM-administered land.

Several land exchanges have taken place within Santa Fe County since the Plan's implementation. In 1988, an exchange with Louis Menyhert resulted in 280 acres being patented to Mr. Menyhert in exchange for his private land in northern New Mexico. A series of exchanges with the King family in 1992 and 1993, conveyed 800 acres of BLM-administered land east of the Caja del Rio Road to the Kings for the family's private properties located south of Grants, New Mexico. The Atalaya exchange, a three-way exchange between the BLM, the USFS, and a private party in 1997, resulted in the BLM conveying several isolated parcels of land within the city of Santa Fe. Under the R&PP, the BLM issues leases and patents of public land to governmental and nonprofit entities for public purposes such as public parks, building sites, schools, and landfills. Of the lands identified for disposal within the county, the BLM leased and conveyed large tracts of BLM land to the city of Santa Fe in the 1990s for the city's Municipal Recreation Complex. Over 900 acres of land have been patented to the city with several parcels still to be conveyed. Santa Fe County received approximately 200 acres under the R&PP for administrative facilities for the Caja del Rio Landfill.

An active acquisition program was implemented in the Santa Fe County planning area throughout the 1990s in order to acquire land within and adjacent to the La Cienega ACEC.

Pursuant to the Plan's management objectives and the La Cienega ACEC Coordinated Resource Management Plan of September 1995, parcels of land in and around the ACEC were acquired to provide legal access and to protect cultural and interpretive values. In 1998, the La Cieneguilla ruin was acquired, and from 2000 to 2003, approximately 800 additional acres were acquired to provide buffer areas for archeological resources within the ACEC.

Since the RMP was adopted, there have been minor adjustments to the BLM land base in San Miguel County through the R&PP conveyance of parcels to nonprofit organizations and government agencies. Additionally, there have been several direct sales of BLM land to individuals over this period largely as a result of the sale parcels being surrounded by private land and the landowners wanting to consolidate their private land by purchasing the BLM inholdings.

Significant adjustments to surface ownership in Taos County have occurred as a result of certain land ownership adjustments, including acquisitions, land exchanges, sales, and patents under the R&PP. Taos County received a little over 1 acre for use as a solid waste transfer station in Pilar. Additionally, there have been several direct sales of BLM land to individuals over this period largely as a result of the sale parcels being surrounded by private land and the landowners wanting to consolidate their private land by purchasing the BLM inholdings.

Several land exchanges have taken place in the Taos County planning area. In 1996, approximately 640 acres were acquired within the Wild Rivers Recreation Area. Another 26,950 acres were acquired from several different parties. Most of these acquired parcels were in the "North Unit" of the planning area and were acquired to improve wildlife habitat and block up larger parcels of public land.

An active acquisition program was implemented in the Taos County planning area since the 1988 Taos RMP. Funding from the Land and Water Conservation Fund (LWCF) has allowed the Taos Field Office to acquire approximately 2,681 acres in the Taos Valley Overlook, the 14,000 acre property known as Ute Mountain, and another 2,000 acres north of the high bridge within the Rio Grande WSR corridor.

Minor adjustments to surface ownership in Rio Arriba County have occurred as a result of certain realty actions including acquisitions, sales, and patents under the R&PP Act. Rio Arriba County received approximately 3 acres for use as a solid waste transfer station in Alcalde; approximately 171 acres for use as a school and cemetery site; and approximately 400 acres in Coyote, for use as a county facility. Other transfers included a 0.60-acre lot which was transferred to the 7th Day Adventist Church in Cañoncito for use as a cemetery site, and a 0.40-acre site to the American Legion in Dixon.

An active acquisition program was implemented in the Rio Arriba County planning area since the1988 Taos RMP. Funding from the LWCF has allowed the BLM to acquire private parcels within the Rio Chama WSR corridor. In fiscal year 1999, the BLM purchased 320 acres known as the Ward Ranch. Several of the private parcels identified in the Rio Chama Management Plan as "high priority" tracts of land for acquisition within the corridor have been acquired through acquisition, exchange, and donation. Approximately 20 acres of the Howiri Pueblo located north of Ojo Caliente were acquired in 2006 with LWCF funding.

The Sebastian Martin Land Grant (SMLG) is located approximately 8 miles north of Espanola, between the communities of Alcalde and Velarde, in Rio Arriba County. The SMLG was

acquired by the Federal government in 1934, under the Bankhead-Jones Act, with the western portion transferred to the BLM in the mid-1960s, and the eastern portion to the national forest.

Land acquired under the Bankhead-Jones Act was acquired in order to remove it from farming use and to promote other broad agricultural and conservation goals. Under the Act, the land was not so much dedicated to a use, as kept from a use. Acquired Bankhead-Jones land may be conveyed through sections 203, 206 and 209 of FLPMA or use authorized under that Act, but may not be leased or patented under the R&PP Act. Acquired Bankhead-Jones land is not subject to application and entry under the Desert Land Entry Act, state indemnity selection, or mining location, and is administered under the Taylor Grazing Act.

The 1988 Taos RMP did not specifically address the SMLG land, but they are considered to be in the "retention zone." However, several land transfers have occurred since 1988. In 1991, Rio Arriba County received 5 acres of grant land to construct an historical monument to Don Juan de Oñate. In 1992, Rio Arriba County purchased 3 acres to construct a solid waste transfer station. (Purchases were at fair market value.) An additional 171 acres were transferred to Rio Arriba County in 2006 through the Rio Arriba County Land Conveyance Act. The county is proposing to use the land for a school and cemetery site. An additional 16 acres were sold to Mel Medina of the Adobe Factory, at appraised fair market value. Mr. Medina's home and business were located within SMLG land.

The grant has several rights-of-way located on it. The New Mexico Department of Transportation has an authorization for a material storage yard along NM-68; there are powerlines, fiber-optic cables, natural gas pipelines, and a water storage tank and water wells for the community of Velarde. There are also two areas within the grant that the community uses for removal of sand.

Rio Arriba County uses 10 acres of the grant for the Velarde Recreation Facility, which contains one regulation-sized baseball field, two little league fields, a water well, and access road.

3.3.3 *Land Use Authorizations, Utility Corridors, Communication Sites*

3.3.3.1 Land Use Authorizations

Land use authorizations support the public need for utilities, transportation, and telecommunications through various means such as rights-of-way, leases, or permits. Also included in this section is the identification of utility corridors, rights-of-way exclusions, avoidance areas, and communication sites.

Utility Corridors

While the 1988 RMP did not provide for designated utility corridors within the planning area, the BLM has attempted to issue rights-of-way along de facto utility corridors which are adjacent to public roads so as to avoid unnecessary disturbance to additional public land. Many of the linear facilities authorized under various rights-of-way grants have led to the establishment of de facto rights-of-way corridors; for example, Buckman Road and Caja del Rio Road, located about 12 miles northwest of Santa Fe. The major utility rights-of-way in the planning area include Public Service Company of New Mexico (gas and electric), Tri-State, Kit Carson Electric, and Jemez Mountains Electric Cooperative.

The BLM Taos Field Office manages rights-of-way by attempting to locate projects in or adjacent to areas of existing disturbance and by designated rights-of-way exclusion and avoidance areas. The placement of utilities in the past was largely determined by topographic and land status constraints. Overlapping or adjacent rights-of-way are issued whenever possible. In addition to corridors, the BLM may establish exclusion and avoidance areas to guide decisions about rights-of-way locations. Rights-of-way exclusion areas are areas where rights-of-way may be granted only when mandated by law (USDI-BLM 1993). Rights-of-way avoidance areas are areas where rights-of-way may be granted only when no feasible alternative route or designated rights-of-way corridor is available (USDI-BLM 1993).

Within the planning area, exclusion and avoidance areas have been designated as follows:

- Rights-of-way are excluded from the Wild Rivers Recreation Area (unless needed for administering recreation sites); Rio Chama SMA; Copper Hill ACEC (new rights-of-way are still allowed in the Central Protection Zone); Lower Gorge ACEC (new rights-of-way would be excluded unless needed to administer recreation sites or to provide access or utility service to private or state land where it is otherwise not possible; utilities would be underground only and would be co-located with roads); Santa Cruz Lake Recreation Area; Orilla Verde Recreation Area (except for underground utilities and New Mexico Department of Transportation road maintenance activities); Rio Grande and Red River WSRs; the Rio Grande WSR is excluded from rights-of-way crossings except in the rights-of-way window near the Rio Grande Gorge Bridge (special stipulations and restricted placement of structures would be required to minimize visual impacts of transmission lines); Wild Rivers Recreation Area (unless needed for administering recreation sites); Agua Caliente; and the Rio Embudo Protection Zone.
- Rights-of-way for acequias (irrigation ditches) are grandfathered through the legislation for WSRs, so they also would remain in effect. Construction and rehabilitation of acequias is limited to historical materials and methods to protect WSR values.

Communication Sites

Twenty communication site rights-of-way occupying six different communication site locations are authorized within the planning area. The two largest sites are Archuleta Mesa, near Dulce, and Cerro Piñon, near Cundiyo. Potential new users are encouraged to locate within existing communication site locations. Communication site plans have not been completed for the sites. The Taos Field Office has not formally designated any rights-of-way corridors within the Taos planning area, although attempts were made to group compatible facilities where possible. Table 3-33 lists the existing communication sites within the planning area.

Table 3-33. Communication sites and locations

Communication Site	Legal Description (NMPM)
Archuleta Mesa	T. 32 N., R. 1 W., secs. 7, 18, 19
Cerro Piñon	T. 19 N., R. 10 E., secs. 5, 8 T. 20 N., R. 10 E., secs. 5, 8, 19, 30, 31
Rinconada/Cerro del Arriba	T. 23 N., R. 10 E., secs. 20, 21
Cañoncito	T. 23 N., R. 10 E., secs. 27, 28, 29, 35
Cerro/FAA Site	T. 29 N., R. 12 E., secs. 28, 29
La Bajada	T. 15 N., R. 7 E., sec. 24

Rights-of-Way

There are numerous rights-of-way issued to Santa Fe County for infrastructure roads and utilities as development has pushed south and west of the city of Santa Fe adjacent to BLM land. Of particular significance has been the issuance of rights-of-way related to the city's need for additional sources of water as the population of the city and county continue to grow. These water facilities are grouped along Buckman Road, a de facto utility corridor, located about 12 miles northwest of the city. Additionally, the ongoing Buckman Diversion Project would augment the city's water supplies by pumping San Juan-Chama River waters to water treatment plants located on BLM and private land. The project is expected to be online by 2009. Another de facto utility corridor is located along the Caja del Rio Road west of the city where the city's municipal recreation complex is situated.

Along with the rights-of-way issued to the city and county of Santa Fe for infrastructure needs, other rights-of-way have been issued to individual landowners for access roads and utilities as more of the land within the county is converted from ranch land to rural residential lots.

In San Miguel County, particularly along the NM-3 corridor, approximately 11 rights-of-way have been issued across BLM land since the Plan's implementation. Uses range from rights-of-way for New Mexico State roads related to government infrastructure needs to issuance of rights-of-way to companies and individuals for access roads, power distribution lines, and fiber optic cables for high speed internet access.

Approximately 86 rights-of-way have been issued in Taos County since the Plan's implementation. Uses range from rights-of-way for New Mexico State highways, access roads to individuals to access their private parcels, communication sites, power distribution lines, natural gas lines, fiber optic cables, telephone lines, a water storage site and associated infrastructure for a community water project in Cerro, and several community acequias. Two rights-of-way for transmission lines cross the Rio Grande; a 7.2/12.5 kV electric line within a 20-foot wide rights-of-way crosses near John Dunn Bridge and a 69kV line within a 100-foot rights-of-way crosses at Bear Crossing. Both of these rights-of-way were granted prior to designation of the Rio Grande as a Wild and Scenic River.

In Rio Arriba County, approximately 37 rights-of-way have been issued across BLM land since the Plan's implementation. Uses range from rights-of-way for access roads to private land, New Mexico State highways, power distribution lines, communication sites for the Jicarilla Apache tribe, state of New Mexico, Embudo Valley Library, the Dixon Volunteer Fire Department, telephone lines and fiber optic cables, several water storage sites, and associated infrastructure for community water projects in Alcalde, Dixon, Velarde, Cañoncito and Vallecitos, several community acequias, and gas pipelines.

Leases and Permits

Section 302 of FLPMA provides the BLM authority to issue leases and permits for the use, occupancy, and development of public land.

The Taos Field Office, which is responsible for a nine-county area, receives requests for several land use transactions each year, the majority being film permits.

On average, eight film permits are issued each year within the planning area. The areas most requested for filming include the Rio Grande Gorge, Diablo Canyon, and the three recreation areas—Orilla Verde, Santa Cruz Lake, and Wild Rivers. Some of the major productions filmed

in the Taos Field Office include: *No Country for Old Men*, *Tortilla Heaven*, *The Longest Yard*, *Comanche Moon*, *3:10 to Yuma*, *The Hitcher*, *Appaloosa*, and *All the Pretty Horses*.

3.3.3.2 Hazardous Materials

The BLM stores and uses hazardous substances at the Taos Field Office, including a variety of flammable and combustible liquids. Types of hazardous chemicals used by the BLM include paint, fuel, lubricants, oil, adhesives, antifreeze, propane, household cleaners, and fuses (for starting back fires). These materials are stored in appropriate areas at the field office or at project sites and are used in minimal quantities for construction and maintenance activities on public land. That is, the chemicals are stored in quantities that generally do not represent a risk of harm to public health or the environment, or a condition that would be subject to regulatory enforcement.

Other activities taking place on public land that have the potential to use hazardous materials or generate hazardous or solid wastes include mining, oil and natural gas exploration and production, OHV use, and construction of public facilities. Mining activities are regulated by the NMED, as well as by the Mining and Minerals Division of the NMEMNRD. The exploration and production of oil and natural gas in New Mexico, while excluded from the Resource Conservation and Recovery Act, is regulated by the Oil Conservation Division of the NMEMNRD. OHV use, while a potential source for pollutants, is an activity conducted by individual private citizens and; therefore, not specifically subject to regulation. Construction activities on public land are regulated by the BLM and require proper handling, storage and disposal of hazardous materials.

Occasionally, hazardous waste is illegally disposed of on public land in the planning area. Such disposal has primarily included small amounts of auto fluid waste such as oil. The BLM addresses hazardous waste incidents immediately, although cleanup time and access restrictions may vary depending on the risk to public health and the environment.

Illegal disposal of solid waste on public land is an ongoing problem throughout the planning area. Concentrations of illegal dumping are greatest near towns and cities. The Taos Field Office has developed a list of sites, amounts, and descriptions of waste piles within the planning area. Sites are cleaned up as money becomes available. BLM law enforcement has taken an active role in enforcing laws and regulations prohibiting illegal dumping.

In the past, the Taos Field Office has leased land under the R&PP Act for use as sanitary landfills. The Taos Field Office has a total of 15 closed landfills on 259 acres across the planning area (Table 3-34). None of these facilities were identified as needing remedial action while processing the closure. Currently, there is one solid waste transfer facility in Santa Fe County leased on public land at a former landfill site. Current BLM policy is to avoid managing or developing landfills on public land.

Table 3-34. Landfill status

Legal	Proprietor	Action	Date	Acres
20N 10E S20	Santa Fe County	Closed	1/13/1981	10
17N 08E S35	Santa Fe County	Closed	2/15/1983	20
27N 12E S20	Taos County	Closed	11/16/1999	10
24N 11E S33	Taos County	Closed	2/24/1988	2.07
23N 08E S01	Rio Arriba County	Closed	8/15/1973	4.4
25N 13E S28	Taos County	Closed	5/14/1974	44.19
17N 08E S35	Santa Fe County	Closed	6/29/2001	20
14N 09E S18	Santa Fe County	Closed	6/11/2008	20
24N 09E S08	Taos County	Closed	6/11/2008	4
23N 10E S22	Rio Arriba County	Closed	5/9/1994	5
20N 09E S23	Santa Fe County	Renewed	1/29/2008	10
16N 08E S31	Santa Fe County	Closed	1/20/1988	7.7
23N 10E S22, 35	Rio Arriba County	Closed	4/21/1987	20
20N 09E S06	Espanola	Closed	9/16/1993	61.71
20N 09E S13	Santa Fe County	Closed	5/16/1989	20

3.3.4 *Livestock Grazing*

There are 317 grazing allotments comprising 529,200 acres and a total of 58,406 animal unit months (AUMs) within the planning area (a map of the allotments is available at www.geocommunicator.gov). Allotments are assigned to one of three categories: (I) *improve*—allotments requiring attention, (M) *maintain*—maintain natural resources at current levels, and (C) *custodial*—minimal management effort, based on their need for management attention. These classifications are assigned through an evaluation process which includes multiple factors such as resource conditions, allotment location, values, social concerns, issuing permits and leases, and resource conflicts. Table 3-35 presents the management categories applied within each planning unit.

Based on a rangeland condition assessment, an allotment's status as to meeting rangeland health standards is determined. Currently 85 percent of the allotments are meeting all standards or making significant progress toward meeting the standards, while 8.1 percent are not meeting all standards or making significant progress toward meeting the standards (where livestock grazing, predominantly historical, is a significant factor), but appropriate corrective management action is being taken; .6 percent are not meeting standards or making significant progress toward meeting the standards (also where livestock grazing, predominantly historical, is a significant factor), and no appropriate corrective action has been taken ; and 6.3 percent are not meeting standards or making significant progress toward meeting the standards due to causes other than livestock grazing.

The livestock grazing use for the planning units is correlated with the Major Land Resource Areas (MLRA) listed in the New Mexico Standards and Guidelines (see Map 3-3). A comprehensive description of the MLRAs can be obtained from the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (USDI 2000) or the Natural Resource Conservation Service (NRCS). Specific soil information by allotment is available at the Taos Field Office.

Table 3-35. Allotment management category

Category	AUMs	Acres	% of Planning Unit Acreage
East Side planning unit (132 Allotments)			
I	0	0	0
M	0	0	0
C	7,056	46,198	100
Total	7,056	46,198	100
Chama planning unit (29 Allotments)			
I	5,261	29,866	78
M	772	5,246	14
C	351	3,037	8
Total	6,384	38,149	100
Taos Plateau planning unit (75 Allotments)			
I	20,288	174,759	82
M	2,765	27,092	13
C	1,112	10,030	5
Total	24,165	211,881	100
Lower Gorge/Copper Hill planning unit (11 Allotments)			
I	655	4,086	15
M	597	20,346	71
C	280	3,805	14
Total	1,532	28,237	100
Ojo Caliente planning unit (17 Allotments)			
I	4,152	61,047	77
M	1,155	17,411	21
C	139	1,326	2
Total	5,446	79,784	100
El Palacio planning unit (14 Allotments)			
I	3,916	51,013	66
M	1,725	25,780	34
C	22	124	0
Total	5,663	76,917	100
West Santa Fe planning unit (6 Allotments)			
I	6,391	36,102	98
M	0	0	0
C	34	714	2
Total	6,425	36,816	100
Galisteo planning unit (24 Allotments)			
I	0	0	0
M	0	0	0
C	1,735	11,218	100
Total	1,735	11,218	100

The following are MLRAs within the planning area:

36-New Mexico and Arizona Plateaus and Mesas

Elevation and topography: Elevation ranges from 1,500 to 2,300 meters, but a few isolated mountains are higher than 2,600 meters. These plateaus and mesas have gentle slopes, but precipitous slopes are along valley walls and edges of the mesas.

Potential natural vegetation: Most of this area supports grassland vegetation. Indian ricegrass, blue grama, dropseed, and galleta are the major species. Alkali sacaton, fourwing saltbush, winterfat, and rabbitbrush grow in the valleys between mesas. Pinon-juniper woodland occurs at the higher elevations and also on shallow soils and escarpments. The understory includes western wheatgrass, galleta, sideoats grama and, in some places, big sagebrush.

48A-Southern Rocky Mountains

Elevation and topography: Elevation ranges from 2,300 to 4,300 meters. These strongly sloping to precipitous mountains are dissected by many narrow stream valleys with steep gradients. In places, the upper mountain slopes and crests are covered by snowfields and glaciers. High plateaus and steep-walled canyons are fairly common, especially in the west.

Potential natural vegetation: This area supports forests on upper slopes, alpine tundra above timberline, and shrub-grass vegetation at lower elevations. Grasses, sagebrush, and other shrubs grow on the lower slopes and in valleys. Lodgepole pine, aspen, Douglas fir, and ponderosa pine are major trees of the lower forests. Engelmann spruce, and subalpine fir, white fir, and limber pine intermingled with stands of aspen are typical on the mountain slopes. Willow, alder, and birch trees grow along streams. The timberline zone is characterized by stunted and wind-twisted limber pine, bristlecone pine, Engelmann spruce, and subalpine fir. Alpine grasses, herbaceous plants, and shrubs constitute the treeless alpine tundra.

51-High Intermountain Valleys

Elevation and topography: Elevation ranges from 2,100 to 2,700 meters. Much of the area consists of nearly level to gently sloping old valley fill. Gently sloping to steep hills underlain by basalt are extensive in the south. Local relief is slight except in the south, where it is as much as 100 meters.

Potential natural vegetation: This area supports desert shrub-grassland vegetation. Greasewood, rabbitbrush, fourwing saltbush, saltgrass, alkali sacaton, wheatgrasses, sedges, and rushes are common at the lower elevations. Pinon-juniper, Indian ricegrass, blue grama, needle and thread, wheatgrasses, and bluegrasses grow at higher elevations. Narrowleaf cottonwood grows along the major streams.

70-Pecos-Canadian Plains and Valleys

Elevation and topography: Elevation ranges from 1,200 to 2,100 meters, increasing gradually from southeast to northwest, but reaches 2,400 meters on a few mesas and mountains. Most of these dissected high plains are gently sloping to rolling, but bands of steep slopes and rough broken land border the stream valleys. A few isolated mountains, mesas, and canyon walls have steep to very steep slopes. Valley floors are mostly narrow and cut by stream channels.

Potential natural vegetation: This area supports plains grassland vegetation that is dominated by short and mid-grasses. Blue grama is the dominant species. Western wheatgrass is the associated species in the northern part of the area, while lesser amounts of blue grama in

association with black grama, galleta, New Mexico feathergrass, and a variety of shrubs, halt shrubs, and forbs characterize the southern part. Scattered juniper and pinon with an understory of sideoats grama, bottlebrush squirreltail, and western wheatgrass grow in shallow soils and on escarpments. Ponderosa pine grows on the north and east slopes of the high mesas.

77-Southern High Plains

Elevation and topography: Elevation ranges from 800 to 2,000 meters, increasing gradually from southeast to northwest. These smooth high plains are gently sloping, but along the major rivers, breaks are very steep.

Potential natural vegetation: This area supports a short grass community characterized by blue grama and buffalograss. Mid-grasses such as sideoats grama grow on the more open soils and breaks. Tall grasses such as sand bluestem, little bluestem, and Indiangrass grow mixed with shinnery oak and sand sagebrush on the sandy soils. A wide range of perennial forbs grow on the sandier soils and are characterized by dotted gayfeather, pitchersage, sagewort, bush sunflower, and daleas.

Common to All Units

The following information combines both the management units and the MLRAs.

Livestock Operations are divided into two categories: *large*—greater than 100 head of livestock; and *small*—less than 100 head of livestock. On the section 3 allotments, livestock grazing has been largely excluded from the riparian areas. There are a few allotments where livestock are channeled into water gaps. Trespass of cattle into riparian exclosures is an ongoing issue/concern. The condition of the riparian areas in the section 15 allotments varies due to the location of and the ability to manage many of these isolated parcels. Reserve common allotments may be identified and established in any of the units.

East Side planning unit

This area is divided into two MLR areas, the Pecos-Canadian Plains and Valleys (PCPV) #70 and the Southern High Plains (SHP) #77. The allotments are classified as section 15 leases under the Taylor Grazing Act:

Pecos-Canadian Plains and Valleys (PCPV). The livestock operations in the East Side-PCPV are primarily small operations with the exception of a few large ranching operations. The allotments are usually small acreage, 40 acres and up of BLM land, with the actual amount of deeded land often unknown. Lessees can offer a portion of their deeded land as base property for the leases. The use can be for a month or less; however, most are year round use. Leases are issued for as few as 6 AUMs. There are exceptions to this where there are multiple parcels associated with a single allotment.

The largest section 15 allotment contains more than 4,000 BLM acres. Parcels associated with one allotment can be located within multiple pastures within a ranch. There is at least one example of a single 40-acre parcel of BLM land located within over 30,000 acres of state and private land. Some of the allotments in the area are incorporated into management plans for the ranches and have varied grazing seasons. The operations are primarily cow/calf. The Sabinoso Wilderness is located within this area.

A number of the BLM parcels in the southwest portion of this planning unit are public land that is associated with the small private agricultural fields and small villages in the floodplain of the

Pecos River. All would be classified as small operations. An example of this would be where there is a small private field in the floodplain often associated with an irrigation canal and the BLM grazing land is directly adjacent to or close to the field. The BLM land is often on top of the mesa. Due to effects of rural residential/exurban development, the public land around Ribera is being viewed and valued as open space.

Southern High Plains (SHP). Within the SHP, leases are associated primarily with large operations/ranches, and most are cow/calf. A few operators run yearling calves. There are several small operations. The MLRA does not necessarily conform to the area of land being described, but this is the area within the planning unit east of Las Vegas, New Mexico, to the Texas/ Oklahoma border, then north to Raton, New Mexico. The BLM land is a very minor component of these ranches. The allotments range from single 40-acre parcels associated with a single ranch to multiple allotments with multiple parcels sometimes comprising a single allotment. An example of this would be one ranch that has two allotments. One of those allotments is comprised of twelve 40-acre or greater parcels spread over an area of about 20 square miles. Individual parcels vary from smooth high plains to shear canyon walls. Exurban or rural residential development may or may not be a concern in this area primarily due to availability of water. The majority of water rights are allocated. The grazing use is generally year round. At least two of the ranches practice intensive comprehensive adaptive management principles.

Chama planning unit

The Chama Unit is divided into two MLRAs; Southern Rocky Mountain (SRM) # 48 and the New Mexico and Arizona Plateaus and Mesas (NMAPM) #36. This area has both section 3 and section 15 allotments. A couple of the operations could be classified as large while most are small operations. The majority of the operators in this area are part-time ranchers who have jobs or are retired and ranching is a second/supplemental income. Most are small cow/calf operations. Private, state, and BLM lands are mixed together in the planning unit. Rio Chama WSR and the Chama WSA are within this unit.

Taos Plateau planning unit

The Taos Plateau unit basically covers the public land in the area north and west of Taos to the USFS boundary. The MLRAs associated with this planning unit are the Southern Rocky Mountains (SRM) # 48 A, and the High Intermountain Valleys (HIV) # 51. The North Unit zone of the Taos Plateau planning unit is the area where the BLM is the major land holder with state and a small amount of private land mixed in. Allotments are primarily section 3 with 63 in number and 12 section 15 allotments in the area. The use of the area is seasonal. The operations are cow/calf. Many of the operators have their base operations in Colorado and trail cattle from Colorado in the spring across BLM land to their summer pasture on the Carson Forest for their summer grazing and then come back across in the fall. A few of these operators have in excess of 1,000 head of cattle (not all grazed on BLM land). Their base farms in Colorado are devoted to growing hay in the summer for the livestock in the winter. There is no livestock grazing within the riparian areas of the Rio Grande Gorge as per the direction of the Rio Grande Corridor Plan (2000). Livestock are trailed across the river at Sheep's Crossing in Wild Rivers Recreation Area.

As per the United States Department of Interior Office of Hearings and Appeals Settlement Agreement # NM-018-90-1 (Grazing), the southeast pasture of grazing allotment # 606, Wild Rivers, comprising 897 acres of the Wild Rivers Recreation Area, otherwise known as "the loop," would be unavailable for grazing livestock. Seventy-seven animal unit months of grazing

would be added to the northeast pasture of the allotment. The actions and improvements agreed to in the settlement have been implemented and the agreement has been fulfilled.

The area northwest of Taos below the North Unit zone is a mix of private, state, and BLM lands. This area is experiencing a considerable amount of exurban and rural residential growth on the private land. There may be opportunities within the Taos Plateau Unit for reserve common allotments. The unit is considered important wildlife habitat for elk, pronghorn antelope, and mule deer.

Lower Gorge/Copper Hill planning unit

This Lower Gorge Unit falls in the Southern Rocky Mountain #48A. The unit is characterized by section 3 allotments. The operations are classified as small. The management of these parcels was prescribed and analyzed in the Rio Grande Corridor Plan completed in January 2000. Three of the allotments are vacant. A fourth allotment grazing would be retained only for the current permittee, and then retired.

Ojo Caliente planning unit

The Ojo Caliente Unit is characterized by MLRA New Mexico and Arizona Plateaus and Mesas (NMAPM) # 36 and includes section 3 allotments located on both sides of the private land associated with the Ojo Caliente floodplain. The public land extends west over the mesa tops into the Chama drainage. Included in this unit is the public land west of Espanola and the Rio Chama. The livestock operations are cow/calf and all are small operations. The Ojo Caliente Livestock Association retains the allotment permit on both sides of the Ojo Caliente valley. The smallest section 3 allotment (12 acres) within the planning area is located in this unit.

El Palacio planning unit

The El Palacio Unit is characterized by all section 3 allotments. The MLRA associated with the unit is the New Mexico and Arizona Plateaus and Mesas (NMAPM) # 36. Many of the allotments in the area are community allotments with a history of free grazing; this no longer occurs. The free grazing was given to individuals who wanted to raise a few cattle for personal consumption. The allotments were tied to the small communities in the area. All are classified as small operations. There are a number of one cow permits in this area. There are lands acquired through the Bankhead-Jones Act in the area; the funds received for these areas are distributed differently than the funds received from regular grazing fees. The ability to graze public land in the El Palacio area is greatly affected by the adjacent communities. There is a considerable amount of trash dumping, vandalism to improvements, and cutting of fences.

West Santa Fe planning unit

The West Santa Fe Unit contains section 3 allotments. The MLRAs associated with the West Santa Fe Unit are the Pecos-Canadian Plains and Valleys PCPV #70 and the New Mexico and Arizona Plateaus and Mesas (NMAPM) # 36. The majority of these allotments are classified as large operations. The grazing in this unit is greatly affected by the impact of urban expansion in the area. The Santa Fe Canyon riparian area is located within and adjacent to several allotments. A portion of the area (9,035 acres) is used by the National Guard for training of personnel on the ground and with equipment. Specific conditions of use are addressed in the memorandum of understanding between the BLM and the National Guard. There are significant cultural resources within the area.

Galisteo planning unit

The Galisteo Unit contains section 15 allotments. The MLRA associated with the area is the Pecos-Canadian Plains and Valleys (PCPV) #70. The majority of the allotments in the area are parcels of public land that have been incorporated into historic large ranches. Due to the proximity of these ranches to Santa Fe, Galisteo, and Albuquerque, many of the ranches are being acquired by developers for subdivisions or the deeded lands are being split between the heirs of individuals who have passed away. The purchase by developers is more common the closer the land is to Santa Fe. Because of this, the BLM land has now become valuable as "open space" for the surrounding communities and developments. Due to this development, the likelihood of a parcel being converted to a reserve common allotment is high. In the past, all of the parcels were targeted for disposal. With the exception of a few of the leases, grazing is a sideline and the operations would be classified as small.

3.3.5 *Mineral Resources*

The BLM plays an essential role in contributing to a stable, domestic supply of mineral and energy resources. The different types of Federal mineral ownership are shown on Map 3-2. Table 3-36 displays Federal mineral ownership acreages. Energy and mineral resources relevant to the planning area have been defined by Federal laws, regulations, and legal decisions (BLM 1997b), and are grouped into three program areas:

- *Leasable minerals:* include both fluid minerals (carbon dioxide [CO_2], geothermal, oil and gas) and solid minerals (coal).
- *Locatable minerals:* include metallic minerals (such as gold and silver), and nonmetallic minerals (such as perlite).
- *Salable minerals:* include sand, gravel and volcanic cinders.

Table 3-36. Land ownership acreages

Surface and Mineral Owner	Surface Acres	Mineral Acres
BLM	595,100	1,517,850
Forest Service	2,600,500	2,374,060
Other Federal		5,590
Total Federal minerals		3,897,500
Tribal	394,830	
State	1,472,360	
Other agencies	165,930	
Private	10,292,260	
Planning area total	15,520,980	

3.3.5.1 Leasable Minerals

Federal land is available for leasing to develop certain Federal minerals, including fluid and solid minerals. Land that is open to leasing is subject to standard lease terms and conditions. The BLM may apply additional stipulations to a lease in a sensitive area. Some areas, such as WSAs, are discretionarily closed to leasing. Procedures for fluid mineral leasing and development are described in more detail in Appendix B.

The leasable minerals present in the planning area are CO_2, coal, geothermal, and oil and gas. In developing the alternatives for analysis, a review of each resource was performed to identify potential development in the Taos Field Office. This study resulted in a potential development

analysis which forms the basis for projected resource development in the planning area and facilitated the development of the alternatives.

Carbon Dioxide (CO_2)

CO_2 and other associated inert gases such as helium are considered nonenergy fluid mineral resources. They are typically discovered by exploratory oil and gas well drilling which encounters natural gas or nonflammable gas containing economic quantities of CO_2. If these gases can be economically separated, collected, and compressed for delivery to a market, then they become valuable and a gas field is developed.

Known Occurrences and Prospective Areas. There is one producing CO_2 area within the planning area; Bravo Dome, and one active exploration area in the Tucumcari Basin (see Map 3-12). The Bravo Dome only produces CO_2 and minor quantities of associated inert gases such as helium, nitrogen, and argon. The Bravo Dome is actively being developed by infill and exploratory drilling. The other oil and gas frontier area or basin where CO_2 and helium have potential to be discovered in economic quantities is the Tucumcari Basin.

Production of CO_2 in the Bravo Dome area is from two separate formations: the Permian Tubb Sandstone and the Permian/Penn Granite Wash. There are two adjacent areas that are each in different stages of development. The Bravo Dome Unit currently has 452 drilled wells with 14 wells drilled in 2006 and another 42 wells drilled in 2007 (OxyUSA, Incorporated Bravo Dome Unit 2007 Plan of Development). The Bravo Dome Unit has over 450 producing wells while the West Bravo Dome Unit has 20 wells that are currently shut-in awaiting development of an infrastructure of electrical power, pipelines and gas compression facilities. Submitted unit plans of development from Oxy USA, Incorporated, operator for the Bravo Dome Unit, and by Hess Corporation for the West Bravo Dome Unit indicate both have an active drilling and development program for 2007–2008 (Hess Corp. West Bravo Dome Unit 2007 Plan of Development).

The Federal minerals participation in the Bravo Dome Unit is 8.09 percent based on a total unit size of 910,196 acres while the West Bravo Dome Unit is currently at 19.7 percent Federal and currently contains 34,655 acres (USDI-BLM, LR2000 lease serial pages). Both unit operators indicate they have plans to expand by drilling more wells and adding additional land and production facilities with the largest expansion being planned for the West Bravo Dome.

Leasing Activity. Conditions of oil and gas leases allow development of CO_2 and helium. There is currently an active leasing program in Union and Harding counties specifically targeting CO_2 exploration and development. The amount of interest is reflected in the 111 current Federal leases which total 59,999.49 acres being held by allocated production in the Bravo Dome area (USDI-BLM, LR2000 lease serial pages).

There is also leasing activity outside of the two Bravo Dome Unit boundaries, particularly to the west and south toward the Tucumcari Basin (see Map 3-12, with leases identified in green). Although helium can be an important component of CO_2 gas, it is not a leasable mineral. Helium is reserved by law for the government. Helium is developed under extraction and sales contracts between the developer and the BLM instead of sales royalties under standard oil and gas lease procedures.

Coal

Coal is a leasable, solid energy mineral resource. Coal resources in Rio Arriba, Santa Fe, and Colfax counties typically are found in Cretaceous-age sedimentary formations. Locations where coal resources occur and can be mined are designated as coalfields. There are four coalfields located within the planning area: the Cerrillos in west central Santa Fe County, the Monero and Tierra Amarilla coalfields in north central Rio Arriba County, and the Raton coalfield in north central Colfax County (see Map 3-13). Currently, there is no coal being mined from any of these coalfields.

Known Occurrences and Prospective Areas. Rio Arriba County has two known occurrences of coal resources: the Monero and Tierra Amarilla coalfields. The Monero coalfield is a north-south trending belt of Menefee formation coals which extend in outcrop from the Colorado state line south approximately 45 miles. The Menefee formation coals are thin as they range from 3 to 4 feet thick in multiple seams and are valued for their high btu and coking properties (Keystone 1992). Near the towns of Monero and Lumberton, the Menefee coals were mined from 1882 to 1963 with the area containing up to 40 small scale underground mines. The mines produced 1.6 million tons (Hoffman 1991) principally for the Denver and Rio Grande Western Railroad which served both towns. Near the town of Monero, bed thicknesses have been measured up to 7.3 feet (New Mexico Bureau of Mines and Mineral Resources Coal Data Base) but dip angles and faulting would probably prohibit stripping of these reserves over any significant area (Shoemaker 1971). Coal resource for surface mining is estimated at 8 million tons in areas under less than 200 feet of overburden (Hoffman 1996) with an original resource of 17 million tons (Hoffman 1991). The coal is low moisture (3.0 percent), low sulfur (1.89 percent), moderate ash (11.8 percent), and ranges from 9,114 to 13,798 btu with a rank of high volatile A bituminous. The Federal mineral ownership is estimated at 19,500 acres of the field.

Portions of the Tierra Amarilla coalfield are located about 3 to 5 miles southeast of Tierra Amarilla on the east flank of the Chama Basin in the north central portion of Rio Arriba County. The field is composed of outliers or isolated coal bearing outcrops of the Menefee formation of the Mesaverde group that are some 12 miles east of the nearest Mesaverde outcrops on the northeast flank of the San Juan Basin (Beaumont 1971). Coalbeds occur in nine separate stratigraphic positions with the thickest individual bed being 4.1 feet (Landis and Dane 1969). The coalbeds are described as thin and lenticular and are overlain by excessive cover including massive cliff forming sandstones. Landis and Dane (1969) estimated underground reserves of a million tons of coal in beds more than 28 inches thick and 3.4 million tons in beds 14 to 28 inches thick. Because of thick overburden, there is no strippable coal in the Terra Amarilla coal-field (Beaumont 1971). The coal contains (1.0 to 1.1 percent) sulfur, moderate ash (8 percent) and a rank of subbituminous A. Federal mineral ownership is limited to a small portion of T. 27 N., R. 5 E. and is estimated at 5,200 acres of the field.

The Cerrillos coalfield is located south of Santa Fe and north of the Ortiz Mountains in Santa Fe County. The field is located in a complex syncline in which the coal bearing Mesaverde rocks have been heavily faulted and intruded by swarms of dikes and sills. Some coal near thick igneous intrusions has been metamorphosed to anthracite and semi-anthracite (Beaumont 1979). As much as 45,000 tons of anthracite was mined annually from the field from 1888 to 1957. The estimated total production for a similar period is about 6 million tons of both anthracite and bituminous coals. Several estimates of reserves have been documented and they are as follows: Keystone (1992) estimates reserves at 47.5 million tons of bituminous and 5.7 million tons of anthracite. Read and others (1950) estimated underground reserves to a depth of 3,000 feet to be 46.5 million tons of bituminous and 11.4 million tons of anthracite using measured, indicated,

and inferred guidelines. However, Beaumont (1979) believes these reserves to be excessive and only a resource base figure with the actual recoverable figure being on the order of a tenth of that. The coal is low moisture (3.5 percent), low sulfur (1.2 percent), moderate ash (7.82 percent), and ranges from 10,738 to 14,100 but with a rank of high volatile B bituminous to anthracite. Federal mineral ownership is limited on the south side of Galisteo Creek to an estimated 300 acres in the vicinity of the old mining towns of Madrid and Cerrillos with another 7,040 acres from other areas within the Cerrillos coalfield.

The Raton coalfield is the largest of these coalfields with 104 million tons extracted from 1888 to 2001 (Hoffman and Bister 2003). The Federal mineral portion of the Raton field is located northeast of the city of Raton in the Yankee-Sugared mining district of Colfax County. The mining district was characterized by numerous independent underground mines whose production has historically been from small operations. The coal quality of the Sugarite mines was bituminous, noncoking but with a high heating value and burned freely without much clinker (Lee 1924; Pillmore 1976). Exact coal quality values for the Yankee/Sugarite area are unknown. The Sugarite coalbed of the lower coal zone of the Raton formation is reported to be 6-feet thick. Total coal production from Sugarite amounted to 562,497 tons or less than 1 percent of the total coal production from Colfax County (New Mexico State Mine Inspector's reports). Federal mineral ownership is estimated at 5,551 acres in the Yankee-Sugarite mining district.

Leasing Activity. Currently, there is no interest in coal leasing in the four coalfields within the planning area. Some of that lack of interest is also exemplified in the fact that there is no coal mining occurring with large reserves still in place (Beaumont 1979), (Hoffman 1996) and (Landis and Dane 1996).

Geothermal

Geothermal resources have a history of successful application in New Mexico. Current uses in the planning area include residential and commercial space heating, heated swimming pools, and spas. Geothermal resources have been defined as resources with temperatures at least sufficient for thermal use in New Mexico's climate (Fleischmann 2006). More specifically, a thermal resource is defined as a resource when its temperatures are higher than 38 ºC or 100º F.

The diverse types of geothermal resources from low to high temperature are due to the geology and physiographic provinces present in the planning unit (see Map 3-14). The adjacent Colorado Plateau has elevated heat flow, and many deep-seated and confined aquifers that can provide mostly low-temperature conductive geothermal resources. The Southern Rocky Mountains province also has elevated heat flow and youthful faulting and volcanism. The Rio Grande Rift is a subset of these two provinces and has low to intermediate temperature convective resources. In north-central New Mexico, a large Pleistocene rhyolitic volcanic complex straddling the rift in the Jemez Mountains has the only known high-temperature, convective resource in New Mexico. The Great Plains province generally has normal or low heat flow that is typical of a stable continental setting and only has limited potential for deep-seated low-temperature geothermal resources (Witcher 2002).

Known Occurrences and Prospective Areas. Information on the known occurrences of geothermal energy resources in the planning area are available in the Geothermal Resource Data Base for New Mexico prepared by the Southwest Technology Development Institute at New Mexico State University (Witcher 1995). The database reports sites with measured temperatures greater than 30 ºC/86 ºF.

The Southwest Technology Development Institute has identified a total of 32 known geothermal resource locations in the planning unit with 12 in Rio Arriba County, 10 in San Miguel County, 5 in Santa Fe County, and 5 geothermal resource locations in Taos County (NMSU Geothermal Sites and Location Data Tables 1995).

The 12 geothermal energy resources in Rio Arriba County are all centered on the Ojo Caliente Hot Springs area with nine springs and three wells. Depth of the wells range from 48 to 87 feet and they range in temperature from 25.5 to 55.6 ºC (78 to 132 ºF). Seven of the resources are grouped together at the Ojo Caliente Hot Springs. The geothermal energy use is primarily therapeutic as spas.

There are 10 geothermal energy resources, all wells, listed for San Miguel County. These wells are located at Montezuma Hot Springs where Armand Hammer United World College near Las Vegas, New Mexico, is using geothermal energy for space heating the college. The Montezuma Hot Springs location is structurally controlled by its location on the Front Range of the southern Rocky Mountains with Laramide reverse faulting and with an attendant fold structure that formed at the margin of the Sangre De Cristo uplift (Baltz 1972; Bejnar and Bejnar 1979). This type of structure and others of a similar nature continue northward into Colorado. It is possible that additional geothermal systems occur on this trend. It is also possible that Montezuma Hot Springs proper represents a larger local geothermal system that could provide geothermal energy for more users than the college (Witcher 1995). The range of temperatures for these wells is from 41.1 to 55.17 ºC (106 to 131.3 ºF). The depth of these wells is unknown.

The five geothermal energy resources in Santa Fe County are wells mostly centered in the Los Alamos area with only one exception which is a nearby well. Depth of the wells varies from 154 to 290 feet and their temperatures are consistent at 30.0 to 30.5 ºC (86 to 87 ºF). It is unknown if the wells at Los Alamos are used for energy needs or are only test wells.

There are also five geothermal energy resources in Taos County. Two of the resources are wells and three are hot springs with the wells not indicating a known depth. The range of temperatures for these five resources is from 32 to 40.6 ºC (89.5 to 105.1 ºF).

Leasing Activity. There are currently no Federal geothermal leases within the planning area.

Oil and Gas

Oil and gas are typically discovered and exploited by drilling exploratory and development wells into sedimentary rocks present in geologic basins. Sedimentary rocks which have reservoir quality porosity and are adjacent to petroleum source rocks, such as organic-rich shale or coal, and have formed a structural or stratigraphic trap may accumulate oil and gas. Permeable migration pathways from source rock to sealed or trapped reservoirs are also critical components of an oil and gas play.

Coalbed methane (CBM) is natural gas that is contained in coalbeds, and is a leasable fluid mineral resource. Prolific production of CBM from portions of the San Juan Basin, which are not in the planning area, and from the Raton Mesa, which is within the planning unit, has stimulated interest in this resource. In most CBM operations, production of water and accompanying depletion of pressure is the mechanism which causes methane gas to desorb from the coal matrix and migrate through the pore system to a producing well (Hoffman 2003). Critical parameters in CBM viability are coal seam thickness and extent, thermal maturity and presence of a natural fracture or cleat system. CBM is discovered and developed by drilling a well into the coal-bearing formation and completing the well in either or both the coal seams or

in other adjacent gas-bearing sandstone reservoirs. The following well data, Table 3-37, comes primarily from IHS Energy's well data and production data bases but also other sources such as NM Tech's Go-Tech production data and NMOCD online website were used.

Table 3-37. Historical number of wells drilled in the planning area

County or Area	Wells Drilled	Producing Wells	Dry holes or Inactive	Years of Drilling	Dry holes per Year	Producers Per Year
Archuleta Mesa	23	0	23	82	0.28	0
Chama Basin	98	0	98	91	1.08	0
Colfax County	985	750	235	79	2.97	9.49
Harding County	404	258	146	77	1.90	3.35
Mora County	62	8	54	58	0.93	0.14
Santa Fe County	46	1	45	68	0.66	0.01
San Miguel County	117	0	117	97	1.21	0
Union County	482	365	117	78	1.5	4.68
Taos County	0	0	0	0	0	0
Average					1.17	1.96

Note: Eastern Rio Arriba County divided into Archuleta Mesa and Chama Basin areas.

Known Occurrences and Prospective Areas. There are two producing oil and gas basins within the Taos planning area; the Santa Fe Embayment which produces only oil and the Raton Basin which produces mainly coalbed methane (see Map 3-13). CBM production from the Raton Basin is only from private minerals with the only portion of the basin containing Federal minerals located east of the city of Raton and in the Forest Service's Valle Vidal. A reasonable foreseeable development scenario done for the Carson National Forest determined the CBM potential of the Eastern Valle Vidal of the Raton Basin to have high potential (Brister et al. 2004). In July of 2006, legislation was passed that permanently prohibits energy development and extraction in the 102,000-acre Valle Vidal.

There are eight oil and gas frontier basins or plays of interest to explorers in the planning area: Santa Fe Embayment, Raton Basin northeast of the city of Raton, Chama Basin, Archuleta Mesa, Espanola Basin, Las Vegas Basin, Dalhart Basin and Tucumcari Basin. Map 3-15 shows the oil and gas potential of these basins within the planning area. Although there have been many shows of oil and gas reported in many wells from these basins, only one well is currently reporting oil production.

The only well with reported oil production is located in the Santa Fe Embayment, a southern extension of the Espanola Basin which is commonly referred to as the Galisteo Basin. The Santa Fe Embayment is also part of the greater Rio Grande Rift geologic province. The Santa Fe Embayment is located within Santa Fe County where a total of 46 wells have been drilled since the early 1920s. The Black Ferrill #1 well has had sporadic production from the start. The well had a cumulative production of 861 barrels of oil (bo) from the Niobrara member of the Mancos formation from November 1985 to September 2005 (IHS Energy 2008). In the summer of 2007, the well was reworked and now has a reported production of 6 to 12 bo per month. Production from this well is from private minerals on private surface. Five other wells drilled in the Santa Fe Embayment have had shows of oil and gas. Additional discussion of the Galisteo Basin is presented in the Leasing Activity section below.

The Yankee-Sugarite mining district located northeast of the city of Raton is the only portion of the Raton Basin with Federal minerals and CBM producing Raton and Vermejo formations. The Yankee-Sugarite coal district was mined from about 1902 until the mines were closed in 1941. The mining district contains very little drill hole data as four of the five wells drilled here were located below the coal outcrops and the other well did not have a well log but tested the deeper Dakota as dry.

The Chama Basin located in eastern Rio Arriba County has been an active area of drilling with 98 wells from 1915 to 2006. Oil and gas shows were encountered in six of those wells with shows in the Dakota, Morrison, and Entrada formations. There was recent activity in 2005 and 2006 with the drilling of four wells in the north end of the Chama Basin to the Entrada formation that were plugged and abandoned. None of these test wells have produced oil and/or gas and are considered uneconomic.

The Archuleta Mesa or Archuleta Anticlinorium is a southeast plunging anticline which is structurally located between the San Juan Basin to the southwest and the Chama Basin to the east. There have been 23 wells drilled in this area of approximately 4 townships. Oil and gas shows were encountered in one of these wells with shows in the Dakota and Morrison formations. There was recent activity in 2006 with the drilling of one well to the Entrada that was plugged and abandoned. None of these test wells have produced oil and/or gas and are considered uneconomic.

There have been only four exploration test wells drilled in the Espanola Basin. Two wells located east of the city of Espanola drilled in 1931 and 1961 reached Pennsylvanian rock at depths of 1,700 and 2,730 feet, respectively (USGS 1997). Both wells reported minor oil shows and were plugged and abandoned.

Mora County had 62 dry holes from 1926 to 1984 with a majority of the wells drilled in the eastern portion of the county in the Las Vegas Basin. The Wagon Mound field located within the Las Vegas Basin is the only area in the county to have producing wells. The Wagon Mound Field had eight wells which produced over 97,000 million cubic feet (mcf) of natural gas from the Dakota and Morrison formations. However, there was production for only 3 years from 1976 to 1978 before the wells gave out and were plugged and abandoned. Also, only three of those 62 wells had reported oil and/or gas shows.

The Dalhart Basin extends westward from the Texas Panhandle into the northeast corner of Union County in New Mexico. There have been 122 wells drilled in Union County excluding the CO_2 producing Bravo Dome wells. These wells are prospecting Pennsylvanian age rock and the Granite Wash formation for oil and the Tubb formation sandstone for CO_2. Thirty-five of these wells are located in the northeast portion of the county in the Dalhart Basin, with only two of these wells reporting shows of oil. None of these wells have reported oil production.

The Tucumcari Basin, located partially in southern San Miguel and Harding counties, first was tested for oil and gas in the 1920s and 1930s, and has had high interest with 117 wells drilled to date in San Miguel County. Sixty-one of these test wells were focused on the southeast part of the county in or near the Tucumcari Basin. Oil and gas shows were encountered in ten of those wells with shows in the following intervals: Santa Rosa sandstone, San Andres formation, Abo formation, Hueco group, Canyon series and the Strawn/Atoka series. In Harding County, there have been 36 wells drilled to date, mostly in the southeast portion. Oil and/or gas shows were encountered in six of those wells with shows in the following intervals: Triassic age rocks, San

Andres formation, Glorieta sandstone, Yeso formation and the Abo formation (Broadhead 2003). None of these test wells have produced oil and/or gas and were considered uneconomic.

Not in the planning area, but within 6 miles of San Miguel County in Guadalupe County, north of Interstate 40, three wildcat wells have recently been drilled with varied success. One well drilled by Yates Petroleum to 8,118 feet has been plugged and abandoned. Another well drilled by Cuervo Exploration to around 8,000 feet has an unknown status. A third well was drilled to approximately 11,500 feet by Cuervo Exploration and was later bought by Shell Western E&P. This well has reported Pennsylvanian play and is currently being tested (Brown 2008). These wells in the Tucumcari Basin are targeting thick Pennsylvanian shelf rock in elevator basins which are long, narrow, and structurally deep troughs bounded by high angle faults (Broadhead 2003).

Leasing Activity. An issue that has come up since the scoping meetings is the potential for oil and gas exploration and development in the area of southern Santa Fe County, between Cerrillos and Galisteo, known as the Galisteo Basin. Oil was first discovered in the area in late 1985, but the field did not extend beyond the original two wells, spaced about 2 miles apart. These two wells had initial production of 30 and 80 barrels per day, and production has declined since that time.

In 2006, spurred on by high oil and gas prices, a petroleum company decided to re-evaluate the possibilities of finding additional oil and gas in the area. More than 6,000 acres of state mineral rights and at least 54,000 acres of private mineral rights were leased. This leasing, and the possibility of exploration and development for oil and gas, has been highly controversial. Some residents of local communities have expressed concern about the effects of such activity on water supplies, wildlife habitat, archeology, safety, property values, and the rural character of the area.

The Federal government owns a considerable amount of mineral rights in the area and has been approached about the possibility of leasing its rights. Since the BLM had initiated the planning process at the time the state and private minerals were leased in 2006, and because of the concerns raised by the public, the BLM's decision on whether or not to lease, and under what terms the rights might be leased, has been deferred until the completion of this RMP.

In Rio Arriba County, leasing for oil and gas exploration is currently active in Archuleta Mesa and Chama Basin with pending expression of interest nominations for new parcels to be leased in the Archuleta Mesa area. There are currently 5 active leases in their primary term totaling 2,407 acres in the Archuleta Mesa area which are to expire in 2009 and 2010 and there are 10 leases in the Chama Basin totaling 15,632 acres due to expire in 2014 to 2016.

Also, there is currently an active exploration lease play ongoing in the Tucumcari Basin portion of both southeastern San Miguel and Harding counties with wildcat wells targeting Pennsylvanian aged formations. Southern Union and eastern Harding counties have seen ongoing leasing activity related to oil and gas exploration; however, these same areas particularly on and adjacent to the Bravo Dome are being leased for CO_2 exploration. Southeast San Miguel County has 15 leases totaling 20,697 acres which are due to expire in 2013 and 2015.

At the January 2008 Federal oil and gas lease sale, the BLM offered 46 parcels in northern New Mexico with 40 of the parcels located in Guadalupe County totaling 50,119 acres being bid upon. Although the parcels acquired in this sale are outside the planning area, the number of

parcels and the total acreage signifies interest in the exploratory activity taking place in the Tucumcari Basin.

Potential for Occurrence of Mineral Resources

This section describes the potential for occurrence of energy and mineral resources in the following counties: Taos, Santa Fe, Rio Arriba, Colfax, Union, Harding, Mora, and San Miguel. The narrative references resource potential maps for each mineral resource discussed above. The potential for occurrence of mineral resources is determined using guidance provided in the BLM Manual 3031 – Energy and Mineral Resource Assessment. The manual sets standards for assessing, classifying, and reporting the potential for occurrence of mineral resources on land managed by the BLM.

Definition of Mineral Resource Potential

The potential occurrence of a mineral resource is a prediction of the likelihood that the mineral resource would occur in a given area. The potential occurrence of a mineral resource includes both exploitable and potentially exploitable occurrences, and does not evaluate whether the mineral resource can be developed economically. The four categories of mineral potential, as defined in the BLM Manual 3031, are as follows:

1. No potential – the geologic environment, inferred geologic processes, and lack of mineral occurrences do not indicate potential for accumulation of mineral resources.
2. Low potential – the geologic environment and inferred geologic processes indicate low potential for accumulation of mineral resources.
3. Moderate potential – the geologic environment, inferred geologic processes, and reported mineral occurrences or valid geochemical/geophysical anomalies indicate moderate potential for accumulation of mineral resources.
4. High potential – the geologic environment, inferred geologic processes, and reported mineral occurrences or valid geochemical/geophysical anomalies, and known mines or deposits (within the same type of geologic environment) indicate high potential for accumulation of mineral resources.

In addition to those four categories, within each mineral potential category the potential must be supported according to a level of certainty regarding the available data. The level of certainty is a measure of confidence in the data that was assessed. Mineral potential categories are displayed on the mineral resource potential maps. The levels of certainty are annotated in the narrative of mineral resource potential using the letter designations described below, and are not displayed on the mineral resource potential maps:

A: The available data is insufficient and/or cannot be considered as direct or indirect evidence to support or refute the possible existence of mineral resources within the respective area.

B: The available data provides indirect evidence to support or refute the possible existence of mineral resources.

C: The available data provides direct evidence but is quantitatively minimal to support or refute the possible existence of mineral resources.

D: The available data provides abundant direct and indirect evidence to support or refute the possible existence of mineral resources.

Oil and Gas Potential

Oil and gas potential is allocated to areas that have the following characteristics:

1. Source for hydrocarbons – e.g., an organic-rich shale or coalbed that has attained a level of thermal maturity through burial or other heating mechanism such that oil and/or gas could be generated. This data generally is obtained by testing core or drill cutting samples in a laboratory.
2. Reservoir-quality rock – sandstone, limestone, or fractured rock having interconnected porosity and permeability into which oil and/or gas may migrate from the source rock and be trapped.
3. Trapping mechanism that prevents oil and/or gas from migrating out of the reservoir-quality rock; structural traps, stratigraphic traps, unconformities and faults are some common trapping mechanisms.
4. Known deposits of oil and/or gas

Areas having potential for oil and gas accumulations are shown on Map 3-15. Using the criteria discussed above, the Santa Fe Embayment and the Raton Basin have high potential for accumulations and further development. The level of certainty for those plays is "C" because there is direct evidence through proven oil production and CBM production. The Santa Fe Embayment, in particular, has not provided evidence it is capable of production in paying quantities. However, it has meet the requirements of rich organic Mancos shale source rock, porous Niobrara, Dakota and Entrada sands, and folded and faulted structure along with potential stratigraphic trapping (Molenaar 1995).

The following five basins or plays have moderate potential: Tucumcari Basin, Dalhart Basin, portions of the Sierra Grande uplift and Las Vegas Basin near Wagon Mound, Archuleta Mesa, and the central and western portion of the Chama Basin. The level of certainty for these plays is "C" because there is direct evidence through oil and gas shows, source rock, and geologic structures of the possible existence of oil and gas resources. It is important to note that areas having a rated potential do not necessarily have a correlation with the basin boundaries as subsidence or uplift and thrusting and faulting has occurred around basin margins adding or removing reservoir rock.

For the Yankee/Sugarite portion of the Raton Basin, there is low potential for CBM accumulations. Because the coal deposition in this area of the Raton Basin was close to the eastern edge of the basin, the coals are thermally immature and probably of low gas content (Hoffman and Brister 2003). Vitrinite reflectance data from three samples taken from outcrops north and east of the city of Raton range from 0.45 to 0.51 percent Ro which is below the suggested 0.8 percent Ro used to define the area of probable CBM productivity (Hoffman and Brister 2003). Vitrinite reflectance (percent Ro) is a measurement of the percentage of light reflected off the vitrinite maceral at high (500 times) magnification in oil immersion. Vitrinite reflectance has become the standard thermal maturity indicator.

In addition, historic accounts indicate the Yankee/Sugarite mines were not gassy unlike the other Raton Basin mines which reported deadly methane gas explosions (Hoffman and Brister 2003).

The three other coalfields in the planning area: Monero, Tierra Amarilla and Cerrillos have moderate potential for accumulations of coalbed methane and mineral resources being contained within their coalbeds or adjacent sands. Historical mine data, coal outcrops and well log data indicate that coal seams are present in those areas. However, there is no methane production

from those coalbeds; hence a level of certainty of "B" is assigned to the CBM potential. There is no known gas content data from any of these three coalfields. The coal rank is variable in the three fields from sub-bituminous in Tierra Amarillo, to bituminous for Monero and up to anthracite in the Cerrillos coalfields.

Although the Monero coals are thin and discontinual, they are relatively high in rank because of depth of burial and close proximity to the San Juan volcanic heat source. Coal sample data from 28 core drill holes and mine samples give an average btu of 12,180 per ton (New Mexico Bureau of Mines and Mineral Resources sampled data). The required thermal maturity data to identify if the coals are a potential gas source is unknown particularly at Monero and Tierra Amarilla coalfields. Also, there is no known vitrinite reflectance data from these fields. The Cerrillos coalfield has thermal maturity in parts but limited lateral extent due to the removal of the Mesaverde Formation on the north and east sides of the Galisteo Basin by an erosional unconformity (Beaumont 1979).

The Taos Plateau portion of the San Luis Basin, eastern half of the Chama Basin, Jemez volcanic field, Glorieta slope, and the Espanola Basin have low potential because there is no proven production, only minor oil or gas shows, and some of the areas have limited evidence of nearby source rock. The level of certainty is "A" because there is insufficient data to evaluate those areas. The Taos Plateau must be mentioned for the lack of drill hole data to fully evaluate reservoir rock. There is some drill hole data and minor shows in Tertiary volcanics of shallow biogenic gas from the Colorado portion of the San Luis Basin northeast of Alamosa but these are not commercial accumulations. The hydrocarbon potential of the San Luis Basin is rated low (USGS 1997).

Areas with no potential occur where there is no reservoir quality rock or source rock present. These areas typically contain crystalline metamorphic or igneous rocks which are the basement core of the Sangre de Cristo Mountains and the Brazos uplift. The level of certainty is "D" because of the abundant direct evidence. The presence of these rock types almost always indicates no oil and gas reservoir present as exploratory drilling is normally terminated when these rock types are encountered.

Carbon Dioxide and Associated Gases Potential

Carbon dioxide (CO_2) potential is allocated to areas that have the following characteristics:

1. Source for CO_2 such as thick volcanic sequences with dikes, sills, and surface flows that may have locally charged reservoir-quality sediments.
2. Reservoir-quality rock – sandstone, limestone or fractured rock having interconnected porosity and permeability into which CO_2 and helium may migrate from the source area and be trapped.
3. Trapping mechanism that prevents CO_2 from migrating out of the reservoir quality rock; structural traps, stratigraphic traps, unconformities, and faults are some common trapping mechanisms.
4. Known deposits of CO_2 and associated inert gases.

There is high potential for accumulations of CO_2 particularly near the structural feature identified as the Bravo Dome located in Union and Harding counties (see Map 3-12) because there is proven production. The development of CO_2 is driven by both its large reserve base and economically by its primary use in enhanced oil recovery for Oklahoma and West Texas fields. Broadhead (1998), with the New Mexico Bureau of Mines and Minerals, estimates the CO_2

reserves for the Bravo Dome at greater than 16 TCF (trillion cubic feet); however, a more conservative 10 TCF is a more realistic reserve (Olson 2008). To date, there was cumulative CO_2 production of over 2.6 TCF from March 1984 to June 2007 from the Bravo Dome Field.

Areas having medium to high CO_2 potential generally encircle the Bravo Dome and West Bravo units as shown on Map 3-12. The Bravo Dome CO_2 gas field has high potential because extensive drilling (over 450 wells) has established proven reserves. The abundant oil and gas data confirms a certainty of level "D" for this known resource.

The Tucumcari Basin has moderate potential for both CO_2 and helium because there have been shows of both gases, but no known production. In San Miguel County, CO_2 was encountered in two of the wells in the Chinle formation and Santa Rosa sandstone. In Harding County, CO_2 was encountered in five of the wells in the San Andres formation, and in the Tubb member of the Yeso (Broadhead 2003). In 2006, a wildcat well drilled in northern Guadalupe County reported Pennsylvanian play of helium and is currently being tested. The remainder of the planning unit has low potential for the occurrence of CO_2 as many identified structural features and areas with potentially high quality reservoirs have been tested. The level of certainty is "C" because in many of those areas drilling has not reported shows of CO_2 and helium.

Coal Potential

There are four separate and diverse areas or coalfields known for coal mineral resources and they are shown on Map 3-13. Three of them, Monero and Cerrillos coalfields along with the Yankee/Sugarite mining district of the Raton Basin all have high potential for accumulations of coal mineral resources based principally on the presence of coal mines either on the Federal minerals or adjacent to them. Coal outcrops also verify the resource presence as there is limited available drill hole data. The Tierra Amarilla field is rated at moderate potential for the lack of known mines on the Federal mineral portion. All of these coalfields have limited economic potential because of faults, and steeply dipping beds particularly in the Monero field; thin, discontinuous coal seams, and limited subsurface data. A level of certainty of "C" is assigned to coal potential.

The widely-spaced Federal and dissimilar mineral ownerships along with the limited overall Federal mineral ownership particularly in the Cerrillos coalfield, estimated at only 300 acres, prohibits medium and large scale mining projects and favors small operations. It may not be economically feasible to strip mine coal from large areas of these coalfields because the depth of burial and amount of overburden that would have to be removed to extract the coal would be prohibitively expensive under most economic conditions.

Geothermal Potential

The potential for geothermal energy resources ranges from high to none (see Map 3-14). High potential occurs in two locations, one in Rio Arriba County at Ojo Caliente Hot Springs and another at Montezuma Hot Springs in San Miguel County near Las Vegas. Those locations are convective resource areas characterized by low-temperature geothermal energy suitable for heating buildings, swimming pools or spas, or for agriculture or aquaculture. Those locations have a level of certainty of "C" because of the general lack of specific geothermal and well test data from those areas.

Another area on the east and north sides of the Jemez volcanic field is rated as moderate potential because of its similarity to the Hot Dry Rocks test done at Fenton Hill located on the southwest portion of the volcanic field (Duchane and Brown 2003). The test proved the Jemez

volcanic field contains a high-temperature, convection resource. This location has a level of certainty of "B".

The Rio Grande Rift portions of the planning area have moderate potential including the Taos Plateau because of crustal thinning that occurred during basin and range extension and formation of the rift valley. Within the rift, isolated known occurrences of low temperature geothermal resources are located at Los Alamos and at three hot springs: Hondo, Mamby and Ponce de Leon in the Taos area. Two wells in the Taos area add support to the presence of a low temperature resource accumulation. The level of certainty for these moderate potential geothermal resources is "B" because most of the thermal areas are only isolated occurrences which are documented in the Geothermal Resource Data Base for New Mexico.

The areas east of the Front Range of the Sangre de Cristo Mountains and into the Great Plains have low or no geothermal resource potential and no known occurrences. The level of certainty for this low or no geothermal resource potential is "B" because the absence of occurrences provides limited and only indirect evidence for no or low potential.

3.3.5.2 Locatable Minerals

Locatable minerals (minerals that can be prospected and mined under the General Mining Law; sometimes referred to as "hardrock" minerals) that occur or may occur on or adjacent to BLM land within the planning area are: mica, pumice, diatomite, perlite, gold, silver, copper, lead, zinc, molybdenum, turquoise, silica sand, and uranium.

There are 57 mining districts (as defined by McLemore [2005]) within the planning area. However, because the vast majority of the land ownership within the planning area boundary is not BLM, only 11 include or may influence BLM-administered land (see Table 3-38). As of July 2007, there were 962 mining claims within the planning area boundary of which 423 are on BLM land and the remainder on Forest Service land.

Mining- or exploration-related activity which results in little to no disturbance to the land surface is considered a "casual use" and does not require authorization under 43 CFR 3809. Under the current 43 CFR 3809 regulations, mining or exploration that uses mechanized earth moving equipment or causes more than negligible surface disturbance requires the filing of a Notice (for exploration resulting in less than five acres disturbance) or a Plan of Operations (all other surface disturbing activities). Prior to 2001, the regulations allowed for any activities that resulted in less than five unreclaimed acres to be conducted under a Notice. Notice-level operations that were in existence before 2001 can continue under the pre-2001 regulations.

Currently, there is little or no significant production of minerals from mining claims located on BLM-administered lands. Most of the activity is on a small scale and is considered casual use. There are five operations being conducted under Notices. Two of the Notices are for placer gold in the San Pedro Mountains, and one for placer gold south of the Ojo Caliente mining district. There is one Notice-level operation for Turquoise in the Cerrillos Hills and a sand and gravel operation on pre-1955 mining claims being conducted under the pre-2001 regulations.

Table 3-38. Mining districts with locatable minerals that include or may influence BLM-administered land

Mining District	County	Principal Locatable Minerals
Ojo Caliente	Rio Arriba	Mica
Jemez	Rio Arriba	Pumice, Diatomite
No Agua	Taos	Perlite
Picuris	Taos	Gold, Silver, Copper
Questa	Taos	Molybdenum
Rio Grande Valley	Taos	Gold
Cerrillos	Santa Fe	Turquoise, Copper, Lead, Gold, Silver, Zinc
La Bajada	Santa Fe	Copper, Silver, Uranium
New Placers (San Pedro Mountains)	Santa Fe	Copper, Gold, Silver, Lead, Silica Sand
Sabinoso	San Miguel	Uranium, Copper, Silver
Tecolote	San Miguel	Copper, Lead, Silver, Gold

Gold

The price of gold has risen significantly over the past several years. There is every indication that gold will continue to command a relatively high price into the foreseeable future. This price rise has resulted in a gold mining boom throughout the West. None of the gold mining districts within the Taos Field Office have generated much interest because the remaining gold resources are too small and/or too low grade to attract large mining ventures. However, "recreational" or "small" miners are attracted to the placer gold that remains within the Cerrillos and San Pedro Mining Districts, two areas of extensive past mining, containing a complex mix of BLM and non-BLM land.

Gold mining using pans, sluice boxes, metal detectors, dry washers, and hand tools which result in little to no disturbance to the land surface is considered a "casual use" and does not require authorization under 43 CFR 3809. Although a mining claim is not necessary for this type of activity, these "miners" usually locate claims to protect their interests. Mining that uses mechanized earth moving equipment or causes more than negligible surface disturbance requires the filing of a Notice or Plan of Operations. There are 18 active mining claims in the Cerrillos District and 126 active claims in the San Pedro District. The Cerrillos Hills and San Pedro Mountains are two of the most popular "gold prospecting" areas in the state. There is a high potential for the continued development of this resource over the life of this plan.

There is gold prospecting south of the Ojo Caliente Mining District involving 170 active mining claims in T 23 and 24 N, R 8 E. However, there is no history of the occurrence of gold in this area. There is low potential for the occurrence of gold or other valuable minerals in this area.

Turquoise

Turquoise was mined in the Cerrillos Hills by Native Americans for perhaps 500 years before Europeans came to the area. During the Spanish period, the Indians continued to mine turquoise, but the Spanish were more interested in precious metals. Americans mined turquoise up until the early 1900s. Today, the turquoise is essentially mined out. However, a few locations may occasionally yield workable turquoise for use in jewelry. There is low to moderate potential for the continued development of small amounts of turquoise in the Cerrillos Hills.

Pumice

The Jemez Mining District is a major source of pumice in New Mexico. Most of the district is on national forest land. On BLM land in T 21 N, R 7 E, there are 18 active mining claims presumably for pumice (most are located by CR Minerals Co. who operates a pumice mine on private land adjacent to the claims). Pumice is a salable mineral unless the deposit has a unique property and a special use. This determination would have to be made prior to allowing mining of pumice under the Mining Law. There is a moderate to high potential for the development of pumice on BLM land during the life of the plan. This development could be as a salable or locatable mineral.

Diatomite

Also included in the T 21 N, R 7 E is a deposit of diatomite that was produced in limited quantities in the early 1950s. There are 26 active mining claims presumably for diatomite on BLM land. There is a low to moderate potential for the development of this deposit on BLM land during the life of the plan.

Silica Sand

Silica sand is mined on BLM land in the San Pedro Mountains in sections 23 and 26, T 12 N, R 7 E at the Silver Silica Mine. There is a high potential for the continued development of this resource during the life of this plan.

Garnet

While the existence of garnet resources in the San Pedro Mountains has been known since at least 1856, this ore has never been economically developed. In 1996, a company proposed to mine industrial grade garnet from the patented San Pedro Mine in the San Pedro Mountains. Mining never took place. It is reported that the miner sold the claims to a land developer.

Perlite

The No Agua Mining District in T 29 N, R 9 E is a world-class perlite deposit. There are two active mines within the district on patented mining claims, the No Agua (Harborlite Corp.) and the El Grande (Dicaperl Minerals Corp.). There has been mining on BLM land in the past, although there is not any at the present time. Harborlite has 17 active mining claims contiguous to their patented mining operation. Because of the existing mining infrastructure and the quality and size of the deposit, there is moderate to high potential for development of perlite on BLM land during the life of the plan.

Molybdenum

There is no mining of molybdenum on BLM land, nor is any anticipated. Molybdenum is mined by Molycorp, Inc. within the Questa Mining District on patented mining claims. This operation has affected BLM land in the past. Specifically, purported contamination of the Red River by waste rock drainage and a proposal to build a tailings disposal facility on Guadalupe Mountain in the mid-1980s where Molycorp located 270 mill site claims. All the mill site claims are now closed and the Guadalupe Mountain has been withdrawn from entry under the Mining Law as part of the Wild Rivers Recreation Area.

Copper

Copper Hill within the Picuris Mining District includes a purportedly significant copper deposit on patented land that was proposed to be mined by the Summo Minerals Corp. in 1997. They

later withdrew their proposal because of local opposition. The Copper Hill area is now withdrawn from entry under the Mining Law as part of the Copper Hill ACEC. However, 89 pre-withdrawal mining claims remain. They are not owned by Summo, who had staked claims, but let them lapse. Considering the present exceptionally high price of copper ($3.60/pound, July 2007), mining of the patented land could be a viable venture, except for the access restrictions that could be imposed by the ACEC. Without the ACEC, there would be a medium to high potential for the development of this deposit. With the ACEC and the history of local opposition, there is low potential for the development of this deposit.

Uranium

The depletion of uranium stockpiles over the last decade has resulted in a dramatic increase in the price of uranium; from about $20/pound 10 years ago to over $100/pound today (July 2007). This has resulted in a boom of new claim staking and drilling in northwest New Mexico where extensive reserves of uranium exist. During earlier uranium booms, considerable exploration and some mining was done within the planning area. The most significant production on or near BLM land was within the La Bajada and Sabinoso Mining Districts. Known deposits within the planning area are small, isolated and low grade. In spite of the high uranium price, there is no known present interest in these deposits and it is unlikely that there would be in the foreseeable future.

Stone and Sand and Gravel

Stone and sand and gravel are normally salable minerals. However, prior to the "Common Varieties Act" of July 23, 1955, these "common variety" minerals could be located and mined under the Mining Law. Mining claims for these minerals located prior to that date with a demonstrated market are valid locations. Two operations fall into this category: sand and gravel in the San Pedro Mountains and stone near Villanueva. There is a question, yet to be resolved, as to the pre-1955 status of the Villanueva claim. There is a high potential that these operations would continue into the foreseeable future whether locatable or salable.

Harding Mine

The Harding Mine is a world class mine that has produced many exotic minerals and mineral specimens. It is on patented land within the Picuris Mining District. The University of New Mexico owns the mine and manages it for preservation and education.

3.3.5.3 Salable Minerals

Salable, or mineral materials, include common varieties of sand, stone, gravel, pumice, pumicite, clay, rock, and petrified wood. The major Federal law governing mineral materials is the Materials Act of 1947 (July 31, 1947), as amended (30 U.S. Code 601 et seq.). This law authorizes the BLM to sell mineral materials at fair market value. Sales can be made on a competitive basis, similar to an auction, where there is interest in a deposit from multiple operators, or through negotiation with a single operator in cases where there is no competitive interest. The law also allows the BLM to grant permits for free use of mineral materials to government agencies and to nonprofit organizations.

The BLM can also make mineral materials available to the public from designated areas known as community pits and common use areas. A community pit is a relatively small, defined area from which the BLM can make multiple, generally small, sales of materials. The sales are usually truckload amounts for small projects or personal use. The surface disturbance is usually extensive in the confined area. Common use areas are generally broad geographic areas where

disposals can be made with only negligible surface disturbance. An example of this is surface collection of decorative rock or boulders, without the use of heavy equipment.

State highway departments can obtain materials for Federal Aid Highway projects through the provisions of the Federal Highway Act (23 U.S.C. § 107(d) and 317) by way of a material site rights-of-way. The issuance of material site rights-of way is controlled by a 1982 interagency agreement between the BLM and the Federal Highway Administration.

Mineral materials are among our most basic natural resources. These materials are utilized in everyday construction, agriculture, and landscape applications. The United States uses about 2 billion tons of crushed stone, dimension stone, and sand and gravel every year. Housing, transportation infrastructure, bridges, power plants, dams, high-rise buildings, railroad beds, and airport runways, all use mineral materials of one type or another. Adequate local supplies of these basic resources are vital to the economic life of every community. It is the BLM's policy to make these materials available to the public and local governmental agencies whenever possible and wherever it is environmentally acceptable.

In New Mexico, including the planning area, there are two distinct local markets for construction materials. One is the market related to local demand for residential and commercial construction that includes homes, buildings for businesses and related infrastructure such as sidewalks and local streets. This market is directly related to the population of the area. As the population grows, the demand for materials increases to satisfy the needs of the local community. The other major market is related to highway construction to meet both the local and regional needs. In a state like New Mexico that has a high ratio of highway miles compared to population, a major road building or reconstruction project can greatly increase the demand for construction materials during the life of the project.

For a few commodities, such as perlite and scoria, the market area is wide-ranging, from regional to nationwide end-users. Perlite is mined in six western states, but it is processed in expansion plants located in 31 states. Scoria, in uses such as landscaping material and gas barbeque briquettes, is marketed nationwide, and in some cases worldwide.

Sand and Gravel

Sand and gravel deposits are alluvial in nature, meaning they are formed from material that has been carried in suspension by a river or stream and deposited as the velocity of the current decreases. Alluvial deposits occur in stream channels, arroyo bottoms, floodplains, river terraces and alluvial fans.

Stream channel deposits consist of sand and gravel deposited in stream beds along present or former stream courses. Most channel deposits are accessible and easily mined. Commercial production is concentrated in the deposits where the sorting action of flowing streams or run-off from short-term rainfall events have deposited large quantities of well-washed detrital fragments of quartz, ranging in size from sand particles to pebble and cobble size rocks. Mining operations are often relatively simple, consisting of no more than washing and screening to obtain suitable aggregate.

True floodplain deposits consist of material deposited on plains bordering streams by periodic overflow of the streams from their channels. The sediments deposited are normally composed of silt and sand grains. However, fine materials may cover usable deposits of sand and gravel, particularly in areas where, in the geologic past, the streams were more vigorous and transported greater volumes of coarser material.

Stream terrace deposits are bench like deposits of sand and gravel which border a stream but lie above the level of the present floodplain. These deposits are remnants of older floodplains through which the stream has cut. The materials in these deposits have the general properties of stream channel materials, but weathering processes may have diminished the quality of some of the constituents by converting certain minerals to clay.

An alluvial fan is formed when streams carrying large volumes of sand and gravel down a steep mountain slope enter an adjacent valley or plain. The abrupt change in slope causes a decrease in the speed of the stream. This change causes the stream to deposit the sand and gravel it has been carrying. The deposited matter spreads in a gentle fan-shaped mass from the mouth of the canyon onto the valley floor. The heavier, coarser material is deposited near the mouth of the valley, while the finer material is carried out toward the edges of the fan.

Within the planning area, there are currently three contracts for commercial sand and gravel operations, and one free use permit issued to Rio Arriba County. The demand for, and the number of permits issued by the BLM for sand and gravel operations, rises and falls with the pace of road construction and maintenance. There are numerous sites throughout the Taos Field Office that have been used intermittently by the state highway department, county road departments, and their contractors for road and highway use. There are only a few instances where pits have been used on a long term basis for supplying materials for local construction needs. The reason for this is the need to obtain sources of material as close as possible to where they would be used in order to keep costs to a minimum. Most of the larger cities and towns, where the local construction demand exists, tend to be surrounded by privately owned lands, whereas the majority of the road system passes through more rural areas where the government owns a larger percentage of land. The BLM has established common use areas along arroyos in several places scattered through Taos and Rio Arriba counties to satisfy local demand for small amounts of sand and gravel.

There is high potential for continued development of sand and gravel along roads and highways in the Taos Field Office. There is moderate potential for development of sand and gravel resources near cities and towns for local use, as existing deposits on private land are depleted, or as increased residential and commercial development occurs on those lands.

Crushed Stone

Crushed and broken stone is used directly as an aggregate. Conditions necessary for production of crushed stone from a deposit are:

1. Quality – should pass rigid specifications for strength and durability.
2. Cost – low average total delivered cost.

The construction industry utilizes as aggregate about 85 percent of all crushed stone produced in the United States. There are only a few operations in the planning area that actually quarry and crush stone. This is due to cost considerations. As long as there are sufficient local sources of suitable aggregate from alluvial deposits (sand and gravel pits), there is no economic incentive to support the additional cost of breaking rock by bulldozing, or drilling and blasting, associated with quarry operations. However, as haul distances increase, due to depletion of local alluvial deposits, a point is reached where the cost of breaking rock is lower than the additional transportation cost. At that point, operators would consider developing quarry operations. In the planning area there are extensive deposits of basaltic lavas, monzonite, Precambrian rocks, and limestone that could be developed if needed.

In the southern part of Santa Fe County, there is an increasing shortage of good quality materials from alluvial sources. There are currently two operations that quarry and crush stone for the aggregate market, and there have been proposals to develop at least three other sites. These operations are discussed further below.

In 2005, development of a quarry on private land on La Bajada Mesa was proposed. The operation would have produced crushed basalt for construction purposes. Due to several problems, including difficulties in securing water supplies for dust suppression, the application for county issued permits was withdrawn. In 2008, the possibility of developing this site was brought up again as a possible source of material for construction of the Rail Runner.

There is currently one operation producing crushed monzonite for construction aggregate on the western side of the Cerrillos Hills. The company that runs this operation had previously proposed mining an area a few miles to the south. There was strong local opposition to this plan, since it would involve the destruction of a local landmark, Buffalo Mountain. Another nearby operation had its county mining permit suspended for failure to comply with various terms of the permit. All of these operations involved private land.

Usable limestone occurs in two different geological systems of rock in Santa Fe County, Permian and Pennsylvanian. The primary exposures of Permian San Andres limestone are along the upper ledges of Glorieta Mesa escarpment, the southern extension of Glorieta Mesa east of White Lakes, and local outcrops north of I-40 between Clines Corners and Moriarity. The exposures of San Andres limestone on the Glorieta Mesa extend into San Miguel County. Pennsylvanian limestone is exposed on the fading dip-slope of the Sandia Mountains at Edgewood, northwest of South Mountain, and along the flanks of the Sangre de Cristo ranges north and west of Glorieta. The Madera limestone, which is the upper member of the Pennsylvanian Magdalena Group, crops out in the western part of the San Pedro Mountains.

There are two current contracts issued by the BLM for aggregate operations on the Glorieta Mesa in San Miguel County just east of the Santa Fe County line. These operations mine naturally broken coarse aggregate, derived from the San Andres limestone, which occurs along small drainages.

The Madera limestone in the San Pedro Mountains is light to dark grey, coarse to very fine grained, and fossiliferous. Many intervals of 10 feet or less of gray and grayish-green shale separate massive limestone beds. The Madera is in the order of 1,200 to 1,400 feet thick in the area. There has been recent interest in developing a quarry in the southwestern part of the San Pedro Mountains. The proposed quarry is situated within the Lower grey limestone or Grey Mesa Member of the Madera limestone. Individual limestone beds are typically 6 inches to 2 feet thick. Thin shale partings a few inches thick are undoubtedly present, but are rarely observed. The Madera limestone at the site is a highly fossiliferous, dense, microcrystalline, dark grey rock with a light fetid to petroliferous odor when freshly broken. Metamorphism has not affected the limestone at this location. The proposed quarry contains an estimated 12.4 million tons of recoverable and marketable construction aggregate. This is undoubtedly a small fraction of the total volume of material present in the San Pedro Mountains. There is a quarry on private land producing aggregate from the Madera limestone just east of Edgewood.

In the San Pedro Mountains, there is an operation that mines sand, gravel and rock on mining claims located in San Lazarus Gulch. Most of the material recently removed has been used locally for fill and gravel for driveways. Sandstone that has been altered by nearby igneous

intrusions has been mined as decorative stone, and has been used for landscaping on the Big I reconstruction project in Albuquerque.

There is low potential for development of sources of crushed rock in most of the Taos Field Office where there are sufficient supplies of sand and gravel. There is moderate to high potential for development of these resources in areas such as southern Santa Fe County, where supplies of sand and gravel are limited.

Pumice, Pumicite, Scoria and Volcanic Cinders

Pumice, pumicite, scoria and volcanic cinders are all products of explosive volcanic eruptions. Pumice is a light colored, cellular, almost frothy rock made up of glass-walled bubble casts. Pumicite has the same origin, chemical composition, and glassy structure as pumice differing only in particle size. Particles less than 4 millimeters in diameter are designated pumicite.

Scoria and volcanic cinders are the reddish to black vesicular fragments that pile up during explosive eruptions of volcanoes of basaltic composition. Most deposits occur as cones or mounds of stratified fragments that range in size from a fraction of an inch to several inches in diameter. The difference between scoria and cinders is mainly based on particle size, fragments between 4 and 32 millimeters classified as cinders, larger fragments are called scoria. Individual cones or mounds of cinders may be several hundreds of feet in diameter and as much as 500 feet high.

The main use of pumice and pumicite is for lightweight aggregate for the construction industry. Lightweight aggregate includes a variety of mineral and rock materials used to provide bulk in concrete building units (block), lightweight structural concrete, and precast concrete units, as plaster aggregate, insulating fill, and other structural and insulating purposes. Like pumice, the majority of scoria and cinders is used in the manufacture of building block. Other uses include pavement, road de-icing, landscaping, and gas barbeque briquettes.

In 2007, New Mexico was the third largest producing state for pumice and pumicite. Most of the production is from the Forest Service and private land. The major part of the state's resources of pumice and pumicite is in the southern and eastern slopes of the Jemez Mountains in Sandoval, Santa Fe, and Rio Arriba counties. Deposits extend from north of Jemez eastward to Cochiti and northward to a few miles west of Espanola. The pumice occurs in friable beds of pumiceous lapilli tuff generally eight to 20 feet thick (locally up to 70 feet) and has little or no overburden over many parts of this area. The pumice beds comprise the lower member of the Bandelier Tuff of Pleistocene age. Deposition of both the lower and upper members of the Bandelier Tuff resulted from eruption of turbulent ash flows from centers in the crest of the Jemez Mountains. The upper member, however, was indurated and welded and consequently is valueless as a source of commercial grade pumice.

There is no record of pumice sales being made by the BLM in the Taos Field Office area. Pumice occurs on BLM land in the Taos resource area in T. 21 N., R. 7 E. and surrounding townships. Pumice is being mined on adjacent private land (patented mining claims), and mining claims have been located on BLM land (see Locatable Minerals discussion for more information on mining claims). There is a moderate to high potential for the development of this deposit.

Most of the deposits of scoria and cinder are in cones of Tertiary to Quaternary age located in various volcanic fields. In the area administered by the Taos Field Office, this includes the Raton-Clayton volcanic field in Union and eastern Colfax counties, the Ocate field in northern

Mora County, the Taos Plateau field in northern Taos County, and the Cerros del Rio and Cienega-Ortiz fields in central Santa Fe County.

Within the planning area there are current or recent material sale contracts for scoria and/or cinders at No Agua Peaks and Red Hill north of Tres Piedras in the Taos Plateau field, at Malpie Mountain south of Des Moines in the Raton-Clayton field, at Cerrito Pelado, and an un-named cinder cone west of Santa Fe in the Cerros del Rio field. There is high potential for continued development of these deposits during the life of this plan, and high potential for development of nearby deposits when the current sources are depleted.

Caliche

Caliche is a general term for any secondary calcium carbonate ($CaCO_3$) that forms in sediments or in voids and crevices within bedrock just below the surface in semiarid regions, as a result of soil-forming processes (pedogenic caliche) or ground-water evaporation (ground-water caliche); it is material left behind by the evaporation of ground water or soil moisture that is no longer present at that level, although ground water may be present at much lower depths beneath the caliche.

In the planning area, caliche is found in Union, Mora, Harding and San Miguel counties. It is used as a road base in highway construction, and as a base and surfacing material on rural roads.

There is no record in the LR2000 system of caliche sales in the planning area. There is low to moderate potential for development of federally owned caliche in Harding and Union counties, and low potential for development in Mora and San Miguel counties. Management should consider the possibilities of trespass in areas of scattered Federal mineral estate and low BLM presence in counties such as Harding and Union.

Clay

Through the 1990s, the BLM had issued contracts for clay suitable for brick making. In the late 1990s, the operator moved onto privately owned land and mineral estate. Since that time, the only demand for clay has been for small amounts for crafts purposes, such as pottery making. There is high potential for continued demand for clay for craft purposes, and low potential for demand for brick making.

Trend

The annual per capita consumption of sand, gravel and crushed stone in the United States has increased from about 0.75 of a ton in 1920 to about 5 tons in 1970, and 10 tons in 2000. The total per capita annual consumption of mineral aggregate is grossly related to the affluence of the population. From a strictly geological view, the quantities of sand, gravel and crushed stone are essentially inexhaustible. Despite their geological abundance, filling the need for construction materials may be difficult.

Most of the demand for materials is in urban areas, and as building accelerates and urban areas coalesce, natural deposits are directly covered, or adverse zoning restrictions or other negative environmental factors cause reserves to become inaccessible. Encroachment of residential development adjacent to operating aggregate mining operations makes the mining permit renewal and approval process more difficult and time consuming for aggregate mining companies. Production of aggregate may be limited by regulatory and zoning controls in the immediate vicinity of residential centers due to public concerns about the perceived problems and nuisances of aggregate mining on the local community. The short-run effect of regulation of

material operations is to decrease the number of present and new operations. This would increase the price of materials to the consumer because fewer operations mean longer average truck hauls and decreased competition.

The aggregate industry is gradually transitioning to operations that provide large volumes of aggregate from smaller surface areas for long periods of time. The economic benefits of large-scale operations favor the consolidation of smaller companies and the development of high-volume production sites that serve a large region. However, neighborhood opposition to aggregate operations often grows in proportion to the size and intensity of the operation. Opposition to new aggregate operations is also significantly stronger than opposition to activities and expansions at existing operations.

Consequently, shortages of construction materials in more densely populated areas are expected to increase, as are transportation costs associated with these commodities.

3.3.6 *Recreation*

Overview of Recreation Areas

To manage recreational opportunities in the planning area, the BLM-administered lands are classified as either Special Recreation Management areas (SRMAs) or extensive recreational management area (ERMAs), according to recreation demand and issues, recreation setting characteristics, resolving use or user conflicts, compatibility with other resource uses, and resource protection needs.

SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique values, importance, and/or distinctiveness, especially as compared to other areas used for recreation. SRMAs are managed to protect and enhance a targeted set of activities, experiences, benefits, and desired recreation setting characteristics. Management must also provide for visitor health and safety. Area-specific plans are prepared for each SRMA to address the special management considerations necessary to meet the objectives for the area.

Under the Taos RMP, ERMAs are essentially any BLM-administered lands in the planning area that are not delineated as a SRMA, where management is generally limited to custodial actions only. In ERMAs, management actions are typically implemented directly from the RMP without area-specific plans providing for recreational opportunities.

Among the numerous proposed SRMAs and ERMAs across the planning area, there are certain similarities and distinctions in opportunities, outcomes, and monitoring actions. The defined opportunities and management outlined in the tables below reflect these commonalities and distinctions.

Many extensive areas, including WSAs, are open, dispersed, and undeveloped and contribute to the appeal and character of BLM-administered public land. For example, these are places visitors can let their dogs run, target shoot, camp independently, test outdoor skills, and escape crowds, traffic, noise, and lights. The predominant naturalness and lack of human evidence in these landscapes may remind the visitor of our American western heritage and give a sense of freedom, adventure, and exploration. Common to most areas is the opportunity to engage in routine exercise close to home and escape from responsibilities with the benefits of gaining physical and mental fitness.

Conversely, there are many special areas that offer diverse opportunities and require well-defined management. The Rio Grande and Rio Chama WSRs provide notable economic benefits through outfitter permits in addition to the opportunities for whitewater adventure, team building, solitude, and viewing outstanding wildlife and scenery. Visitors interested in developed recreation may choose to take a guided river trip on the Rio Grande and camp in Orilla Verde with convenient river access and developed facilities. They may seek a more remote location with fewer encounters and focus on hiking and sightseeing at Wild Rivers, or, if they are an avid fisherman, Santa Cruz Lake is a great alternative. Posi and Cieneguilla provide opportunities to explore and experience outstanding cultural and historic resources, while Diablo Canyon has the highest concentration of sport climbing routes. El Palacio Arroyo is a destination for motorized OHV and motorcycle use.

The Rio Grande Gorge is a destination for boaters, hikers and fishermen, by families and others traveling from Colorado, New Mexico, Texas and beyond, as well as members of the local community. Segments of this wild and scenic river corridor offer some of the most challenging kayak runs in New Mexico (the Razorblades) while the Ute Mountain run provides an opportunity for boater skill development or outstanding opportunities for wildlife viewing (primarily birds of prey).

There has been no formal monitoring in any of the ERMAs or SRMAs in relationship to visitor preferences for settings. As resources are made available, more formalized studies could be conducted. When monitoring visitor use, indicators of impacts to recreation for many zones would include visitor reports on crowding, level of satisfaction, resource damage, conflicts among users, compliance with regulations, and encounter levels. Potential adaptive management methods include limiting number of special recreation permits and requiring permits for noncommercial use using the “limits of acceptable change” process, as well as increased management presence or controls.

Recreation Settings

A wide variety of recreation opportunities are provided in a diversity of settings on BLM land in Taos, Rio Arriba, and Santa Fe counties. The developed areas with more concentrated management include three SRMAs that feature several campgrounds, day use sites, and trails. These areas are rural or front country settings and serve as staging areas to resources where visitors focus on certain activities. See Appendix E for a description of each setting; primitive, back country, middle country, front country, rural, and urban.

Although the developed recreation areas account for most of the known visitor use on land managed by the BLM Taos Field Office, the dispersed, undeveloped, and open areas are both in high demand and threatened by expanding communities and overall population growth. Several loosely defined places are well known locally and used regularly. Visits to dispersed areas in the planning area were over 55,000 in 2006. These include lands near Ojo Caliente, Taos Plateau, El Palacio, Chimayo Valley, and the Buckman Road and Camel Tracks areas. They provide middle and back country settings as well as a few primitive areas such as in the Sabinoso Wilderness and Chama and San Antonio WSAs. Places like Ute Mountain also offer a primitive setting with wilderness characteristics.

There are three major developed recreation sites in the planning area:

- **Orilla Verde Recreation Area:** This recreation area provides a rural setting and offers seven separate campgrounds and 16.5 miles of trail. Some campgrounds are minimally developed while others are fully developed with water and electricity. Primary activities

at Orilla Verde Recreation Area are camping, fishing, boating, hiking, sightseeing, and swimming. Recently the Taos Valley Overlook was incorporated into the SRMA. The Overlook includes Taos Junction Bridge, the Rio Grande/Pueblo confluence with undeveloped primitive camping, and old two-track routes on the east side of the rim. Almost 22 miles of nonmotorized trails along existing two-tracks would be signed, and two trailheads developed, and historic trails interpreted on this recent land acquisition.

- **Wild Rivers Recreation Area:** This area offers almost 20 miles of hiking trails, 14 miles of mountain biking trails, 18 camping sites, and an interpretive trail. The most popular sites in the recreation area are: the Zimmerman Visitor Center, La Junta Day Use Area and Trail, Big Arsenic Trail and Campground, and Sheep Crossing. This recreation area is diverse in settings providing primitive opportunities on trails into the river canyon, a front country setting in campgrounds, and a back country setting in the remainder of the area.
- **Santa Cruz Lake Recreation Area:** This area provides a front country setting around campgrounds, and back country settings in the remainder of the area. It offers two campgrounds, four trails, and boat and fishing docks. The trail system at the Santa Cruz Lake Recreation Area is also included in the national recreational trail system. The trail system is 6.38 miles in length and includes Vista Valle, La Caja, and Santa Cruz Overlook Trails. Most people go to the lake to fish, while picnicking, hiking, and camping are also primary activities. Boating use is almost always associated with fishing. Currently the BLM maintains 34 day-use/camping spaces, 29 shelters, and 5 vault toilets along the lakeshore on the northern end of the lake; and 13 shelters and 1 vault toilet on a bluff overlooking the lake.

Demand

Online users of the New Mexico BLM website were asked about what they want to experience, what benefits they gain, what type of services and facilities they prefer, and what activities they enjoy when they visit Taos BLM public land. Those commenting said they want to experience freedom, adventure, open space, fresh air and sunshine, solitude, exploration, escape from traffic/city/noise, learning, and self-improvement. Responses included benefits such as; psychological, physiological, household and community, and appreciation of nature. They reported enjoying peace, joy, contentment, tranquility, beauty, a spiritual connection to nature, stress release, mental wellbeing, exercise, learning, healthier breathing, a connection to community and western heritage, and balance in their life. For example, floating the Rio Grande and the Rio Chama in a raft, kayak, or canoe is a popular recreation activity in the scenic canyons of northern New Mexico. Boaters seek challenging rapids, wildlife viewing, and being with friends and family while in primitive river settings.

Compared to boating, the number of people rock climbing in the planning area is far fewer. However, some areas are routinely used and are becoming established and documented in climbing guides. In general, climbers visiting the planning area also prefer to be away from crowds.

When asked what type of structures and services they prefer, many expressed a desire for more maps and information, a variety of trail types, trail facilities, toilets, and camp facilities. Many said they would like graded, two-track, primitive yet passable, dirt roads and minimal low key facilities.

Trend

Data obtained from surveys, trail registers, observation, and vehicle traffic counters have revealed that major activities visitors engage in throughout the BLM Taos Field Office are: whitewater rafting, hiking, sightseeing, camping, fishing, hunting, target shooting, mountain biking, rock climbing, motorized trail use, and horseback riding. Other activities reported online through comment forms posted on the New Mexico BLM website were; rock hounding or prospecting, picnicking, OHV riding, climbing, visiting petroglyphs and just relaxing.

Visitor use at developed recreation sites over a 5-year period remained fairly static (see Table 3-39). Although the Taos BLM sites regularly receive higher visitation than other New Mexico BLM areas, visitors can expect to enjoy a relatively noncrowded experience. Compared to 11 other states, the New Mexico BLM typically ranks among the lowest in annual visitation (USDI 2001-2006).

Table 3-39. Visitor use at special recreation management areas

	Visits		
Year	Wild Rivers	Orilla Verde	Santa Cruz Lake
2001	20,613	17,100	91,709
2002	12,083	12,612	89,456
2003	16,409	18,842	73,095
2004	13,110	16,746	128,911
2005	23,033	23,151	144,820

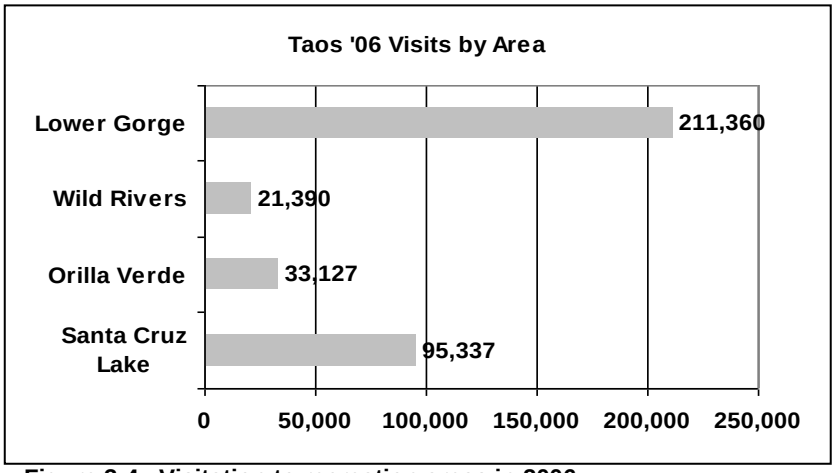


Figure 3-4. Visitation to recreation areas in 2006

Most visits occur within the Lower Gorge of the Rio Grande near Pilar, New Mexico. This area includes the Orilla Verde Recreation Area, the Rio Grande Gorge Visitor Center, and major river access sites; Quartzite and County Line as well as the Racecourse segment of the Rio Grande WSR. The Lower Gorge receives 38 percent of the total visitation to other developed and dispersed areas on the approximately 600,000 acres managed by the Taos Field Office. Santa Cruz Lake and Wild Rivers Recreation Areas also receive relatively high visitor use (Figure 3-4).

The Taos Field Office administers 18 special recreation permits which authorize commercial guides and outfitters to operate a business on the Rio Grande and/or the Rio Chama (Figure 3-5).

Boating on the 5-mile, class III Rio Grande Racecourse near Pilar accounts for the majority of commercial use of the river and can total as high as 25,000 user days in a good season. The Taos Box and Racecourse segments of the Rio Grande WSR are a destination for people coming predominantly from California, Arizona, Texas, Colorado, and other parts of New Mexico. Many of these visitors are families that travel with their children after school is out. Most boating trips on the Rio Grande are half-day trips on the Racecourse which extends from Quartzite to County Line. Once school begins at the end of summer, the guided use drops dramatically.

The 17-mile, class IV segment known as the Taos Box depends on suitable river levels from melting snow pack and is popular when flows are above 800 to 1,000 CFS (cubic feet per second). The Rio Chama accounts for most of the multi-day trips and a lottery drawn permit system is a requirement for private boaters on this wilderness segment. Some segments of the upper Rio Grande require a hike in or out of the canyon to access the river. These areas offer rare opportunities for remote recreation and solitude.

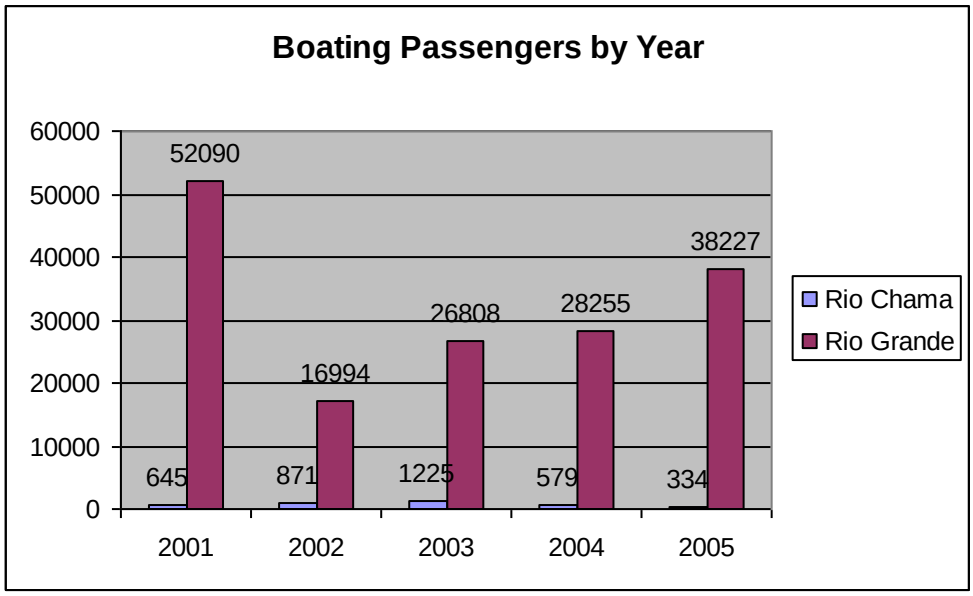


Figure 3-5. Number of guided boating passengers, 2001–2005

Note that the above table represents commercial use only. Non-guided boating use also occurs primarily in the spring/summer or when runoff flows are higher and at their peak. Private boating by kayakers, canoes, and other rafters typically ranges from 12 to 18 percent of guided boating.

On a national level, average annual participation in mountain biking, hiking, and OHV use was 20 percent, 38 percent, and 23 percent, respectively, between 1999 and 2004 (USDA 2004). Mountain biking is also growing in popularity on BLM land such as Taos Valley Overlook and Horse Thief Mesa providing the terrain for beginner and intermediate level riding. Other areas that have emerged and are suited for this activity, include the Nambe Badlands Trail near Pojoaque, and the Rinconada Loop Trail near Cerro. Several stretches of two-track roads, which have become favorites for hiking, biking, and horseback riding, are West Rim and East Rim Trails, as well as old routes on the Taos Valley Overlook. Other popular hiking trails are La Vista Verde, La Junta, Big Arsenic Trail and Little Arsenic Trail. New trails that are expected to

be regularly used are Picuris Trail which provides access from Taos Junction Bridge up to the rim of the Taos Valley Overlook and Pescado Trail providing access from the Red River Fish Hatchery to Wild Rivers Recreation Area.

Motorized use has been difficult to manage due to numerous access points to public land coming directly from individual homes and county roads. In addition, there is a demand for different motorized experiences such as two-track as well as single-track motorized trails. Popular areas are the Taos Plateau, El Palacio, and Buckman Road areas.

In a survey at El Palacio in 2004, the BLM was rated below 50 percent in sufficient law enforcement and appropriate use of vehicles (USDI 2004). When asked why they chose to visit the area, many said for a motorcycle race, because it was close to home, and for exercise, or due to openness and scenery. When asked what the BLM could do to improve their experience or reduce user conflicts, most said something needs to be done about trash dumping, provide maps and signs, and designating trails or keeping single-track separate from ATV use. El Palacio includes 19,200 acres and is popular among motorcyclists who like to ride on trails and single-track trails. Each year three or more motorcycle races are held at El Palacio. The BLM land along the east side of Buckman Road is also popular to motorcyclists and all-terrain vehicle users. Some user-defined sites exist along the road and serve as staging areas up to the Caja del Rio Plateau on Santa Fe National Forest land. Hunters make up most of the all-terrain vehicle use on Taos Plateau also known as the North Unit.

A small area of public land near Arroyo Seco and La Puebla is being used for OHV riding, hiking, horseback riding, and appreciation of cultural resources. It is accessed directly from homes and county roads located within Santa Fe County. It's directly adjacent and near to Rio Arriba County where there are very few parks and open space other than BLM land. This small area is frequented regularly by the community and conflicts are occurring between motorized and nonmotorized vehicle users.

Open Space and Access. The undeveloped and dispersed setting of BLM land is in high demand by an increasing population not only for recreation, but for the development of homes further from urban areas, and the subsequent need for additional rights-of-way for infrastructure. Throughout New Mexico, there is increased demand for multi-use trails and open space near urban areas, a desire for recreation near home with emphasis on health, more active elderly and families, an increase in guided activities, and an increase in OHV use with few designated locations (SCORP 2004–2009). Communities have demonstrated their value for open space and recreation through recent plans. In the year 2000, Santa Fe County adopted an Open Land and Trails Plan that would guide development of parks, open space, and trails.

Likewise, opportunities are developing in which the BLM can partner with the town of Taos, Taos County, and bike clubs to link neighborhoods and roads to public land; particularly on the Taos Valley Overlook. In its Vision 20/20 Plan, the town of Taos will create walking paths, bike trails, linkages, and neighborhood parks that are accessible and include opportunities for both active and passive recreation (town of Taos 1999).

Taos County's Green Infrastructure planning is an effort underway which could vastly improve recreation opportunities. Driven by citizens through the Taos Trails Alliance, with leadership provided by the town of Taos and the National Park Service, the Green Infrastructure Plan would include a recreation component that would entail a network of parks, and trails for recreation and alternative transportation. Nonmotorized, or alternative transportation, would be encouraged by

providing multi-use trails and pedestrian paths that would link parks and open space (USDI 2004).

Information and Interpretation. There is growing interest in the Cieneguilla Petroglyphs, which are of particular interest to school groups and archaeological groups for its rich Spanish American and Native American history, and visited for hiking and horseback riding. The site is along the Camino Real de Tierra Adentro which also has outstanding cultural resources.

Visitors have repeatedly requested more orientation information and interpretation of resources including maps and adequate signs. In addition, several visitors from Mexico have requested information in Spanish.

Over the years, BLM Taos has administered a survey at selected sites to determine visitor satisfaction, on a scale of 1 to 5, including; visitor information, developed facilities, managing visitor and recreation use, resource management, resource interpretation and education, and BLM staff and service. In looking at the survey results, it is apparent there is a demand for more orientation information and interpretation of resources at Santa Cruz Lake, in the Lower Gorge along the Rio Grande, at El Palacio dispersed area, and at Wild Rivers Recreation Area.

Santa Cruz Lake was rated high by visitors in many areas of management, but respondents indicated they are only 63 percent satisfied with the interpretive and education program. Seventy percent said they think the BLM should provide more education and interpretive material, (USDI-BLM 2007b). Likewise, 74 percent of respondents at river sites (USDI-BLM 2005d) and 75 percent at Wild Rivers (USDI-BLM 2003) said the same thing.

At Wild Rivers, resource interpretation and education was ranked the highest for potential for improvement. At El Palacio, only 35.9 percent of visitors were satisfied with the quality of visitor information provided which included maps, awareness of rules, and adequate signs. The lowest scores were received in the resource interpretation and education categories with an overall score of 29.1 percent (USDI 2004).

3.3.7 *Renewable Energy*

A report prepared by the Department of Energy (DOE) in cooperation with the BLM, identified potentials for biomass, solar, wind, and geothermal energy production in the planning area (DOE 2003). Solar and wind renewable energy resources in the planning area can be managed by permitting the construction of collection facilities to generate energy where appropriate. The BLM issues rights-of-way permits to allow construction and operation of solar and wind collection facilities on public land for a specified time period that should be relevant to the facility lifespan. Geothermal energy is managed as a leaseable fluid mineral and is discussed in section 3.3.5.1, Leasable Minerals.

Biomass use for the planning area was addressed in two separate planning documents, the statewide amendment to land use plans for fire and fuels (USDI-BLM 2004a) and a Taos Field Office plan tiered from the statewide amendment (BLM 2005). The Record of Decision for the Final Programmatic EIS on Wind Energy Development (USDI-BLM 2005a) amended the Taos RMP to address BMPs for wind power facilities. A similar bureau-wide programmatic EIS for solar energy development is currently being prepared. This EIS will be used by the BLM when considering development of solar energy resources on BLM-administered lands in the planning area.

Solar Energy. Solar energy is a renewable energy resource that has potential for generating electricity in the planning area. Solar energy resources are classified based on the amount of solar radiation that contacts the ground surface in a specified area and is measured in units of kilowatt-hours per square meter per day. The amount of solar energy available at a specific location varies with the latitude of that location, the season, and the time of day. The resource also depends on the type of solar energy collector.

Currently, there are two types of solar energy generation: concentrating solar power (CSP) and photovoltaic (PV). CSP is a solar energy concentration system consisting of a mirrored dish or trough with a receiving tube at the focal point of the dish or trough. The receiving tube is filled with a liquid heat-conducting material that is pumped continuously through the tube and heated by solar energy. The heated material is pumped to a generator to produce electricity. The solar collector tracks the sun throughout the day to maximize exposure of the collector to solar energy.

PV is a solar energy collection system consisting of flat plates of solar-energy-collecting PV cells. The collection system may be equipped to track the sun throughout the day. PV cells can be connected to storage batteries that are charged during daylight hours. High resolution PV data from NREL was assessed to determine potential for PV solar in the planning area on BLM land (see Map 3-19). Analysis indicated that about 18,000 acres were rated as good and 581,000 acres as excellent. CSP would have similar acreage in terms of solar energy available; however, development is more limited by slope (see Map 3-18).

The future development and use of solar resources in the planning area would be driven primarily by cost-benefit ratio of solar technology. That ratio would continue to decrease as improvements to the technology make solar collection equipment more efficient, as mass production decreases the unit cost for solar equipment, and as the cost of nonrenewable energy resources increase. There has not been large production facilities identified in the planning area yet. However, an 8.22-megawatt solar farm is being built a short distance to the north of the planning area near Alamosa, Colorado.

Wind Energy. Wind energy is a renewable energy resource that is classified based on the wind power density at a location or area and is classified in units of watts per square meter of surface land area. Wind power also is dependent on the height of the wind turbine above ground level, and the standard of 50 meters (150 feet) was used by the DOE (2003) study to assess wind power classes (DOE 2003). Effective wind power classes range from lowest (class 1) to highest (class 7). Wind power is considered economic for large turbines (utilities-scale) at class 4 and higher for short-term installation and operation and class 3 and higher for long-term installation and operation, although a small noncommercial turbine can be used at class 1.

The majority of the planning area, 581,392 acres, is in wind class 2 or below. There are only 17,844 acres in classes 3–6. Areas having the highest wind resource classifications in the planning area (class 4 and above) are primarily located in the south and east within the Galisteo and East Side planning units, although some high potential areas occur in the Taos Plateau area (see Map 17).

As with solar, the future use of wind resources in the planning area would depend on the cost-benefit ratio to install and operate wind farms in areas classified as suitable for wind energy development. Given the low potential for wind resources on public land in the planning area, the BLM does not anticipate high demand to develop large scale wind power facilities. However, a 1.5 megawatt wind power facility has been proposed on private land near Taos (The Taos News, June 28, 2008).

Biomass Energy. Biomass is material derived from trees, shrubs, plants, agricultural crops, agricultural or forestry residues, and other plant waste that can be burned or processed into fuel to produce energy. The forecast for biomass resources anticipates that the demand for biomass energy would increase as the cost of nonrenewable energy resources increase. As the development and use of biomass resources becomes economically viable, new biomass energy facilities would be constructed to process and burn biomass, or create biofuels such as ethanol. This would result in more harvesting of biomass resources, particularly in forested areas that have not been thinned or cleared of downed tree limbs and underbrush. Current opportunities for biomass products are described under section 3.3.1. The Taos Field Office has received inquiries about making public land available for biomass energy production. The Taos Field Office was ranked 8th among all field offices with the highest potential for biomass production based on land area with a normalized difference vegetation index greater than 5 as determined with satellite imagery (DOE 2003).

3.3.8 *Transportation and Access*

Access to public land in the planning area is defined by the Federal and state highway system, which was used to create boundaries for the nine travel management areas that are discussed in Chapter 2. The roads providing direct access to the public land in the planning area are mostly dirt or gravel. Characteristically, these are 'unplanned' routes which were created by the use of vehicles over time to access areas for any number of reasons—exploration, gathering resources (primarily wood and sand, gravel or landscape rocks), mineral exploration and development, access to private or state land, and recreation (hunting, access to nonmotorized trail heads, sightseeing). Some have been improved to the extent needed to cross streams, climb steep slopes, or remove obstacles such as trees, or rocks.

Some roads have also been developed under rights-of-way agreements with the BLM, and are maintained to provide access to private homes, or to utility lines, and are maintained by the rights-of-way holder. The only roads maintained regularly by the BLM are in the Orilla Verde, Santa Cruz Lake and Wild Rivers recreation areas, and include the 13-mile Wild Rivers Back Country Byway. Other "primary" access roads that are occasionally maintained include the main route into Fun Valley SMA, short roads at John Dunn Bridge, Quartzite and County Line recreation sites. Several roads on public land are also maintained as county roads, or as state or Federal highways.

The Forest Service and the New Mexico State Land Office manage lands that are a major element in many of Taos BLM's transportation planning units. The Carson and Santa Fe National Forests are currently developing travel management plans. The BLM would coordinate closely with these forests in route identification and designation, and in the development of consistent strategies for implementation. These strategies include guidelines for how to access camping areas or allow vehicles to travel a certain distance from designated routes for specific purposes, how to seasonally limit use on selected routes, and the types of signs and maps that would best inform the public about access regulations on adjacent agency land. The BLM will work with the Forest Service to ensure that these regulations are as consistent and compatible as possible. The BLM will also coordinate with the State Land Office and county officials as they develop travel related plans, to ensure the compatibility of route networks.

Meetings have been held with other owners of large blocks of land bordering public land, such as land grants or Indian tribes. Vehicle access to and from their land, and particularly trespass by public land users is an increasing concern. These groups have requested signing that makes clear

where the public land boundaries are, the need to improve fencing, and the need to coordinate on the designation process.

Population growth in the planning area and development on private land adjacent to public land are leading to a significant increase in demand for access. Much of this increase for access is in the pursuit of various types of recreation, including motorized play. At the same time, desired conditions for rangeland health, watersheds, and wildlife habitat are in decline, in part due to damage from vehicle activity.

A major problem is inherent in the designation of most of the planning area as limited to existing roads or trails, with no definition of what an existing road is. Use of an 'existing road' has been difficult to regulate. As a consequence of this and the lack of a signing program or inventory, the transportation network is growing with no planning and the damage to resources is increasing. Areas that are adjacent to private land and small communities are receiving intensive, multiple unmanaged use, such as in Santa Fe County, the Buckman area in Santa Fe County, and the Chimayo, La Puebla and Dixon areas; in Rio Arriba County.

Trend

Demand for access to public land for both motorized and nonmotorized use is projected to continue to increase in the planning area. Demand for motorized access has especially grown in recent years. The national outdoor recreation trends from the most recent New Mexico State Comprehensive Outdoor Recreation Plan (2004–2009) stated that two of the top six activities for the state of New Mexico are individual trail/ street/ road activities (bicycling, walking, hiking), and driving for pleasure (off-road four-wheel drive or motorcycle riding). OHV use for agriculture and ranching continue to be a factor for a managed travel infrastructure. OHV use is also driven by traditional resource uses related to fuelwood gathering and hunting. In 1960, when the first U. S. National Recreation Survey was completed, off-highway motorized recreation had not been identified as a specific recreational activity. OHV use is widely recognized now as one of the fastest growing outdoor activities for utility use and recreation.

There has been a high level of public interest in maintaining opportunities in the planning area for both nonmotorized and motorized access. The lower elevations generally allow four-season access, unlike the higher elevations managed by the Forest Service. The landscape is diverse, with wooded terrain, rivers and streams, and rugged mountain and badland terrain. Also cited were the large number of historic trails used by Native Americans, Hispanics, and later Anglo settlers that provide an opportunity for interpretation and environmental education.

Public comments during scoping highlighted the importance of a well-designed and managed transportation network for both motorized and nonmotorized uses:

1. Land acquisition and easement for trails and access should be a high priority.
2. The transportation planning area boundaries should be re-examined, and reflect any opportunity to coordinate with adjacent landowners such as the Forest Service, State Land Office, or recognized land grants. A priority should be the creation of a road and trail system that is signed and has similar rules of use, no matter who the land owner is.
3. Enforcement of OHV rules (or its lack) is a serious concern.
4. As much as possible, maps should reflect what the visitor would see on the ground. Whenever possible, signs with road names or numbers should be placed on the ground and on the maps.

5. Fencing should be considered to help control unwanted OHV access.
6. Any open areas should be the minimum size needed to support the intended use, they should be bound by fences or natural barriers, well-signed, and closed to use at night. Proximity to residences should be a primary factor in deciding where to locate them.
7. The Fun Valley open area's 20,000 acres appears to be too large, and doesn't include some opportunity areas for hill climbing. Management concerns for cultural and natural resource protection warrant a smaller open area with a "limited to designated trail system". Public comments suggested that any open areas should be intensively managed, with a daily presence.
8. The Ojo Caliente area is receiving intensive growth and pressure from multiple use; there is a need to put into place a protective strategy for cultural and significant natural resources before it is too late.
9. When designating a trail system, maintain separate trails for single track, ATV or 4-wheel uses where possible.
10. Top issues identified are to expand and develop new urban/multiuse trails. Road networks would be examined for meeting access needs and impact on cultural sites.
11. Connecting communities should be a focus for transportation networks.
12. New Mexico's OHV grant program which will start in 2008 or 2009 should be used to support additional staff for enforcement purposes, in advance of using these funds to develop new opportunities.
13. Public education should be a key part of any transportation planning.
14. Once a network of approved routes is established, a maintenance schedule should be developed to assure that all "primary" access roads are maintained to an agreed-on standard, and secondary roads maintained to assure access on an as-needed basis.

BLM staff and the public have expressed concern for the lack of management of the transportation system. Primary roads retain some form of maintenance, while primitive roads are generally not maintained and managed, as is evident with the proliferation of routes and illegal dumping. No information on rules or regulations, or on recommended riding areas in the planning area are available online or in brochures. Only two areas are provided for motorized recreation, and are not monitored or managed to provide even basic services. Several comments suggested that such 'play' areas should be as small as possible to provide the needed area for hill climbs, should be bound by fencing or terrain, and should have daily oversight of motorized use. Some parents wanted such areas near enough so that their children could be kept under visual observation while riding; other residents wanted such riding areas to be far enough away so the noise of the machines could not be heard from their homes. The BLM recognizes the increase of motorized recreation and the need for complete inventory data, implementation of the designation process, signing of the transportation areas, and monitoring.

Two areas stood out in scoping that are favored for motorized recreation. One was the Fun Valley (El Palacio) area north of Espanola, already designated as an approved riding area. The other is in the Buckman area, where motorcyclists in particular would like the BLM to consider managing at least some of the existing routes for motorized recreation. Other comments focused on small areas for very specific motorized opportunities—a proposed trials riding area east of Dixon near NM-75, and a route north of San Antonio Mountain which is popular with rock-crawling enthusiasts.

Several comments were received that were both in favor and against the concept of developing a long-distance trail system for ATVs and motorcycles that would make use of existing dirt roads, but that would allow for access to small towns in the planning area for services. Some residents felt this would bring economic benefits to some businesses in small towns; others did not feel comfortable with this use in the planning area, due to concerns about noise, and not agreeing with this vision for future development in the area.

The BLM also received a number of comments from members of hiking, biking or equestrian groups, often accompanied by detailed maps. Transportation areas with the highest degree of interest for nonmotorized access were El Palacio, Sombrillo, West Santa Fe, and the Rio Grande Gorge area. Most commenter's were willing to share trails with motorized use, so long as such use was occasional. There was a distinct preference that any new trails that would be constructed be open only to nonmotorized users. Nonmotorized trails in the planning area are located primarily in the developed recreation areas and the Rio Grande Corridor.

Some types of conflicts are occurring with increasing frequency, and were repeatedly brought up during the scoping period: noise and dust from recreational use near residential areas; increased use by ATVs or motorcycles on trails that were formerly used for nonmotorized access, or that were only infrequently used by vehicles in the past; single-track motorcycle trails increasingly altered by ATV use; loss of habitat or resources that are valued for their intrinsic qualities; and damage to earthen dams or other range improvements.

In those parts of the planning area where inventories and route designations have been completed (primarily the Taos Plateau and the Rio Grande Corridor), the BLM has attempted to designate a network of vehicle-use routes that would average about 0.5-mile of road per square mile of land to reduce habitat fragmentation. This objective has proved to be unrealistic, in large part due to the number of private and state trust land parcels in these areas. Some comments have been made that these objectives need to also factor in the level or seasonal nature of vehicle use; for example, an area might have a high road density, but if vehicle use is light, or only occurs during times of year that are outside of breeding seasons, then the objective to manage for wildlife might still be met even with a dense network of roads. Commenter's suggested that the BLM should implement a carefully thought-out monitoring program to assure that resource protection goals are met without unnecessarily impacting motorized access to the public land.

There is general agreement that some high value areas should be closed to vehicles, or even mechanized travel (such as mountain bikes), but some concerns were voiced that closures are an unacceptable substitute for proper management. The assumption is that a properly managed route network (through signing, mapping, and patrol/enforcement) would eliminate many of the concerns about resource damage or conflict. There appears to be a preference for seasonal restrictions for wildlife reasons, and reroutes to protect site specific resources such as riparian, cultural, paleontological or rare plant sites instead of closing areas.

Related comments deal with rider safety, and a desire that the BLM provide onsite information about New Mexico's relatively new law on OHV use, primarily affecting riders under the age of 18. The state of New Mexico is currently implementing amendments made to the Off-Highway Motor Vehicle Act in 2005 that provide regulation on a variety of OHV matters; such as the use of helmets for 18-year and younger riders, proper and legal licensing, establishment of a fund to improve safety and access, and to require safety training for all owners of ATVs and motorcycles. Agencies such as the BLM and the Forest Service are able to apply for grants to improve access and enforcement of current rules.

Another concern (or opportunity) was mentioned repeatedly that the BLM not delay in identifying key road segments that cross non-BLM land and acquiring public easements to assure continued public access.

Opportunities for change in transportation and access management come from the BLM's current transportation policy, which is comparable to the Forest Service Final Rule on travel management, published in the *Federal Register* November 9, 2005, and subsequent directives. The Taos Field Office will coordinate its transportation planning with Carson and Santa Fe National Forests, both currently developing transportation plans by which they would manage motorized travel. In addition, the New Mexico State Land Office is interested in working with the Taos Field Office to develop a comprehensive travel management plan that incorporates state land.

3.3.9 *Withdrawals*

A withdrawal is a formal action that sets aside, withholds, or reserves BLM land by administrative order or statute for public purposes. The effect of a withdrawal is to accomplish one or more of the following:

1. Segregate (close) BLM land to the operation of all or some of the land laws and/or mineral laws.
2. Transfer total or partial jurisdiction of BLM land between Federal agencies.
3. Dedicate BLM land for a specific public purpose.

The Taos Field Office currently has approximately 78,245 acres withdrawn. These withdrawals include the Rio Grande and Rio Chama WSRs, Sabinoso Wilderness, Ute Mountain, Wild Rivers Recreation Area, Galisteo Basin Archaeological Sites, Orilla Verde Recreation Area, and the Lower Gorge, Agua Caliente, Racecourse, Embudo Canyon, Ojo Caliente, and Copper Hill ACECs.

The Taos Field Office considers requests for new withdrawals and withdrawal revocations, extensions, or modifications on a discretionary basis. Existing withdrawals are also reviewed on a case-by-case basis prior to the end of the withdrawal period or as otherwise required by law to determine whether they should be extended, revoked, or modified. Withdrawals no longer needed, in whole or in part, for the purpose for which they were withdrawn, would be revoked or modified. Upon revocation or modification of a withdrawal, all or part of the withdrawn land could be restored to multiple use management.

3.3.10 *Special Designations*

Special designations include areas provided special management prescriptions to protect certain significant values, Congressional designations, or other Administrative or Executive designations giving emphasis to significant resources or activities. Such designations within the planning area include ACECs, SMAs, scenic byways, national historic trails, watchable wildlife areas, WSRs, WSAs, and other Congressional designations. Many of these areas are currently designated, while other areas have been determined to qualify for special management subsequent to previous land use planning efforts.

3.3.10.1 Areas of Critical Environmental Concern

This designation is unique to the BLM, and is authorized by section 202 of FLPMA. ACEC designations highlight areas where special management attention is needed to protect and

prevent damage to important historic, cultural, scenic, or natural resources or values. For an area to be eligible for designation as an ACEC, it must meet one or more relevance criteria, and one or more importance criteria (BLM Manual 1613). It must also require special management to protect the resources or values identified for the area. The special management prescriptions for each of the existing or potential ACECs are presented in their respective sections in Chapter 2, Alternatives.

Relevance

An area meets relevance criterion if it contains one or more of the following:

R-1. A significant historic, cultural, or scenic value (including, but not limited to, rare or sensitive archeological resources and religious or cultural resources important to Native Americans).

R-2. A fish and wildlife resource (including, but not limited to, habitat for endangered, sensitive, or threatened species, or habitat essential for maintaining species diversity).

R-3. A natural process or system (including, but not limited to, endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).

R-4. Natural hazards (including, but not limited to, areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action may meet the relevance criteria if it is determined through the resource management planning process to have become part of a natural process.

Importance

In order to satisfy the importance criterion, the value, resource, system, process, or hazard described above must have substantial significance, generally characterized by one or more of the following:

I-1. More than locally significant qualities that gives it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.

I-2. Qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.

I-3. Recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of FLPMA.

I-4. Qualities that warrant highlighting to satisfy public or management concerns about safety and public welfare.

I-5. Poses a significant threat to human life and safety or to property.

Planning Area-Wide

Existing ACECs/SMAs

Riparian/Aquatic SMA. This designation from 1988 includes all riparian and aquatic habitats within the planning area. Management plans for 22 riparian areas were completed in 2000:

Rio Chama	Rio Cebolla	Canada Agua Arroyo
Rio Grande	Rio Nutrias	Rio Hondo
Santa Cruz River/Lake	Rio Frijoles	Rio Quemado
Red River	Rio Pueblo de Taos	Rio Truchas
Rio Embudo	Ojo Caliente River	Santa Fe River
Rio Medio	Rio San Antonio	Mora River
Ocate Creek	Rio Los Pinos	
Agua Caliente Creek	Canadian River	

Though not listed above, other areas that have a combination of hydric soils and vegetation in association with surface hydrology are also included in this SMA.

Recommendation: Taos resource specialists found these areas eligible for consideration as an ACEC, since they meet criteria R-3 and I-1. Several of these riparian areas are in larger existing or proposed ACECs in Alternatives A, B and C; only those riparian areas not already proposed for ACEC designation or not designated a WSR would be considered for a new ACEC. BMPs should also be considered as an optional way of providing appropriate protection of these areas, since it may be difficult to identify and map all areas that qualify. Map 3-4 illustrates all known riparian areas, which comprise approximately 2,250 acres.

Taos Plateau planning unit

Existing ACECs/SMAs

San Antonio SMA. Encloses both Winter Range ACEC and San Antonio ACEC. This area meets the relevance and importance criteria for wildlife resources (big game), scenic quality, and natural ecosystem processes due to the large amount of contiguous high quality habitat it represents. The area contains grass and shrub habitat that on the plateau and volcanic cones at elevations of up to 3,000 feet creates island habitats. The mix of habitats along the elevation gradient provide cover and forage opportunities for many wildlife species. The area is also an important migration corridor between the San Juan and Sangre de Cristo ranges. Key species are elk, deer, pronghorn, mountain plover, Gunnison's prairie dog, burrowing owl, and various raptor species.

San Antonio Gorge ACEC. 270 acres designated for significant natural processes, scenic value and important riparian wildlife habitat. Species are the same as described for the SMA. The 2000 Riparian and Aquatic Habitat Management Plan called for the Rio San Antonio to be managed for Southwestern willow flycatcher habitat.

Winter Range ACEC. 6,670 acres designated for critical winter range for big game species, including mule deer, elk, and pronghorn antelope.

Other Areas Evaluated

North Unit. This area covers the land from the Rio Grande corridor west to the San Antonio Mountain area, but excludes the San Antonio SMA. The winter range habitat that led to the designation of the two ACECs and SMA is also found in undeveloped areas throughout the North Unit. Habitat for special status species (Gunnison's prairie dog, burrowing owl) occurs throughout this area. Other wildlife of note is the recently introduced bighorn sheep. The entire area is an avian flyway with high abundance of water birds, eagles, raptors, geese, and ducks, as described in the New Mexico Avian Protection Plan. Playas occur throughout the area and

constitute a regionally significant habitat for amphibians and aquatic macroinvertebrates. There are also extensive archaeological sites located along the Rio Grande gorge, on wooded hills, and around playas. The only pre-historic tipi village site in the planning area is located within this area. Historic sheep pens and camping locations and crossings of the Rio Grande have been documented. All of these resources meet the relevance criteria; the playas and big game habitat meet the importance criteria.

Ute Mountain/Rio Costilla. These lands were acquired in 2003 and 2004. BLM inspections documented exemplary wildlife habitat for big game (including the recently introduced bighorn sheep), birds of prey, and special status prairie wildlife species; outstanding scenic quality on Ute Mountain and along the Rio Costilla; and increasingly rare historic sheep pens, camping sites, and river crossings used over a century ago. Resource specialists for the BLM also noted that scenic quality, geologic features, and cultural values met the relevance criteria (R-1 and R-3).

Recommendation: Most of the planning unit merits consideration for designation as one large ACEC with management zones, or up to four separate ACECs, meeting relevance criteria for fish and wildlife resources, scenic values, cultural resources, geologic features, and natural ecosystem processes of more than local significance. Special management, through active restoration such as controlled burns and rehabilitation of closed roads, is required to address habitat loss and degradation.

Public land interspersed with private land within 4 miles of US 64, and within 1 mile adjacent to active mines along the US 285 corridor, were excluded from consideration. In total, about 222,000 acres warrant consideration as an ACEC in one or more alternatives. Because the Rio Grande is already a congressionally-designated WSR, it is not considered for inclusion in any ACEC in the action alternatives.

Lower Gorge/Copper Hill planning unit

Existing ACECs/SMAs

Lower Gorge ACEC. 16,580 acres. Designated to protect riparian and wildlife habitat, and recreation values. An important migratory bird corridor, it serves as winter range for the bald eagle, and a nesting area for the golden eagle and peregrine falcon. The ACEC also has high value scenic quality. The ACEC includes the Bosque WSR study segment, found suitable for designation as a WSR segment in 2000.

Copper Hill ACEC. 17,200 acres. This ACEC was designated for its watershed, scenic quality, recreation, riparian and fish habitat, wildlife, and cultural resource values.

Other Areas Evaluated

Orilla Verde Recreation Area. 8,410 acres. The area has significant scenic values, including lands forming the rim of the Rio Grande Gorge, and the renowned Taos Valley Overlook. The cliffs provide habitat for several species of raptors, and rock terraces along the Rio Grande contain many significant cultural sites, particularly petroglyphs. The area also contains several seeps and springs and the Rio Grande shoreline that provides riparian habitat. The Arroyo Hondo represents an important corridor for deer and other wildlife to reach the Rio Grande. The terrain also presents a flood hazard. It meets the relevance and importance criteria for consideration as an ACEC. The entire area, including the two ACECs, is part of the Rio Grande migratory bird flyway, and provides important habitat for waterfowl, raptors, and passerines.

Recommendation: Orilla Verde Recreation Area should be considered as a potential addition to the Lower Gorge ACEC, since it meets the same relevance and importance criteria. The Rio Grande WSR is already designated and managed for protection of several outstandingly remarkable values and would be excluded from any ACEC proposed in the draft RMP.

Chama planning unit

Existing ACECs/SMAs

Rio Chama SMA. 6,140 acres are designated for critical summer range and migration corridors for big game species, including elk and mule deer; waterfowl habitat; cultural and historic sites; and scenic quality. It includes important riparian habitat along the Rio Chama, Rio Nutrias, and Rio Cebolla for migratory birds, and is included as a critical avian concentration area under the New Mexico Avian Protection Plan for water birds, raptors, geese and eagles. Lobo Canyon, Rio Cebolla, and Rio Nutrias are designated riparian areas to be managed under the 2000 Riparian and Aquatic Habitat Management Plan, with the Rio Cebolla and Lobo Canyon to be managed for Southwestern willow flycatcher habitat. The area is vulnerable due to large numbers of recreationists and unauthorized grazing activity.

Other Areas Evaluated

Lands Adjacent to Rio Chama SMA. BLM land west of the WSR was not included in the SMA in 1988. When reevaluated in 2007 and 2008, BLM resource specialists found that this area (which includes the western portion of the WSA) contains relevant and important big game winter range.

Recommendation: A total of 7,680 acres are recommended for consideration as an ACEC in one or more alternatives, including the SMA and the lands to the west in T. 27 N., R 1 and 2 E.

Ojo Caliente planning unit

Existing ACECs/SMAs

Black Mesa ACEC. This small (1,430 acre) area was designated in 1988 to provide management for what then was thought to be habitat for several species of rare and endemic plants, including *Astragalus cyaneus*, *Astragalus puniceous* var. *gertrudis*, *Aletes* spp., and *Pediocactus papyracanthus*. Since 1988, these species have been found to be more common and present over a broader area. However, studies since 1988 identified several cultural sites of more than local significance.

Ojo Caliente ACEC. 13,370 acres designated for protection of several important cultural sites, including ancestral Tewa pueblo ruins, critical summer range for big game species, including elk and mule deer, and riparian habitat. Three areas along the Ojo Caliente are important riparian areas used by migratory birds and wildlife species as a water source, and designated in the 2000 Riparian and Aquatic Habitat Management Plan to be managed for southwestern willow flycatcher habitat. The ACEC includes a portion of an avian concentration area under the New Mexico Avian Protection Plan for water birds, raptors, geese and eagles.

The existing ACEC contains six large Classic Period (AD 1300-1600) Pueblos, some of which are among the largest in the southwest. Associated with these large villages are agricultural features, trails, petroglyphs, material procurement areas (like clay, mica and ochre mines), and sacred sites.

Ku Pueblo SMA. A 70-acre multi-storied adobe and cobble pueblo ruin designated to provide enhanced management of a significant Tewa cultural site.

Other Areas Evaluated

Adjacent to Black Mesa ACEC. Surveys have been conducted over the past several years that document the presence of thousands of petroglyphs, and agricultural features, water diversions and field houses on Black Mesa (also known as Mesa Prieta).

Rincon del Cuervo/Cerro Colorado. This area, west of Ojo Caliente ACEC, is dominated by the Rincon del Cuervo and two extinct volcanoes—Cerro Colorado and Cerro Negro. Since 1988, a great variety of agricultural and structural archaeological sites have been documented along El Rito Creek, and the Sandoval Pueblo ruins were discovered and mapped south of the existing ACEC. Comments received during public scoping suggested that scenic quality, wildlife corridors, cultural resources and erodible soils warranted ACEC designation. Data collected by the BLM as part of the RMP revision process supports the recommendations made by the public during scoping.

Recommendation: Black Mesa ACEC should be rescinded as an area with relevant and important botanic values since the values are no longer considered to meet the importance criteria.

Consider expanding Ojo Caliente ACEC to include the former Black Mesa ACEC and the surrounding BLM land for its cultural values, the Rincon del Cuervo/Cerro Colorado area, and Ku Pueblo SMA. The proposed ACEC adds other large pueblos and their associated features as well as thousands of petroglyphs recently recorded on Black Mesa. The area contains nationally significant archaeological resources, and, additionally, this important cultural landscape is the ancestral home of the Tewa Pueblos, including Ohkay Owingeh, Santa Clara, San Ildefonso, Pojoaque, Tesuque, and Nambe. The area also contains critical wildlife habitat and scenic quality. The proposed ACEC meets the relevance criteria by containing significant cultural and scenic value important to Native Americans. The importance criteria are met because the resources are fragile, irreplaceable and endangered, and are nationally significant. The total acreage found eligible for ACEC consideration is 66,150. Management emphasis should be focused on cultural and scenic resources, wildlife/riparian habitat, and fragile ecological processes (highly erodible soils).

El Palacio planning unit

Existing ACECs/SMAs

Sombrillo ACEC. This 8,600 acre area was designated in 1988 due to the nationally significant paleontological resources found in three rock strata that cover the area. Since then, three prehistoric ancestral Pueblo habitation sites have been identified that also meet the relevance and importance criteria. Volcanic ash and clay found in the ACEC are used by Native American potters. During scoping, scenic quality was identified as an additional attribute of the area needing special management attention.

Fun Valley SMA. This area covers 17,850 acres and was identified primarily as a motorized recreation area, largely for its ATV and motorcycle riding opportunities. The main conflicts that the area's management prescriptions were designed to overcome are the paleontological and cultural resources found in the area. Since 1988, more sites have been discovered; some pueblo ruins described below warrant consideration as an ACEC.

Pueblo SMAs (La Caja Pueblo, Ojo del Zorro Pueblo, Pueblo Quemado, Pueblo Sarco and Sahiu Pueblo). These pueblo sites, totaling 240 acres, were identified for protection from surface disturbance and management that would encourage recordation and excavation to obtain archaeological data. They are nationally significant examples of prehistoric Tewa culture, and are considered sacred.

Other Areas Evaluated

Nambe Bugge and Ojito Pueblos. These two sites, 10 acres each, have been identified as having the same values as the pueblo ruins described above for the Pueblo SMAs.

La Puebla. The Taos Field Office has recently compiled information, including new and historic, on this 680-acre block of public lands in preparation for site-specific planning. The information clearly indicates a significant presence of paleontological resources in the area. The American Museum of Natural History located in New York conducted expeditions to this location for much of the first half of the previous century because of its significance. A report completed in 1978 cosponsored by the BLM also recognizes the areas sensitive paleontological resources and recommends special protections as part of the area's management. The public land at La Puebla also contains significant cultural resources.

Recommendation: Expand the Sombrillo ACEC to include portions of the Fun Valley area and La Puebla, totaling 18,080 acres. Cultural and scenic values also meet the relevance and importance criteria supporting the ACEC expansion.

Consider all of the identified pueblo sites for designation as an ACEC with emphasis on protection of their cultural values.

West Santa Fe planning unit

Existing ACECs/SMAs

La Cienega ACEC. A total of 3,730 acres were designated by amendment to the RMP in 1992. The significant resources identified were cultural, riparian, wildlife (big game, water birds, raptors, geese and eagles), and scenic quality. The area was identified as important for its scenic value in the 1995 Santa Fe County Visual Inventory and Analysis.

Other Areas Evaluated

La Bajada Mesa. Data acquired over the past 5 years indicates that significant cultural sites are more widespread than previously thought. New cultural inventories after 1988 in this area documented 157 newly recorded sites mostly related to prehistoric hunting and agricultural activities. These sites, along with the habitation sites and petroglyphs in the existing ACEC, constitute a remarkable cultural landscape relating to the Keresan Pueblos use of the area through the last thousand years or so. The area also includes important Spanish Colonial sites including El Camino Real de Tierra Adentro and habitations.

Habitat for the Gray Vireo (a Special Status Species) Occurs on the Mesa North of Santa Fe River. The area evaluated covers about 2,000 acres.

Santa Fe Ranch. The Santa Fe Northwest Advisory Council submitted data in 1997 that identified significant cultural resources in this area, confirmed by additional studies conducted in the past 12 years by the Museum of New Mexico's Office of Archaeological Studies. The high frequency of Archaic Period sites with buried deposits is unprecedented in the northern Rio

Grande. Buried cultural deposits have the greatest potential to inform on early settlement and land use patterns if they are protected and carefully studied. The area also contains a variety of ancestral Pueblo sites that reflect a low impact, long-term land use pattern that is rapidly being lost in the Santa Fe area. Ancestral Pueblo sites within the area are an important link to the unwritten histories of the native peoples of the Northern Rio Grande, and protection of these sites would preserve them for future study. The historic Chili Line railroad line runs through this inventory area, along the same path followed by Buckman Road. Some signs of bridges and the track bed still exist. The area meets ACEC relevance and importance criteria because of these cultural/historic resources. Adjacent communities have supported ACEC consideration of this area for many years.

Diablo Canyon is a distinctive scenic landmark in this region, with the same cultural resources as described above; in addition, it contains the planning area's only documented Paleoindian campsite. The canyon provides habitat for the peregrine falcon. Special management is required since it is a popular filming and rock climbing locale, with potential conflicts between users.

Recommendation: Consider expansion of La Cienega ACEC to include adjacent land on La Bajada Mesa and to the east of the existing ACEC. The total acreage eligible for consideration as an ACEC is 13,390.

BLM land at Diablo Canyon and near Buckman, along the Rio Grande, as well as the larger Santa Fe Ranch area, are also eligible for ACEC consideration. Total acreage that should be considered is 21,030.

Galisteo Basin planning unit

Existing ACECs/SMAs

San Lazaro SMA. This 80-acre site is designated to protect a significant cultural site.

Other Areas Evaluated

The Galisteo Basin Archaeological Sites Protection Act of 2004 identified 24 protection sites containing pueblos, rock art sites, and Spanish colonial settlements. Five of these sites are partly on BLM land—Burnt Corn Pueblo (70 BLM acres), Petroglyph Hill (40 BLM acres), Pueblo Blanco (190 BLM acres), Pueblo Galisteo/Las Madres (70 BLM acres), and San Lazaro Pueblo SMA (80 BLM acres). All meet the relevance and importance criteria due to their cultural values, their fragility, and national significance.

Recommendation: Consider all five public land sites, totaling 450 acres, for ACEC designation in one or more alternatives with an emphasis on the protection of their cultural/historic resources.

East Side planning unit

Existing ACECs/SMAs

Sabinoso SMA. 19,680 acres designated for critical wildlife habitat for big game species, including elk, mule deer, black bear and mountain lion, as well as many other nongame wildlife species. The area is also noted for its outstanding scenic quality. Most of this area is being considered for wilderness designation by Congress.

Recommendation: The area should be considered for ACEC designation, with a management emphasis on its outstanding scenic quality. Current data on wildlife habitat does not support the wildlife value as meeting the relevance and importance criteria.

Table 3-40. Summary of areas warranting consideration as ACECs

Planning unit/ *Area (Re)evaluated*	Acres Eligible	Resource/Hazard	Relevance Criteria	Importance Criteria
Taos Plateau/Upper Gorge	222,500			
San Antonio SMA		wildlife (big game), scenic, natural processes	1, 2, 3	3
San Antonio Gorge ACEC		riparian, scenic, natural processes	1, 3, 4	1, 2
Winter Range ACEC		wildlife (big game)	2	1, 2, 3
North Unit		wildlife (big game), cultural, geologic	1, 3	3
Ute Mountain/Rio Costilla		wildlife (big game, raptors, prairie), scenic, cultural, geologic	1, 2	1, 3
Wild Rivers Recreation Area		wildlife, scenic	1, 2	1
Lower Gorge / Copper Hill	38,480			
Copper Hill ACEC		scenic, riparian, fish and wildlife	1, 2, 3, 4	1, 3
Lower Gorge ACEC		scenic, riparian, fish and wildlife, natural hazard	1, 2, 3, 4	1, 3
Orilla Verde Recreation Area		scenic, riparian, cultural, wildlife, geologic, flood hazard	1, 2, 3, 4	1, 3
Chama	7,680			
Rio Chama SMA		riparian, fish and wildlife, scenic, cultural and historic	2, 3	1, 3
Lands Adjacent to SMA		wildlife (big game)	2	1, 3
Ojo Caliente	66,150			
Black Mesa ACEC		cultural	1	1
Adjacent to Black Mesa ACEC		cultural	1	1
Ojo Caliente ACEC		cultural, scenic, riparian, wildlife (big game)	1, 3	1, 3
Ku Pueblo SMA		cultural	1	1
Rincon del Cuervo		cultural, scenic, wildlife, natural hazards	1, 2, 4	1, 3
El Palacio	18,080			
Sombrillo ACEC		paleontological, cultural, scenic	1	1, 2
Fun Valley SMA		paleontological, cultural	1	1, 2
La Puebla		paleontological, cultural, scenic	1	1, 2
Pueblo SMAs: La Caja, Ojo del Zorro, Quemado, Sarco, Sahiu		cultural	1	1, 2, 3
Pueblo sites: Nambe Bugge, Ojito		cultural	1	1, 2, 3
West Santa Fe	34,415			
La Cienega ACEC		cultural, scenic, wildlife, riparian	1, 2	1, 2
La Bajada Mesa		cultural, scenic, wildlife	1, 2	1, 2
Santa Fe Ranch		cultural	1	1, 2, 3
Diablo Canyon		scenic	1	1
Galisteo Basin	450			
Pueblo sites designated by the Protection Act, including San Lazaro Pueblo SMA		cultural	1	1, 2, 3
East Side	19,680			
Sabinoso SMA		scenic	1	1

3.3.10.2 Byways

There are 11 byways located all or partly in the planning area as shown in Table 3-41. The Wild Rivers Back Country Byway is the only one which is under the direct management of the BLM; two are over or adjacent to public land—El Camino Real and the High Road to Taos; and two are located such that BLM-managed land in the planning area is in their viewshed—the Enchanted Circle and Turquoise Trail.

Table 3-41. Byways in the Taos planning area

Byway	Planning unit(s)	Notes
Dry Cimarron Scenic Byway	East Side	No BLM-managed land in New Mexico
El Camino Real National Scenic Byway*	West Santa Fe and El Palacio	Adjacent BLM-managed land for about 2 miles, north of Pojaque land along US 285
Enchanted Circle Scenic Byway*	Taos Plateau/Upper Rio Grande	No adjacent BLM-managed land; public land in Wild Rivers area is in the byway's viewshed
La Frontera Del Llano	East Side	No BLM-managed land involved
High Road to Taos Byway*	El Palacio and Lower Gorge/Copper Hill	Adjacent to public land along NM-503, NM-520, and NM-76 for about 5 miles
Narrow Gauge Scenic Roadway	Chama	No adjacent BLM-managed land
Puye Cliffs Scenic Byway		No BLM-managed land; byway is on Santa Clara Pueblo land
Santa Fe National Forest Scenic Byway		No BLM-managed land; byway is on Santa Fe Forest land only
Santa Fe Trail National Scenic Byway		No BLM-managed land
Turquoise Trail National Scenic Byway*	Galisteo Basin	No adjacent public land, but BLM-managed land in the San Pedros is within the viewshed
Wild Rivers Back Country Byway*	Taos Plateau/Upper Rio Grande	Entirely on public land (continuation of NM-378)

*These byways shown are on public land, or their viewsheds include public land. Therefore, these are the only byways discussed in Chapter 2 and considered in the various management options.

Normally, byway designations are the result of community-based support. The only exception in the list above is the Wild Rivers Back Country Byway, which was designated administratively by the BLM. During scoping, no new byway proposals were recommended, although there was interest on the part of businesses in the Chama area to consider this as an option to support tourism. Many of the byways listed have completed marketing and/or management plans to identify goals and objectives for the byway, including protection of those values that make the byway distinctive.

3.3.10.3 National Historic or Scenic Trails

Four National Scenic or Historic Trails cross portions of the planning area (see Map 3-20). However, two of these—the Continental Divide National Scenic Trail and the Santa Fe National Historic Trail—do not cross over BLM-managed land in this planning area. Their routes were noted during the planning process to assure that this RMP is consistent with their management goals, such as not allowing any significant visual intrusions within the foreground viewshed.

El Camino Real de Tierra Adentro (Royal Road of the Interior) was added to the National Trails System in 2000, and is administered jointly by the BLM and the National Park Service. A management plan was completed in 2004, which amended the Taos RMP to designate a 0.5-mile wide corridor in the Taos planning area for management under VRM class II guidelines (see section 3.2.9, Visual Resources). The route roughly follows the I-25 corridor into Santa Fe, then continues to Espanola west of the US 84/285 corridor, and along NM-68 to the Ohkay Owingeh (formerly San Juan Pueblo) site which is the northern end of the designated historic trail. High potential historic sites referred to in the plan which are on BLM-managed land are La Cienega and Cieneguilla (both in La Cienega ACEC), and would be managed under guidance described in Appendix A. Trail segments and these two sites would be protected from surface disturbance, and would be included in any environmental education/interpretation efforts in the ACEC.

The Old Spanish Trail has been designated by Congress as part of the national trails system. That designation includes three routes: the Northern Route, the Armijo Route, and the North Branch. The BLM and the National Park Service jointly administer the Old Spanish National Historic Trail. A comprehensive management plan/draft EIS is currently under preparation. Ten segments of the Old Spanish Trail, totaling about 33.5 miles, cross BLM-administered land in the planning area. The Armijo Route crosses BLM land along the Rio Chama west of Abiquiu. This 1-mile-long BLM parcel below Abiquiu Dam holds a high potential site which includes the probable Armijo river crossing. The Northern Route crosses public land along US-84 between Abiquiu Reservoir and Tierra Amarilla. There are about 3 miles of the route on BLM land in this area, which could be part of an auto tour route. Another segment of the Northern Route likely crosses BLM land (possibly up to 5 miles) between Cebolla and the Rio Chama where it crosses near El Vado. This segment has not been located on the ground. About 24.5 miles of the North Branch is located on BLM land between Chimayo and Taos. This branch contains seven segments that cross BLM-managed land. The trail is located on about 1.3 miles of BLM land as it leaves Chimayo heading toward Ojo Sarco. Between Velarde and Dixon, the trail crosses about 2.5 miles of BLM land. The Battle of Embudo, a fight between the American Army and Taos rebels, took place along this portion of the trail in 1847. This is a high potential trail segment for visitation and interpretation. The Apodaca segment crosses some 7.5 miles of BLM land between Apodaca and Pilar. This trail segment, which predates the Old Spanish Trail, is known as the Apodaca Trail. Much of this portion of the trail is intact and crosses some very scenic terrain, which leads to high potential for visitor use and interpretation following archaeological inventory and recording. Two other segments of the North Branch, which link the Apodaca Trail to the high road which passes through Picuris Pueblo on the way to Taos, cross about 7 miles of BLM land. The first segment follows the Entranas Arroyo from Velarde to Ojo Sarco. The other segment crosses 2 miles of BLM land between Apodaca and Ojo Sarco along the Canada Ojo Sarco. A 3-mile segment follows NM-68 from Pilar to the horseshoe curve. Most of this segment has been located and parts have been disturbed by construction of the present highway. The final segment of the trail is located on the Taos Overlook just south of Taos. The trail has been identified along a 3-mile stretch within this area and it has great potential for interpretation and limited public visitation.

All of the above defined segments of the Old Spanish Trail would be considered high potential by the Taos Field Office. These trail segments would be protected from surface disturbance and the visual nature of the trail would be preserved.

The West Fork of the North Branch, which is not included in the Old Spanish Historic Trail, but is being studied for possible inclusion, also crosses through the planning area. About 13 miles are located along US 285 in the Ojo Caliente and Taos Plateau planning units. If this portion of

the trail is designated, then this 13-mile segment would be added and managed as part of the Old Spanish Trail.

3.3.10.4 Special Management Areas

The 1988 RMP designated 12 areas, ranging in size from 10 to 58,000 acres, as SMAs. This administrative designation was made to identify areas that warranted special management actions to protect resources or to enhance public use. In the mid-1980s, the SMAs that had been identified while drafting the original RMP had been reviewed to determine if any met the relevance and importance criteria for ACEC designation—those that did were designated as such in 1988, and are described above in section 3.3.10.1.

The current SMAs are:

- La Caja Pueblo—cultural resources
- Fun Valley—motorized recreation, as well as cultural and paleontological resources
- Ku Pueblo—cultural resources
- Ojo del Zorro Pueblo—cultural resources
- Pueblo Quemado—cultural resources
- Pueblo Sarco—cultural resources
- Rio Chama—recreation
- Riparian/Aquatic—wildlife
- Sabinoso—wildlife
- Sahiu Pueblo—cultural resources
- San Antonio—wildlife
- San Lazaro—cultural resources

An SMA is not a formally recognized special area designation in BLM planning guidance, so no new SMAs would be considered for the revised RMP. Instead, any area warranting special management attention would be considered for other types of designations, notably as an ACEC. The SMAs which were identified as valuable for recreation would also be considered for designation as an SRMA (see section 3.3.6, Recreation). Due to availability of new information or changes in resource or public sensitivity, the remaining SMAs were reviewed to determine if they now meet the relevance and importance criteria for ACECs. Those that met the criteria are discussed in more detail above in section 3.3.10.1.

3.3.10.5 Watchable Wildlife Areas

Areas that reliably provide the public with an opportunity to view wildlife may be considered for this designation. Currently there are two BLM-managed areas in the Taos planning area. The San Antonio Mountain watchable wildlife area along US 285 provides opportunities to view mule deer, elk, and pronghorn from late November through March. The Wild Rivers Recreation Area offers year-round viewing of mule deer and elk at dawn and dusk along the main access road.

3.3.10.6 Wild and Scenic Rivers

The National Wild and Scenic River system includes three river segments in the planning area—32 miles of the Rio Chama, the lower 4 miles of the Red River, and 68 miles of the Rio Grande from the Colorado state line south to Rinconada. The Rio Grande was one of eight rivers

designated in 1968 with the passage of the Wild and Scenic Rivers Act. This initial designation went from the Colorado border south to the Taos Junction Bridge. An additional segment was added in 1994, including river reaches south to the upstream end of private land in Rinconada. A study segment was also designated from that point south to the Velarde diversion dam. This study segment, referred to as the Rio Grande Bosque, was found 'suitable' for WSR designation as a recreational segment in 2000. Management guidance for the Rio Grande WSR and the study segment is provided by the Rio Grande Corridor Plan (2000) and summarized in Appendix A.

In 1988, the Rio Chama was designated by Congress, with management duties shared by the BLM and the Forest Service. A management plan was prepared jointly by the BLM, the Forest Service, and the Army Corps of Engineers in 1991.

BLM policy is to identify all rivers on BLM-administered land which may have potential for addition to the National Wild and Scenic River system, using a three-phase process (eligibility determination, tentative classification (as wild, scenic, or recreational), and suitability determination). The BLM began the identification of potential rivers that should be considered in the study process in 2006 as part of public scoping for the RMP, which included consulting organizations and individuals with knowledge of the area's rivers and streams (e.g., Amigos Bravos, Rio Grande Restoration, governmental agencies, and local boaters or fishermen). Currently, 18 segments are determined eligible, as shown in Table 3-42, of which 7 were carried forward from the WSR inventory prepared for the Rio Grande Corridor Management Plan (USDI-BLM 2000b).

Table 3-42. Wild and scenic rivers (designated and eligible segments)

River Segment	River Miles, Classification	Outstandingly Remarkable Values	Status	Planning unit
Rio Chama	21.60 – wild 3.00 – scenic	scenic, riparian, fish habitat, wildlife, recreation	Designated 1988	Chama
Rio Grande/Red River	[53.2] – wild [2.95] – recreational	scenic, geologic, wildlife, fish habitat, recreation, riparian, cultural	Designated 1968	Taos Plateau/Upper Rio Grande
Rio Grande below Taos Junction Bridge	12.00 – scenic	scenic, geologic, recreation, wildlife, fish habitat, cultural, riparian	Designated 1994	Lower Rio Grande/Copper Hill
Rio Grande Bosque	7.60 – recreational	scenic, fish habitat, riparian, cultural	Congressional study segment, determined suitable	Lower Rio Grande/Copper Hill
Rio Embudo Box	5.00 – wild	scenic, recreation, wildlife, fish habitat, geologic	Determined suitable	Lower Rio Grande/Copper Hill
Rio Nutrias	2.00 – wild	scenic, recreation, wildlife, geologic	Under consideration as suitable	Chama
Rio Pueblo de Taos	1.00 – scenic	scenic, recreation, fish habitat	Under consideration as suitable	Lower Rio Grande/Copper Hill
Agua Caliente Canyon	1.90 – wild 1.00 – scenic	geologic	Suitability would be determined for these segments in cooperation with the Carson and Santa Fe National Forests	Lower Rio Grande/Copper Hill
Arroyo Hondo	1.20 – scenic	geologic		Lower Rio Grande/Copper Hill
Canada de Ojo Sarco	2.40 – scenic	geologic		Lower Rio Grande/Copper Hill
Canjilon Creek	0.50 – recreational	scenic		Chama
Red River (above hatchery)	1.00 – recreational	scenic, recreation		Taos Plateau/Upper Rio Grande
Rio Cebolla	1.50 – wild	scenic, wildlife, recreation, geologic		Chama
Rio Grande (Buckman area)	1.00 – scenic	scenic, recreation		West Santa Fe
Rio Medio	1.00 – wild 0.30 – recreational	scenic, recreation, fish habitat		Sombrillo
Rio Quemado	2.00 – wild 0.50 – recreational	scenic, recreation, geologic, fish habitat		Sombrillo
Rio San Antonio	4.00 – wild	wildlife		Taos Plateau/Upper Rio Grande

Rio Santa Cruz	1.00 – wild 0.25 – recreational	scenic, geologic, recreation, fish habitat		Sombrillo
Rio de las Trampas	1.30 – scenic	scenic, geologic, wildlife		Lower Rio Grande/Copper Hill
Santa Fe River	4.00 – recreational	recreation, cultural, fish habitat		West Santa Fe
Tierra Amarilla Canyon	2.30 – scenic	scenic, recreation, cultural, water quality, riparian, geologic		Lower Rio Grande/Copper Hill

3.3.10.7 Wilderness

In March of 2009, Congress designated the 16,030-acre Sabinoso Wilderness located in the East Side planning unit. This area, formerly the Sabinoso Wilderness Study Area, will be managed according to the Wilderness Act of 1964 and BLM Manual 8560. A wilderness management plan will be prepared for this designation which will provide for its site-specific management.

3.3.10.8 Wilderness Study Areas

The BLM was authorized to consider areas under its management for wilderness designation upon passage of FLPMA in 1976. An inventory was conducted in the late 1970s that identified six roadless areas in the planning area. An intensive inventory of these areas determined which met the wilderness criteria of naturalness and ability to provide an outstanding opportunity for solitude or primitive and unconfined recreation. These areas must also be 5,000 acres or larger in size. This intensive inventory resulted in the designation of three WSAs, including Sabinoso, which was designated wilderness by Congress in early March 2009 (see Table 3-43). The next step was the preparation of a suitability study to determine which of these areas could be managed by the BLM as wilderness—a portion of the Navajo Peak (renamed Rio Chama) WSA was the only suitably-recommended area in the Taos planning area.

Table 3-43. Roadless areas/wilderness study areas

Name	Planning unit	Comments
Cerro de la Olla	Taos Plateau/ Upper Rio Grande	Did not meet naturalness criterion (too many human intrusions)
San Antonio		WSA: 7,760 acres recommended nonsuitable for designation
Windmill		Did not meet criterion for outstanding opportunity for solitude
Seco	El Palacio	Did not meet naturalness criterion (too many human intrusions)
Navajo Peak (Rio Chama)	Chama	WSA: 11,150 acres; 5,190 suitable, 6,753 nonsuitable
Sabinoso	East Side	Designated Wilderness in 2009 (16,030-acres).

Note: The original wilderness inventory acreage and reports to Congress were not accurate; the acreage in this table is based on updated mapping capabilities. Original acreage reported was: San Antonio-7,050 and Rio Chama-11,985 (suitable-5,232, nonsuitable-6,753).

No additional areas can be considered for designation as WSA because the congressional authorization to do so expired. However, the BLM does recognize that some public land areas that have been acquired since 1991, or that have seen more limited use since the inventory was completed, have wilderness characteristics that should be considered in the planning process. Areas having these characteristics in the Taos planning area are described in section 3.2.11, Wilderness Characteristics.

3.3.10.9 Other Congressional Designations

Galisteo Basin Archeological Sites

The Galisteo Basin Archaeological Sites Protection Act of 2004 identified 24 protection sites containing pueblos, rock art sites, and Spanish colonial settlements. The legislation provides for the addition of sites, or their removal if the landowner so wishes. The BLM, designated as the lead Federal agency, is working in partnership with the landowners, the National Park Service,

the New Mexico State Land Office, New Mexico Department of Cultural Affairs, Santa Fe County, School of American Research, the Archaeological Conservancy, Native Americans, and local communities to develop a plan to implement the Act.

Of the 24 sites referred to in the Act (see Map 3-20), 9 have portions on public land managed by the BLM, and 5 (shown in bold) are included in two special designation areas—La Cienega ACEC (6-9) and San Lazaro SMA (22):

Site	Acres
1. Arroyo Hondo Pueblo	21
2. Burnt Corn Pueblo	110
3. Chamisa Locita Pueblo	16
4. Comanche Gap Petroglyphs	764
5. Espinoso Ridge Site	160
6. La Cienega Pueblo and Petroglyphs	126
7. La Cienega Pithouse Village	179
8. La Cieneguilla Petroglyphs	531
9. La Cieneguilla Pueblo	11
10. Lamy Pueblo	30
11. Lamy Junction Site	80
12. Las Huertas	44
13. Pa'ako Pueblo	29
14. Petroglyph Hill	130
15. Pueblo Blanco	878
16. Pueblo Colorado	120
17. Pueblo Galisteo/Las Madres	133
18. Pueblo Largo	60
19. Pueblo She	120
20. Rote Chert Quarry	5
21. San Cristobal Pueblo	520
22. San Lazaro Pueblo SMA	360
23. San Marcos Pueblo	152
24. Upper Arroyo Hondo Pueblo	12

One outcome of the management plan underway for the Galisteo Basin sites would be a recommendation for land ownership changes, special designations for the public land sites, and other protective measures. Once approved, these would be incorporated into the Taos Resource Management Plan.

Northern Rio Grande National Heritage Area

This National Heritage Area was established by Public Law 109-338 on October 12, 2006 and includes the counties of Taos, Santa Fe and Rio Arriba, which are mostly located within the boundaries of the Taos Field Office. The area would be managed by a nonprofit corporation, which would have a board of directors including representatives from the state of New Mexico, the three counties, tribes and pueblos, the cities of Santa Fe, Espanola and Taos, and members of the general public. The goals include; preservation and protection of the unique cultural

resources and traditions of the area through implementing programs and services that recognize, respect, and preserve the multicultural people and landscape of the designated area.

The BLM is not directly involved in the management of the National Heritage Area. However, the Taos Field Office would continue to coordinate with the nonprofit corporation to determine how the BLM can help promote the purposes of the heritage area.

3.4 Social and Economic

This section describes how people use and interact with resources in the Taos basin and northeastern New Mexico and a series of uses and management categories that are important considerations for the decisions to be made during the Taos RMP planning process.

3.4.1 *Social and Economic Context*

Within the nine counties that comprise the planning area, social and economic character differs along either side of the Sangre de Cristo Mountains as well as between counties and even smaller communities. These areas draw their social and economic character in part from the BLM land in the planning area. The following description of the Taos basin and northeastern New Mexico social and economic environment would focus on components of change within and among these areas. Special attention would be given to smaller communities that contain characteristics unique to the area.

Certain defining features of every area influence and shape the nature of local economic and social activity. Among these is the local history, population, the presence of or proximity to large cities or regional population centers, types of longstanding industries such as agriculture and forestry, area racial and cultural characteristics, predominant land and water features, and unique area amenities. The Taos Field Office operates as a steward to many of these area resources and opportunities and thus plays a principal role in the community.

3.4.2 *History*

Northern New Mexico was home to native cultures long before the Europeans reached the Americas. Land now administered by the BLM within the planning area has been supporting social and cultural traditions for thousands of years (Taos Historical Society 2008).

In 1540, the pueblos of the Taos basin had their first visit from the Spanish. In 1598, Juan de Oñate led an expedition from Compostela, Mexico, to the Tewa village of Ohkay Owingeh, located near the confluence of the Rio Chama and the Rio Grande. They renamed the village San Juan de los Caballeros and established the first Spanish capital of New Mexico. This event often marks the formal Spanish colonization of New Mexico. In 1610, Santa Fe was established as the new capital. Spanish colonizers brought cattle and sheep to the area and taught the people of the pueblos how to raise them. In June of 1715 one of the first land grants was validated to Cristóbal de la Serna. Soon after the Diego Lucero de Godoy land grant was transferred to Antonio Martinez and became the Martinez Grant. In 1796 Governor Fernando Chacón approved a grant near the town of Taos, and 63 families were placed in possession of the Don Fernando de Taos grant. The boundary of this grant overlaps with land granted earlier to the Taos pueblo, as well as the Serna Grant.

When Mexico gained independence from Spain in 1821, the isolationist trade policies of the Spanish were replaced by a more open policy under the Mexican government. Santa Fe became a regional trade center and the Santa Fe Trail became an important trade route to the United

States, connecting Santa Fe with St. Louis, Missouri. Prior to independence, the isolationist policies under Spanish rule depressed the area of market interaction and currency; consequently, a barter economy grew (Weber 1994). Despite gaining independence from the Spanish and opening up to regional trade, the bartering economy continued and exists in the area today.

During the civil war, Confederate troops considered Santa Fe an important target given its trade significance and location along the route to gold fields in Colorado and California. In the 1880s, the railroad and telegraph arrived in the area and provided another state of area expansion. In the early twentieth century, artists began arriving in small cities in northern New Mexico.

During the remainder of the twentieth century, northeastern New Mexico saw a great increase in population as many others began to move to the area given its alluring cultural and natural setting. The area provided an escape to many; communes such as New Buffalo Commune were founded in late 1960s. Others from throughout the Nation find escape in the area today with the many unique area activities (New Mexico Tourism Department 2008).

3.4.3 *Cultural Identity*

The Taos Field Office contains two distinct geographic areas that can be distinguished culturally—the Southwest (from the Sangre de Cristo Mountains west) and the Great Plains (east of the mountains). The area to the west of the Sangre de Cristo Mountains contains a mix of Anglo, Hispanic, and Native American cultures that has been culturally changing since initially occupied. To the east of the mountains, the area contains elements of these diverse cultures and identifies more with agricultural and land uses common in the greater rural Great Plains area. Throughout the planning area, the merging of Native American, Hispanic, and Anglo histories provides a diversity of cultural traditions and identities in the area. While these groups historically may have clashed and culturally identified as disparate groups, over time the lines between them have often become less discernible. Cultural identity continues to diversify as new settlers move in, attracted by unique natural and cultural opportunities.

Historically, high concentrations of the Hispanic American and Native American groups have lived in the planning area. Europeans have been in the area for over 400 years since Coronado's party came in 1540. Native American groups with land within the boundaries of the Taos Field Office include the Tiwa Pueblos of Taos and Picuris; the Tewa Pueblos of Ohkay Owingeh, Santa Clara, Pojoaque, San Ildefonso, Nambe and Tesuque; the Keresan Pueblos of Cochiti and Santo Domingo. The Jicarilla Apache Indian Reservation is also located in the planning area. The Pueblos of Jemez, Zia, Santa Ana, San Felipe, Acoma, Laguna, Isleta, Sandia, Hopi, and Zuni, and Southern Ute and Navajo tribes are not located in the planning area but may have associated historical and cultural ties. The longstanding histories of these groups have created strong cultural identities and traditions unique to the area.

3.4.4 *Demographic Overview*

According to the U.S. Census Bureau, population growth in Santa Fe and Taos counties outpaced the state of New Mexico between 1980 and 2006 (see Table 3-44) by 39 and 14 percent, respectively. However, in the northeast portion of the planning area, Harding and Union counties saw decreases in population over this time period. Harding County decreased by 34 percent while Union County's population decreased by 20 percent between 1980 and 2006, with a slight increase between 1990 and 2000. The planning area overlaps some of New Mexico's least dense (Harding County) and most dense (Los Alamos and Santa Fe) counties, containing from 0.3 to 174 persons per square mile (U.S. Census Bureau 2005). Generally, the

southwestern portion of the planning area (Los Alamos, Mora, Rio Arriba, San Miguel, Santa Fe and Taos counties) can be characterized by increases in population while the northeastern portion (Colfax, Harding, and Union) sees decreases in population.

Table 3-44. Population change in counties within the planning area

	1980	1990	2000	2006	Change
New Mexico	1,303,303	1,521,574	1,819,046	1,954,599	50%
Colfax	13,667	12,921	14,189	13,514	-1%
Harding	1,090	985	810	718	-34%
Los Alamos	17,599	18,144	18,343	19,022	8%
Mora	4,205	4,273	5,180	5,151	22%
Rio Arriba	29,282	34,569	41,191	40,949	40%
San Miguel	22,751	25,820	30,126	29,325	29%
Santa Fe	75,519	99,587	129,287	142,407	89%
Taos	19,456	23,235	29,979	31,832	64%
Union	4,725	4,115	4,174	3,801	-20%

Commuting data for counties that overlap the planning area suggests the area is predominantly composed of bedroom communities, since income derived from people commuting out of the county to work exceeds the income from people commuting into the counties (BEA REIS 2004). Colfax and Los Alamos counties can be described as employment hubs, since income derived from people commuting into the county to work exceeds the income from people commuting out of the county.

The population in all nine counties has aged since 1990. Harding County is comparatively older with an average age of 48.7 years (up from 38.5 years in 1990). In the entire nine-county area, the largest age category is 45 to 49 years. Between 1980 and 1990, the fastest growing age group as a share of total population was 50 to 54. People less than 49 years of age showed a decrease in their share of the total population, with the largest decreases for those aged 30 to 34 years old, decreasing by 1.9 percent. Individually, all nine planning area counties show similar trends; an aging population occurring alongside decreases in the younger generation. However, six counties (Harding, Los Alamos, Mora, Rio Arriba, San Miguel, and Union) showed slight increases in those aged 10 to 19 (EPS 2007).

In 2004, New Mexico had the highest percentage of Hispanic Americans (comprised of both recent immigrants and descendants of Spanish colonists) of all U.S. states (U.S. Census Bureau 2004). According to the census taken by Father Dominguez in 1776, the Taos Valley area contained 67 families with 306 Spaniards (Taos Historical Society 2008). Besides Native Americans, these immigrants made up a substantial portion of the area population that has remained part of the Hispanic population through the 21st century (see Table 3-45). The share of total population of Hispanic descent increased in four of the nine planning area counties between 1980 and 2000 (Table 3-45). However, in Rio Arriba, San Miguel, Santa Fe, Mora, and Taos counties, the share of Hispanic population dropped.

Table 3-45. Number and percent of persons of Hispanic origin (of any race)

	1980		2000	
	Hispanic Origin (#)	% of Total	Hispanic Origin (#)	% of Total
New Mexico	477,051	37%	765,610	42%
Colfax	6,481	47%	6,742	48%
Harding	483	44%	370	46%
Los Alamos	2,075	12%	2,158	12%
Mora	3,640	87%	4,236	82%
Rio Arriba	21,852	75%	30,060	73%
San Miguel	18,524	81%	23,469	78%
Santa Fe	41,886	56%	63,461	49%
Taos	13,448	69%	17,388	58%
Union	1,476	31%	1,453	35%

Source: U.S. Census Bureau, 2000

Race and ethnicity are broken out separately since Hispanics can be of any race. In the year 2000, the share of population described as white was less than the state share in Mora, Rio Arriba, San Miguel, and Taos counties. On a national level, New Mexico had the second highest percentage of Native Americans after Alaska (mostly Navajo and Pueblo peoples) in 2004 (U.S. Census Bureau, 2004). The share of Native Americans was more than the state level in only Rio Arriba County; however, the level is higher than the national level in all planning area counties except Los Alamos County.

Table 3-46. Population by race (2000)

	White	American Indian and Alaskan Native
United States	75.1%	0.9%
New Mexico	66.8%	9.5%
Colfax	81.5%	1.5%
Harding	84.3%	1.4%
Los Alamos	90.3%	0.6%
Mora	58.3%	1.1%
Rio Arriba	56.6%	13.9%
San Miguel	56.2%	1.8%
Santa Fe	73.5%	3.1%
Taos	63.8%	6.6%
Union	80.4%	1.0%

3.4.5 *Economic Specialization and Employment*

Employment within the planning area is distributed amongst industry sectors and displayed in Figure 3-6 (IMPLAN 2006). The Interior Columbia Basin Ecosystem Management Project identified communities that were specialized with respect to employment. Their method used the ratio of the percent employment in each industry in the region of interest (counties within the planning area) to an average percent of employment in that industry for a larger area (the

reference region; the Bureau of Economic Analysis designated Economic Areas). For a given industry, when the percent employment in the analysis region is greater than in the reference region, local employment specialization exists in that industry (USDA-Forest Service 1998). Using this criterion applied with 2006 data, all counties except Los Alamos and Santa Fe can be characterized as specialized in the natural resource related sectors while Colfax, Los Alamos, Santa Fe and Taos counties are specialized with respect to those sectors related to natural amenities. Over time economic specialization has changed. The degree of change is reflected in Figure 3-7, where total employment in the nine county area is disaggregated into six industry sectors (EPS 2007).

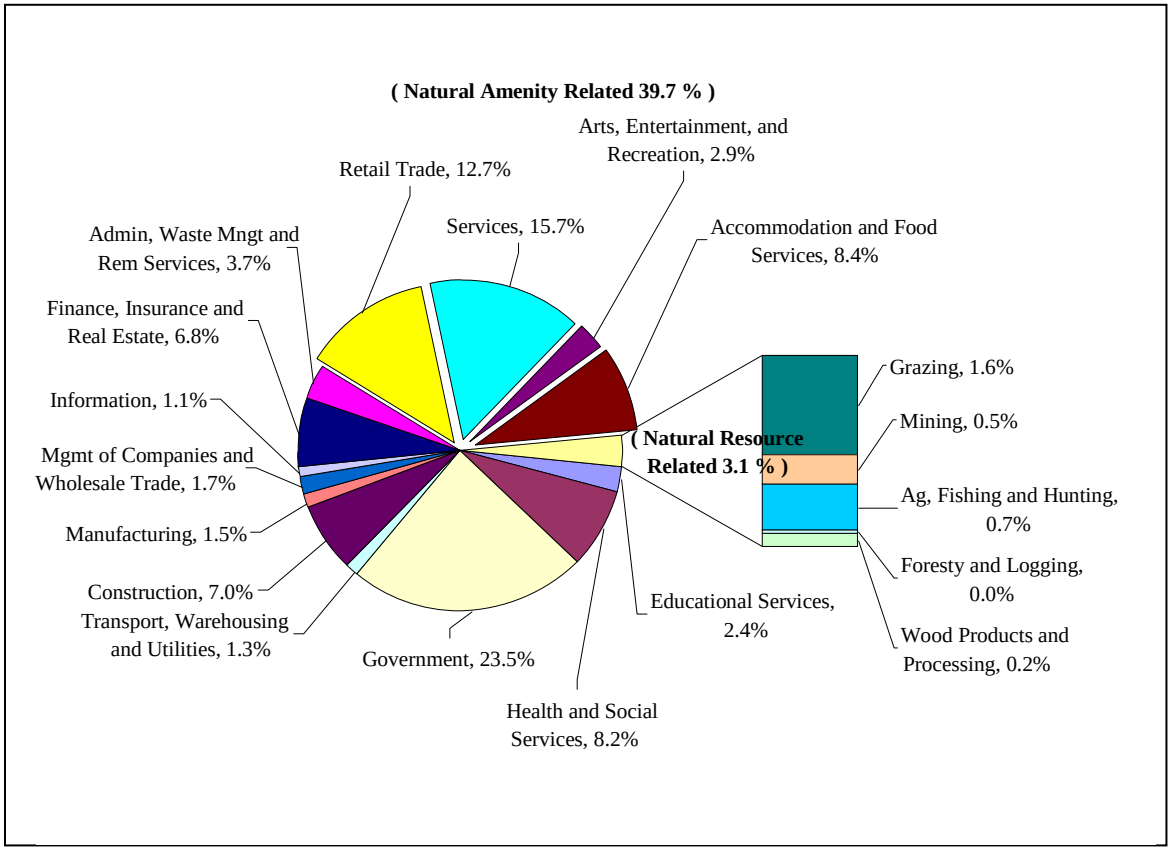


Figure 3-6. Analysis area industry employment distribution, 2006 (IMPLAN)

From 1970 to 2005, total employment in these counties increased by 202 percent (from 57,900 to 175,136 jobs classified as full- and part-time employment). The State of New Mexico saw an increase in total employment of 167 percent. The employment growth seen in these counties (Figure 3-7) is largely due to increases between 1977 and 2000 in service and professional sector employment which accounted for 69.3 percent of new area employment. In addition, the share of total employment attributable to this sector increased by 10.3 percent (from 49.2 to 59.5 percent). Thus, the service and professional related sectors have historically been an important part of the area economy. Jobs in the government sector increased over this time period; however, their share of total employment decreased by 7.5 percent (from 33.7 to 26.2 percent) indicating current economic specialization in the government sector may be a decreasing trend.

Slight increases in the farm and agricultural services, mining and manufacturing sectors translated into smaller portions of total employment in 2000, decreasing by 1.3, 1, and 0.6 percent, respectively.

These natural resource-related sectors have provided a small and slightly decreasing portion of total area employment while the service and professional sector has maintained a steady increase in area importance. Much of this service and professional sector growth can be attributed to the tourism opportunities and quality of life provided by the area's unique natural amenities; some of which can be found on BLM land in the planning area. Population and employment changes are related to natural amenities (Knapp and Graves 1989; Clark and Hunter 1992; Treyz et al. 1993; Mueser and Graves 1995; McGranahan 1999; Deller 2001; Lewis et al. 2002) often provided by BLM land. Thus BLM land in the planning area provides natural amenities that contribute to portions of area population and employment growth.

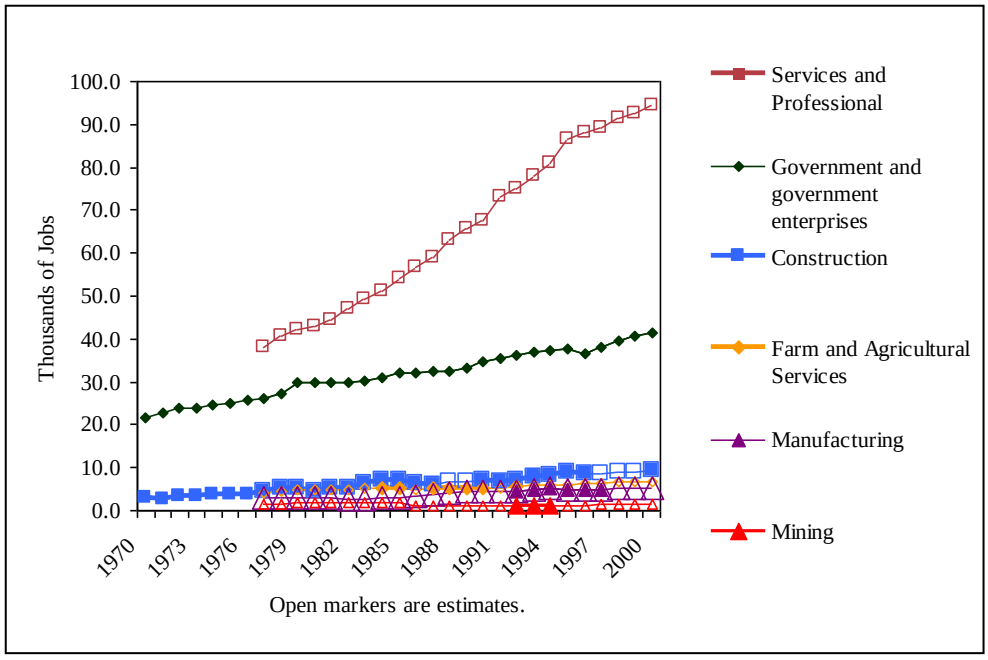


Figure 3-7. Employment history of nine county planning area (*Source:* EPS [2007])

3.4.6 *Economic Well-Being and Poverty*

As noted above, the service and professional sectors have accounted for a larger portion of total employment while the farm and agriculture services, mining and manufacturing sectors have seen decreases. However, these jobs may not pay as much, which could decrease area economic wellbeing. The private sectors examined can be lumped into goods-producing sectors (natural resources, construction, and manufacturing) and service-providing sectors (trade, transportation, utilities, finance, education, health, etc.). In 2005, the goods-producing and service-providing sectors paid on average $31,338 and $29,995 per year (EPS 2007). From these statistics, it is apparent that while the service sector accounts for an increasing share of total employment, these jobs do not pay as much. The welfare implications of these changes are not so clear. The migration in some counties noted above suggests some people may be moving away instead of taking lower paying jobs in the service sector. Other people might move to the area to take a service sector job but disregard the lower wage they may receive for the unique natural and cultural amenities. In this manner, some may benefit from a "secondary income" not provided by their place of employment but by the benefits they gain from living in the area.

Job growth between 1970 and 2005 outpaced the state and the Nation in Rio Arriba, Santa Fe and Taos counties. In Colfax, Harding and Union counties job growth was slower than the state and the Nation. In Los Alamos, Mora, and San Miguel counties, job growth was slower than the state yet faster than the Nation over this time period. Colfax, Harding, Mora, and Union counties were adversely impacted in terms of job growth during the economic downturn of the 1980s. Similarly, during the recovery from 1982 to 1990, employment growth in these counties was slower than the state and the Nation. In the remaining planning area counties, job growth hardly slowed during the 1980s and stayed above state and national levels during the 1982 to 1990 period. While these changes suggest counties within the area recover from recessions in different ways, much of these employment gains and losses can be attributed to changes in population in these counties (see Table 3-45). From 1970 to 2005, personal income in the analysis area increased by $4.2 billion, per capita income rose from $15,511 to $32,774, and earnings per job increased from $33,137 to $38,615 (all measures adjusted for inflation).

From 1988 to 2006, unemployment in Los Alamos, Santa Fe, and Union counties remained below the national and state levels of unemployment. Mora, Rio Arriba, San Miguel and Taos counties experienced unemployment rates above national and state levels during this timeframe. Harding County unemployment fluctuated around state and national levels and then leveled off below state and national levels after 2000. Colfax County was near to or above national and state levels, but then fell to follow lower state and national levels after 2000 (Figure 3-8).

Between 1979 and 1999, the share of the population living below the poverty level was above the state share in New Mexico for Mora, Rio Arriba, San Miguel, and Taos counties. Union County's population was above the state share in 1979 but decreased to match the state at 21 and then 18 percent in 1989 and 1999. Harding County similarly started 1979 above the state's share then dropped below in 1989 and 1999. Colfax, Santa Fe and Los Alamos counties' populations living below poverty remained below the state level between 1979 and 1999. While New Mexico saw a slight increase in the poverty level, all nine planning area counties saw decreases over this period. Mora County saw the largest decrease as their share of poor dropped by 13 percent followed by Rio Arriba and Taos which fell by 8 and 7 percent, respectively (U.S. Census Bureau, USA Counties 2007).

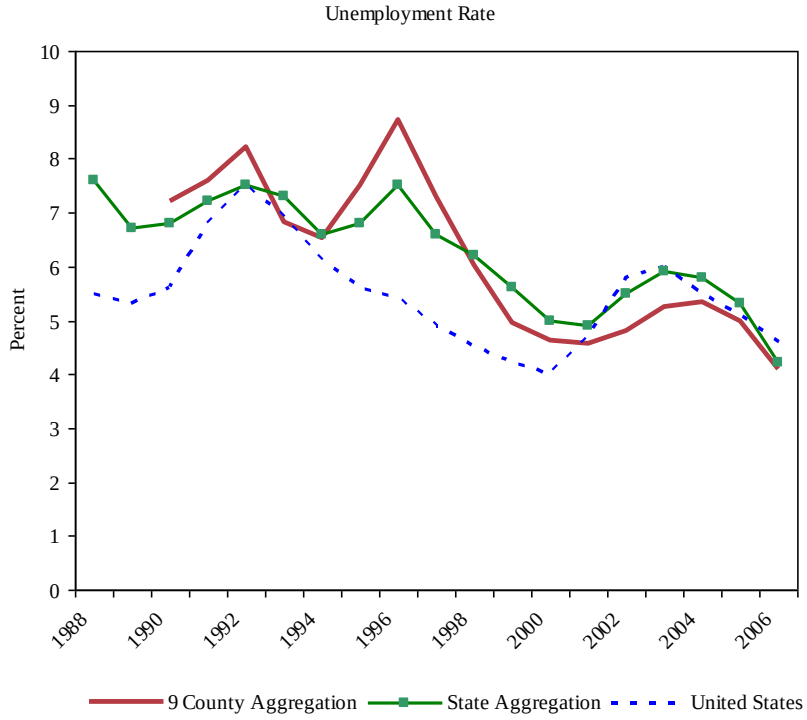


Figure 3-8. Unemployment rate of the nine counties within the analysis area (*Source*: EPS [2007])

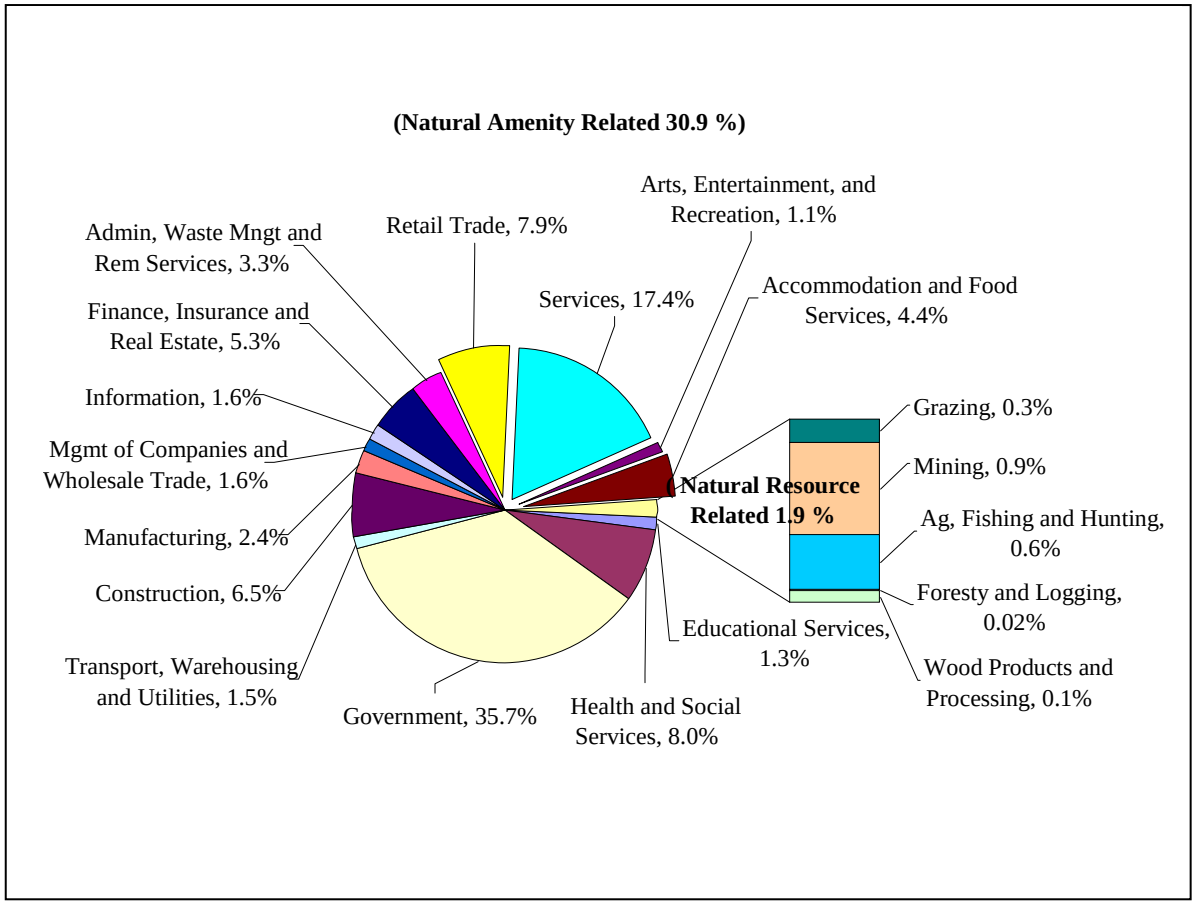
Overall, changes in job growth, personal income, per capita income, earnings per job, unemployment and poverty may demonstrate a trend of improving economic well-being for the area. However, levels of unemployment and poverty remain above the state and Nation in counties within the planning area.

3.4.7 *Components of Personal Income*

Further examining trends within personal income provides insight to the area economy and its connection to the land administered by the BLM. There are three major sources of personal income: (1) labor earnings or income from the workplace, (2) investment income, or income received by individuals in the form of rent, dividends, or interest earnings, and (3) transfer payment income or income received as Social Security, retirement, and disability income or Medicare and Medicaid payments. While data exists to examine these sources of income, data is not readily retrieved for income from the barter economy, which should be noted as an important source of income in some parts of the planning area (Taos Economic Report, 2006; page 6).

In all nine planning area counties, labor earnings were the largest source of income accounting for 65 percent of all income in 2005. This is relatively similar to the state as a whole where labor earnings made up 67 percent of total personal income. The government and services (includes professional, scientific and technical services) sectors were the largest components of labor income in 2006 (Figure 3-9). It should be noted that the contributions from the Taos Field Office represent only a portion of the economic activity reflected in the natural resource and natural amenity related sectors.

Figure 3-9. Analysis area labor income distribution (IMPLAN 2006)



Additionally, 15 percent of 2005 personal income was investment income in four counties. While labor earning's share of total personal income has decreased from 1970 to 2005 (from 78 to 67 percent), the share of nonlabor income has risen (from 22 to 33 percent). As a share of total personal income, investment income and transfer payments rose from 12 to 15 and 10 to 18 percent, respectively, over this 35-year time period. While many might attribute the increase in transfer payments to an increase in welfare, data shows age-related transfer payments increased from 42 to 48 percent of total transfer payments while the share of transfer payments from welfare and unemployment payments decreased (by 6.1 and 3.7 percent, respectively) (EPS 2007).

These patterns may reflect the aging population noted above, whom are more likely to have investment earnings than younger adults. As the population of the area continues to age, the share of income from these nonlabor sources should continue to rise as long as residents continue to stay in the area after retirement or new retirees move in. As noted above, natural amenities on BLM land may attract residents that would not otherwise live in the area. Recreationists also spend dollars in the area that would not otherwise be spent if opportunities on BLM-administered land did not exist. Rural county population change, the development of rural recreation and retirement-destination areas are all related to natural amenities (McGranahan 1999). Many of the natural amenities in the area are managed by the BLM, and thus indirectly contribute to area labor and nonlabor income.

3.4.8 *Contributions to the Area from BLM Management*

BLM-administered land in the planning area contributes to the livelihood of area residents through subsistence uses, as well as through market-based economic production and income generation. Public land provides products of value to households at no or low cost (permit fees). These products include fuelwood, wood posts, livestock, clay, and materials such as sand and gravel. Additional products with subsistence value may include fish, game, plants, berries, and seeds. Use of these products is often part of traditions that sustain local culture.

Contributions to the area economy through market-based production can be measured using the IMPLAN input-output model. Input-output models describe commodity flows from producers to intermediate and final consumers. The total industry purchases are equal to the value of the commodities produced. Industries producing goods and services for final demand purchase goods and services from other producers. These other producers, in turn, purchase goods and services. This buying of goods and services continues until "leakages" from the region stop the cycle. The resulting sets of multipliers describe the change of output for regional industries caused by a change in final demand in an industry. The IMPLAN database describes the economy in 509 sectors using Federal data from 2006. These sectors are further aggregated below to better identify areas relevant to BLM management activities.

Using the most recent data available, IMPLAN response coefficients were applied to the BLM outputs and expenditures to estimate the economic contribution of the BLM within the analysis area. While the discussion above examines the current situation and historical context, this analysis examines the linkages and interdependencies among businesses, consumers, and the Taos Field Office resources on which some area economic activity depends. IMPLAN allows a more complete examination of these linkages.

IMPLAN not only examines the direct contributions from the Taos Field Office, but also indirect and induced contributions. Indirect employment and labor income contributions occur when a sector purchases supplies and services from other industries in order to produce their product. Induced contributions are the employment and labor income generated as a result of spending new household income generated by direct and indirect employment. The employment estimated is defined as any part-time, seasonal, or full-time job. In the following tables direct, indirect, and induced contributions are included in the estimated BLM contributions.

Table 3-47. Estimated annual employment contribution by resource program

Resource Program	Number of Jobs Contributed		
	Total Program	Estimated Impact of the Recreation Activities of Local Residents[1]	Program Net of Local Resident Recreation
Recreation	314	47	267
Wildlife and Fish Recreation	39	7	32
Grazing	7	-	7
Timber	2	-	2
Minerals	69	-	69
Ecosystem Restoration	5	-	5
Payments to States/Counties	17	-	17
BLM Expenditures	128	-	128
Total BLM Management[2]	581	54	527

[1] Expenditures by local residents for recreation on BLM land do not introduce "new" money into the economy. If local residents could not recreate on BLM land, they would likely find other forms of recreation in the area and continue to spend their recreation dollars in the local economy. Therefore, these portions of employment (and labor income below) are not necessarily dependent on the existence of the opportunities provided by the BLM.
[2] Totals may not add due to rounding.

Table 3-48. Estimated annual labor income contribution by resource program

Resource Program	Thousands of 2008 Dollars		
	Total Program	Estimated Impact of the Recreation Activities of Local Residents	Program Net of Local Resident Recreation
Recreation	$9,207	$1,520	$7,688
Wildlife and Fish Recreation	$1,139	$222	$917
Grazing	$102	-	$102
Timber	$28	-	$28
Minerals	$4,050	-	$4,050
Ecosystem Restoration	$120	-	$120
Payments to States/Counties	$644	-	$644
BLM Expenditures	$4,430	-	$4,430
Total BLM Management	$19,720	$1,742	$17,979

Tourism and Recreation

BLM land within the Taos Field Office provides for a wide array of recreational opportunities. Internationally renowned archeological sites, boating on the Rio Grande, and a wide array of other opportunities are enjoyed by area residents and tourists. Field office staff estimate that there were 489,030 recreational visits to the planning area on an average annual basis between 2002 and 2007. On their way to the planning area, and once they arrive, these visitors spend money on goods and services they would spend elsewhere if these opportunities did not exist. In this manner, the opportunities on BLM land contribute to the local economy by attracting these visitors.

Analyses of expenditures reported by National Forest visitors show the primary factor determining the amount spent by a visitor was the type of trip taken and not the specific activity or forest visited (Stynes and White 2005; page 2). Since expenditure information for the type of trip taken is not yet available, national visitor use monitoring (NVUM) data from adjacent national forests would serve as a proxy. These six-trip-type segments are defined below.

Visitors who reside greater than 50 miles from visited BLM land:

1. Nonlocal residents on day trips
2. Nonlocal residents staying overnight on BLM land
3. Nonlocal residents staying overnight off BLM land

Visitors who live within 50 miles of the visited BLM land:

4. Local residents on day trips
5. Local residents staying overnight on BLM land
6. Local residents staying overnight off BLM land

A seventh category of trip types was not included, nonprimary visits, since we are only interested in visitors whose primary activities are on BLM land. In accordance with the report prepared for the Forest Service by the American Sportfishing Association (2006), the data used to divide total visits into these trip types was provided by Stynes and White (2005). An average of the visitation proportions for the national forests adjacent to the planning area (Carson and Santa Fe National Forests) was used (Stynes and White 2005; page 23–25). Generalizing from the NVUM data also indicates approximately 10.5 percent of all visits to BLM land were wildlife related. The largest trip-type segment was nonwildlife related local day trips which numbered 166,300.

While providing recreation opportunities to local residents is an important contribution, the recreation expenditures of locals do not represent new money introduced into the economy. If BLM-related opportunities were not present, residents would likely participate in other locally based activities and their money would still be spent in the local economy. After separating the contributions made from local residents, recreation contributes the most to the area economy of all resource programs (Tables 3-47 and 3-48), providing 51 and 43 percent of the total Taos Field Office employment and labor income contributions, respectively.

Livestock Production

Within the planning area, agriculture plays an important economic and social role; area residents identify with the tradition, land-use, and history. In 2007, Union County was New Mexico's 3rd largest cattle producer while San Miguel and Colfax were 10th and 13th. The most recent Census of Agriculture (2007) reports all nine counties within the planning area had 4,649 farms and ranches and of these, 52 percent (2,444 operations) were engaged in cattle production with total cattle numbering 292,985 in 2007. While the number of total farms in the planning area counties rose slightly since 1997 (by 116 or 2 percent), the number of farms engaged in cattle production has decreased by 562; from 66 percent of all farms in 1997 to 53 percent in 2007 (USDA 2007). In 2007, 8,024 sheep were located within the nine planning area counties. Forty-six percent of the planning area cattle were from Union County and 61 percent of the sheep from Rio Arriba County (NASS 2008).

On BLM land, approximately 225 permittees operate in the nine county area, with most in Rio Arriba and San Miguel counties (58 and 87 respectively) (RAS 2008). The established preference limit for AUMs in the planning area is currently 58,406. This is the maximum number of AUMs that could be offered under ideal forage conditions. However, actual use of AUMs has ranged between 16,315 and 29,172 in the last 10 years due to factors such as non-permitted / leased allotments, drought, financial limitations on operators, market conditions, and implementation of grazing practices to improve range conditions. Table 3-49 provides actual use numbers between 1998 and 2007. Decreases in actual use of AUMs can largely be explained by a tendency of the younger generation to look to more stable forms of income, often breaking longstanding family ranching traditions. In addition, with rising operating costs, smaller operators are finding it more difficult to remain in the industry (personal communication with Taos Field Office Staff). Between 1998 and 2007, averages of 17,578 cattle AUMs and another 544 sheep and goat AUMs have been provided. The forage provided represents approximately 1 and 1.5 percent of the forage required for the cattle and sheep inventories within the nine county planning area in 2007.

Table 3-49. Annual AUM authorizations in the planning area

Year	Permitted	Active	(Percent of permitted)

2007	58,406	17,555	30%
2006	58,406	17,184	29%
2005	58,406	18,353	31%
2004	58,406	18,482	32%
2003	58,406	16,315	28%
2002	58,406	22,539	39%
2001	58,406	24,672	42%
2000	58,406	25,107	43%
1999	58,406	26,949	46%
1998	58,406	29,172	50%

Source: BLM Rangeland Administration System

A thin profit margin often separates these livestock producers from negative net earnings. Often, employment outside the ranch augments livestock producer income. Federal grazing land is particularly valuable because of the low grazing fees charged for use of this land. Fees charged by the BLM for grazing are calculated using the formula required under the BLM grazing regulations found at 43 CFR 4130.81(a)(1) and are considerably less than those charged for private grazing land. In 2006, the statewide average AUM price for private land was $10 (National Agricultural Statistical Service 2007) while the New Mexico State Land Office charged $4.42 per AUM (NMSL 2007; page 17). The BLM formula yielded a fee of $1.35 per AUM in 2007, which is down from $1.56 in 2006. This Federal land is the least expensive grazing land available; hence, use and access is coveted by area ranchers even though additional costs are usually incurred to use these lands. It is estimated that in 2006 the benefit of low cost BLM AUMs used in the Taos Field Office was $157,000 to area ranchers. The active use levels of grazing on BLM land currently supports approximately seven jobs and $102,000 in labor income on an average annual basis (Tables 3-47 and 3-48), in addition to the employment and income of the rancher-permittee. While this number appears small, it must be remembered that BLM allotments provide an important complement to ranching operations that also occur on national forest and privately leased land.

Ranching operations within the planning area are both large and small; however, there are more permittees running smaller numbers of cattle on BLM lands than in the rest of the state on BLM lands. In 2007, the ratio of AUM use to the number of permittees was much lower within the Taos Field Office than for New Mexico as a whole (93 compared to 603 AUMs per permittee in the state overall) (RAS 2008). This pattern is due to the common occurrence of small-scale subsistence[1] and supplemental ranching operations in the planning area. In his report on grazing in northern New Mexico, Ernest Atencio discusses the role small-scale, noncommercial family herds for local use have played in the area for centuries; today a handful of ranchers make all or most of their living from ranching, but the majority supplement limited incomes by grazing a few head on public land (Atencio 2004). Atencio also notes in his examination of ranching on the Santa Fe and Carson National Forests, that “the livestock that graze on public lands are often an important source of supplemental income . . . most local ranchers are just scraping by, supplementing meager incomes from other jobs with the little economic buffer provided by grazing a few cattle on public land" (Atencio 2004). Carol Raish affirms this pattern in her

[1] Subsistence is defined as the minimum (as of food and shelter) necessary to support life, or as a source or means of obtaining the necessities of life.

description of Hispano communities of northern New Mexico; she states "most of the small-scale livestock operators no longer depend on their animals for their full support; they generally have outside jobs or are retired. They consider their animals as a means of savings, as "banks-on-the-hoof," which can be used in hard times" (Raish 2000). Raish states that these small scale subsistence and supplemental herds average 30 head, while Atencio describes operations that range from less than 10 to 50 head. According to field office data, 80 percent of operators on BLM land are authorized to run less than 50 head per year (RAS 2008). Most operations are cow-calf with a few yearling operations as well. The season of use varies from year round to seasonal rotations.

Forest Products

Recent examination of forest product patterns on northern New Mexico national forests (e.g., volume of wood cut, number of permits, and contracts) reveals that the majority of area logging and woodcutting is small in scale and primarily for local use (Atencio 2004b; page 41). Fuelwood has been an important forest product provided by land within the Taos Field Office. In many areas, fuelwood gathering is a necessity, not a luxury, since people heat their homes and cook with wood-burning stoves (Raish 2000). Historically, fuelwood dependence has been high in some communities; in 1967 in the small village of Cañones, 29 of 30 households used wood cookstoves. Additionally, fuelwood use can be considered traditional as those with access to electric or gas stoves often prefer cooking with wood (Atencio 2004b). In many fuelwood gathering areas, harvesting wood is considered to be a traditional right that ties people to their ancestral land (Raish 2000).

Between 2003 and 2007, an annual average of 22,000 cubic feet (CCF) of fuelwood was cut from the Carson and Santa Fe National Forests (USFS cut and sold reports for Region 3). Taos Field Office staff estimates approximately 869 CCF of fuelwood is currently removed annually from BLM land, which amounts to 4 percent of the annual average contribution from area national forests. While small, relative to fuelwood cut from Forest Service land, BLM contributions are still locally important. In winter months almost all fuelwood gathering occurs on BLM land since USFS collection areas are closed and inaccessible due to snow and mud.

A different and possibly more useful measurement of benefits to local communities from fuelwood is the number of permits issued, since the number of permits may reflect the number of families receiving the direct benefit of these resources. On an average annual basis, Taos Field Office staff estimates approximately 300 permits are issued each year. Between 1992 and 1999 the number of woodcutting permits for personal use on the Carson and Santa Fe National Forests averaged 5,658 and 7,950, respectively, (Atencio 2004b; page 40). Thus, the contribution to area families from the BLM is far less than that received from area national forests. However, as noted above, the importance of the BLM contribution remains; for example the season of use often differs from fuelwood collection on the national forests.

While fuelwood collected on Taos Field Office land is important for household use, some of this fuelwood is sold by contractors to area distributors. The sale of fuelwood from BLM land by these contractors supports approximately two jobs and $28,000 in labor income on an average annual basis (Tables 3-47 and 3-48).

Mining

From 1977 to 2000, estimated mining employment as a share of total employment never exceeded 2.2 percent in the nine county area. In Taos, Colfax, and Rio Arriba counties, mining made up 2, 1.2, and 1 percent of total employment, respectively, in 2005. In Harding, San

Miguel, and Mora counties, mining represented 0.64, 0.25, and 0.24 percent of employment, respectively, while data was unavailable in the remaining counties in 2005. For counties within the planning area, the 2005 average wage for the mining sector was slightly less than in New Mexico ($53,512 compared to $54,811); however, it was far above the state average wage level of $32,606 for all sectors. On an average annual basis, the mining sector paid more than all other sectors, except government, in both the state and the nine county analysis area.

Leasable mineral use in the area has varied from coal to oil and gas exploration. Details of leasable mineral locations and production in the planning area were presented in section 3.3.5.1.

The only locatable mineral currently removed from the field office is silica sand, which is used in area concrete production. Annual silica sand removal varies, but has averaged about 8,860 short tons over the last 3 years.

Current salable minerals removed from BLM land in the planning area include scoria, sand, gravel, limestone, crushed stone, rip rap, and specialty stone. The scoria, limestone, and crushed stone are most often used for highway resurfacing. Rip rap is often used for bank stabilization during road resurfacing, while specialty stone is used for a wide variety of applications, including decorative purposes.

The combined leasable, locatable, and salable mining activity in the planning area supports approximately 70 jobs and $4.1 million in labor income on an average annual basis (Tables 3-47 and 3-48).

Ecosystem Restoration

A portion of the mechanical treatment of fuels and certain weed treatments are performed by area contractors with funds not accounted for under general BLM expenditures below. These often come from external sources such as stewardship grants. It is estimated that these projects support approximately $120,000 in labor income and five jobs in the area economy on an average annual basis (Tables 3-47 and 3-48).

Revenue Sharing

In 1976, Congress passed legislation to provide funding to counties through payments in lieu of taxes (PILT) in order to compensate for tax revenues not received from Federal land. These taxes would typically fund various services that are provided by counties (road maintenance, emergency services, and law enforcement). The PILT payments are determined using a formula which accounts for the county acreage of Federal land, county population, and the previous year's revenue sharing from resource uses on Federal land (timber, range, mining, etc.). These PILT payments add to revenues these counties routinely receive through property taxes. Figure 3-10 displays previous year's payments.

Several counties in the planning area are relatively more dependent on these payments than others. In 2006, these payments account for 7, 5, 9 and 9 percent of county property tax obligations in Taos, San Miguel, Mora and Harding counties, respectively (see Figure 3-11). In Taos and San Miguel counties, this is due to high amounts of entitlement acreages accompanied by relatively high populations; the payment based on the entitlement acreage is not subject to a payment limit based on population size. In Mora and Harding counties lower net taxable values make PILT payments a more important component of county budgets.

In seven of the planning area counties, the BLM entitlement acreages have remained constant or increased since 1999 (Figure 3-10). For example, in Taos County, the BLM entitlement acreage increased between 2006 and 2007 with the Ute Mountain Acquisition (personal communication with Taos Field Office Staff, 2008). Decreases in Rio Arriba and Santa Fe counties over this time period accounted for a 0.01 and 3 percent change in their respective entitlement acreages. However, PILT payments are not entirely dependent on entitlement acreages. Funding for PILT is provided by annual appropriation acts. In recent years, funding has fallen short of the full amount that local governments would be authorized to receive under the PILT statute. When this happens, the department then calculates individual payments to counties by prorating the aggregate appropriation amount amongst all counties. As a result, slight decreases in payments occurred in Colfax, Harding, Los Alamos, Mora, Santa Fe, and Union counties between 2006 and 2007. While slight, these decreases are not likely to recover anytime soon; PILT will receive $232.5 million in fiscal year 2008 from the omnibus appropriations bill (PL 110-161, from December 26, 2007) which is another slight decrease from $233 million in 2007. These decreases may be compounded further in 2009; the Administration has requested appropriation of $195 million, or $37.5 million less than in 2008 (Public Land News 2008).

In addition to PILT, counties receive a share of receipts from mineral material removal, revenues from leased land, and range revenues under the 1902 Reclamation Act, the 1920 Mineral Lands Leasing Act, and the 1934 Taylor Grazing Act. These payments support approximately 17 jobs and $644,000 in labor income on an average annual basis (Tables 3-47 and 3-48) within the analysis area economy.

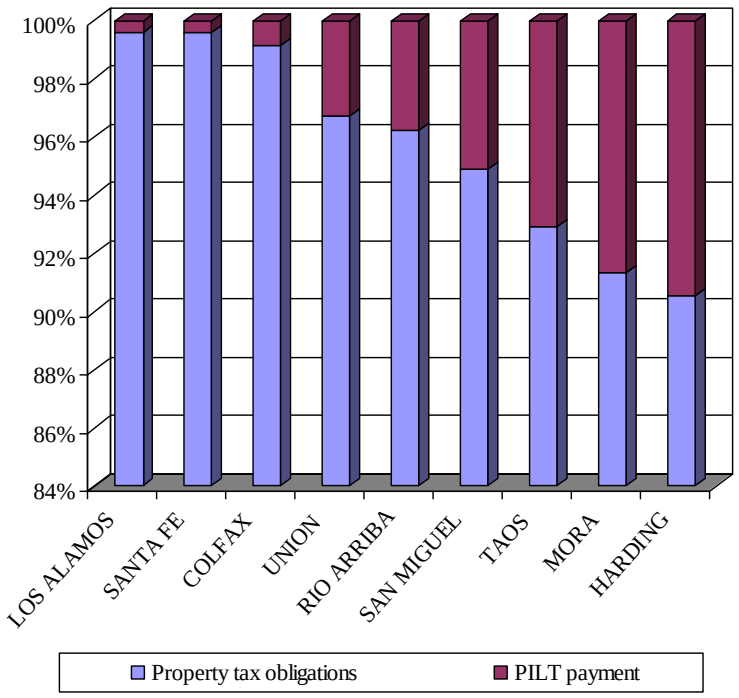


Figure 3-10. Relative county dependence on PILT payments (Source: New Mexico Taxation and Revenue Department, 2006)

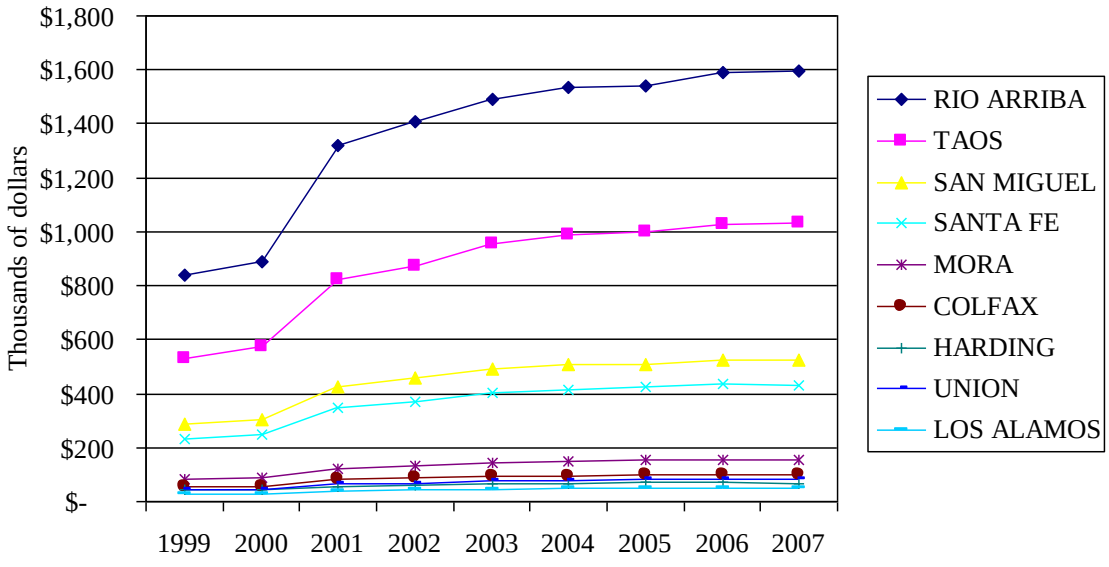


Figure 3-11. Payments in lieu of taxes (*Source:* USDI PILT database, 2008)

BLM Expenditures and Employment

The Taos Field Office is located in the town of Taos, providing a direct contribution to the area economy. BLM operations and management make direct contributions to area economic activity

by employing people who reside in the area and by spending dollars on nonsalary-related goods and services (Table 3-50). Management of BLM land in the planning area is largely carried out through a professional and administrative staff in the Taos Field Office. Staffing levels of these BLM employees have been stable to increasing over the period from 2005 to 2007. In addition to these permanent full-time employees (PFTs), seasonal staff work and live in the area. Contracts for facilities maintenance, shuttling vehicles, and projects contribute directly to the area economy and social stability as well.

Table 3-50. Taos Field Office expenditures and employment

Fiscal Year	Total Expenditures	Positions – PFT
2005	$4,320,441	39
2006	$5,792,744	45
2007	$4,664,871	49

On an average annual basis, Taos Field Office expenditures and employment support 128 jobs and $4.43 million in labor income (Tables 3-47 and 3-48). This accounts for 24 and 25 percent, respectively, of the total Taos Field Office contributions to the planning area economy.

Wind and Solar

As of January 16, 2008, installed wind power capacity in New Mexico increased from one megawatt (MW) of power in 1999 to 495 MWs. No new wind projects are currently under construction in the planning area or the state of New Mexico as of the same date (AWEA 2008). Existing projects are found in Guadalupe and Quay counties adjacent to the planning area as well as Debaca and Curry counties further to the south. BLM land with potential for solar energy production is more widely available in the planning area. Some area photovoltaic (PV) development has occurred in large centralized facilities on private land near Alamosa, Colorado (see section 3.3.7).

3.4.9 *Taos Field Office Contributions by Industry*

Table 3-51 shows the estimated employment and labor income generated by activities on BLM land within the planning area. The Taos Field Office-related employment and labor income contributions listed here exclude those made from local resident recreation. In total, management activities of the Taos Field Office account for 0.3 percent of jobs and 0.23 percent of labor income in the analysis area (Table 3-51).

The two largest employment and labor income contributions occur in the accommodations and food services, and government sectors (Table 3-51). The industry sector with the highest level of dependence on the BLM planning area contributions is the mining sector, accounting for 4 percent of sector employment and labor income. The accommodation and food services sector is the second most dependent sector, relying on the field office for 0.9 percent of its employment and labor income.

While data was not available to examine contributions by county or community, the labor income and employment generated from activities on BLM land in the planning area may be more important to these smaller communities within the analysis area. Consequently, changes in activities on BLM land could result in localized effects that are not readily apparent across the broader analysis area.

Table 3-51. Current role of Taos Field Office contributions to local economy

Industry	Employment (jobs)			Labor Income (Thousands of 2008 Dollars)		
	Area Totals	BLM Related	% of Total	Area Totals	BLM Related	% of Total
Agriculture	4,624	18	0.4%	$65,829	$334	0.5%
Mining	927	38	4.1%	$75,173	$2,986	4.0%
Utilities	490	1	0.2%	$31,396	$59	0.2%
Construction	13,469	10	0.1%	$519,537	$382	0.1%
Manufacturing	3,323	4	0.1%	$202,736	$193	0.1%
Wholesale Trade	2,852	14	0.5%	$105,836	$510	0.5%
Transportation and Warehousing	2,110	10	0.5%	$90,435	$323	0.4%
Retail Trade	24,472	54	0.2%	$627,849	$1,432	0.2%
Information	2,199	3	0.1%	$123,708	$169	0.1%
Finance and Insurance	4,211	6	0.1%	$267,157	$356	0.1%
Real Estate, Rental and Leasing	8,855	15	0.2%	$153,552	$265	0.2%
Prof. Scientific and Tech. Services	21,023	14	0.1%	$1,174,329	$557	0.0%
Mgmt. of Companies	470	2	0.4%	$21,465	$80	0.4%
Admin., Waste Mgmt. and Rem.	7,094	8	0.1%	$263,357	$263	0.1%
Educational Services	4,663	5	0.1%	$101,702	$122	0.1%
Health Care and Social Assistance	15,834	20	0.1%	$634,139	$828	0.1%
Arts, Entertainment, and Rec.	5,535	27	0.5%	$87,086	$423	0.5%
Accommodation and Food Services	16,308	146	0.9%	$353,089	$3,225	0.9%
Other Services	9,305	15	0.2%	$210,428	$306	0.1%
Government	45,377	118	0.3%	$2,833,479	$5,171	0.2%
Total	193,141	528	0.3%	$7,942,282	$17,984	0.23%

Within the analysis area, the two largest sectors are government and services (see Figures 3-7 and 3-9). An estimated 0.3 percent of employment and 0.2 percent of labor income within the government sector is dependent on Taos Field Office-related activities (Table 3-51). As noted above, smaller communities within the analysis area may be more dependent on these sectors and thus more susceptible to sector changes within the planning area.

Natural amenity-related industries (accommodation and food services; arts, entertainment, and recreation; services, and retail trade) provide approximately 39.7 and 31.1 percent of employment and labor income, respectively, within the analysis area (Figures 3-7 and 3-9). Tourism and recreation-related contributions are associated with retail trade, accommodation and food services, and the arts, entertainment, and recreation sectors. The percent of jobs and labor income generated in these sectors as a result of BLM planning area contributions are estimated at 0.2, 0.9, and 0.5 percent, respectively (Table 3-51).

Natural resource-related industries (wood products and processing; grazing; mining; and agriculture, forestry, fishing, and hunting) provide approximately 2.9 and 1.9 percent of employment and labor income, respectively, within the analysis area (Figures 3-7 and 3-9). The sectors most closely connected to activities associated with the timber management and grazing program areas are manufacturing and agriculture, to which the Taos Field Office contributes an estimated 0.1 percent of jobs and labor income in the manufacturing sector and 0.4 and 0.5 percent of employment and labor income, respectively, in the agricultural sector. The mining sector is relatively more reliant on activities within the Taos Field Office, where 4 percent of employment and labor income can be attributed to activities on BLM land in the planning area.

3.4.10 *Nonmarket Economic Value*

The value of resource goods traded in a market can be obtained from information on the quantity sold and market price; however, markets do not exist for some resources, such as recreational opportunities and environmental services. Measuring their value is important, since without these value estimates, these resources may be implicitly undervalued and decisions regarding their use may not accurately reflect their true value to society. Because these recreational and environmental values are not traded in markets, they can be characterized as nonmarket values.

Nonmarket values can be broken down into two categories; use and nonuse values. The use-value of a nonmarket good is the value to society from the direct use of the asset; within the planning area this occurs through activities such as recreational fishing, hunting, boating, and bird watching. The use of nonmarket goods often requires consumption of associated market goods, such as lodging, gas, and fishing equipment.

Nonuse values of a nonmarket good reflect the value of an asset beyond any use. These can be described as existence, option, and bequest values. Existence values are the amount society is willing to pay to guarantee that an asset simply exists. An existence value of BLM land within the Taos Field Office might be the value of knowing that undisturbed puebloan artifacts exist within the La Cienega ACEC. Other nonuse values are thought to originate in society's willingness to pay to preserve the option for future use; these are referred to as option values and bequest values. Option values exist for something that has not yet been discovered; such as the future value of a plant as medicine. In the planning area, bequest and option values might exist for numerous plant species.

Nonmarket use and nonuse values can be distinguished by the methods used to estimate them. Use values are often estimated using revealed preference methods or stated preference methods, while nonuse values can only be estimated using hypothetical methods. While use and nonuse values exist for the planning area, evaluation is not always feasible during the planning process. This does not preclude their consideration in the planning process, however.

3.4.11 *Community Resiliency*

Community resilience can be described as the existence, development, and engagement of community resources to thrive in a dynamic environment characterized by change, uncertainty, unpredictability, and surprise. Resilient communities intentionally develop personal and group capacity to respond to and influence change, to sustain and renew the community, and to develop new trajectories for the communities' future (Magis 2007; page 4). How a community faces change is tied to community well-being. The well-being of the community is an integral part of life, necessary to survival. Preserving the culture and heritage of the past gives a sense of identity in the present and the hope of extending their traditions and way of life into the future (Raish et al. 2003; page 26).

Community resources or assets, when invested, become community capital which the community can then reinvest in a cycle of community development. These are not limited to financial investments, but also include action and cooperation. Using a community capital framework enables the identification of the entire range of community assets. It also provides a systematic structure with which to analyze the existence, change, and development of community resources (Flora et al. 2004). Descriptions of these capitals are listed below:

1. Natural Capital—Air, soils, water (quality and quantity), landscape and biodiversity

2. Cultural Capital—Language, rituals, ethnicity, generations, stories and traditions, spirituality, habits, and heritage
3. Human Capital—All the skills and abilities of people, self-esteem, education, leadership, knowledge, the ability to access resources and human health
4. Social Capital—Groups, organizations, networks in the community, the sense of belonging, bonds between people, trust and reciprocity
5. Political Capital—Connections to people in power, access to resources, leverage, and influence to achieve goals
6. Financial Capital—Money, charitable giving, grants, access to funding and wealth
7. Built Capital—Buildings and infrastructure in a community, schools, roads, water and sewer systems, and main streets

Assessing the capital assets of communities within the Taos Field Office first requires identification of these communities. For those communities in the area and interested in BLM land, discussion of community capitals are included below when connected to BLM management.

3.4.12 *Communities in the Area and Interested in BLM Land in the Planning Area*

Communities within the Taos Field Office can be described by the areas they are in and by their connections to the local landscape. During the resource management planning process, the public gave the BLM insightful information about their connections to the land and their interests in BLM management. This information has provided the BLM with community characteristics and values that help when defining these communities.

When we look at the effects of Federal land management actions, the most critical impacts may be too small, rural communities (Harris et al. 2000; page 5). Consequently, geographically defined communities are an important and relevant level for social assessment. Not all social scientists agree, however, that the geographically-based community is always the appropriate level of analysis. FEMAT (1993; page VII-35) makes the point that this view "only refers to physical or political boundaries and not to the relationships among people who reside within such boundaries."

Communities of interest bring together stakeholders from different backgrounds to solve a problem of common concern (Fischer 2001; page 4). Brown and Duguid (1991; page 53) describe communities of interest as "communities-of-communities." They provide unique opportunities to explore the linkages between people and public land that may transcend the geographically defined community.

While communities of interest often form temporarily, the issues that bring them together in the planning area often present no immediate resolution. While the BLM might foster resolution of their issues, many require involvement outside the scope of BLM management or the formation of networks to bring them together. These networks provide a structure for individuals to form communities of interest and address these concerns.

Networks

Networks are an important part of community resilience discussed above in social capital. Networks are interdependent on the other community capitals and provide the BLM a way to

empower communities connected to BLM land. Once these networks are identified, the BLM can assess whether planning actions would sustain them or are unassociated.

Common networks within the Taos Field Office include the Pueblos (individual and informal/formal organizations amongst them) and watershed groups for the Conejos, Middle Rio Chama, Rio Ojo Caliente and the Velarde. Other networks include Amigos Bravos, Hawks Aloft, La Cienega Valley Association, Ojo Caliente Community Group, Taos Soil and Water Conservation District, Taos Weed Committee, and Vecinos del Rio. Area schools, churches and other community groups provide a way for people interested in the area to network as well.

The presence of these networks maintains community resiliency by supporting many of the community capitals discussed above. They provide access to human capital (access to education and leadership), foster social capital and provide organization necessary for political capital. In turn, community capital assets support these networks, often enabling communication with the BLM.

Individuals and Groups Interested in Recreation

Recreationists have traditionally used the area for a variety of uses. The wilderness-like character, solitude, open space, scenery, and opportunity for escape appeals to many users of the Taos Field Office. Opportunities for experiences such as biking, hiking, birding, climbing, hunting, recreational mining, target practice, OHV use, or cultural interpretation attract many users to BLM land.

General concerns expressed included access to more recreation information such as improved signage, informational kiosks, and interpretation of cultural and historical features. Infrastructure improvements were commonly requested as well. Access to frequently used areas of BLM land was also a common concern. Motorized and nonmotorized recreationists alike requested specialized trails and continued access to areas they have historically used. Others advocated land tenure adjustment could be used to facilitate an R&PP transfer of BLM land for community recreation facilities such as baseball diamonds or to improve access to popular recreation sites. People also feared disposal decisions might be made in areas commonly used for recreation. Some maintained economic damage to local communities would result if recreational opportunities were degraded. It was suggested more law enforcement should be provided in order to avoid resource damage and conflicts between users. The need to actively manage recreation use to avoid adverse impacts from congestion to small communities was also expressed.

Motorized use of BLM land in the planning area is important to individuals and groups who recreate in the area. Providing for different OHV user groups, from age groups to types of OHV use (motorcycle, OHV and 4-wheel drive) was requested given incompatibilities with other uses and different desired recreation experiences. Other motorized users expressed an interest in the ability to wander off trail on BLM land in open areas, a desire for areas to hold competitive events, the availability of long distance trail opportunities and interest in game retrieval. Motorized users acknowledged the need to address responsible OHV use as well; limiting risks of personal danger and resource damage.

While motorized use is of interest in the area, the public often sees a need to limit use to designated routes in order to also provide quality nonmotorized experiences. Biking, hiking, horseback riding, and wildlife viewing were a few of the mentioned nonmotorized recreation types enjoyed in the area. These users advocated for protection of soils, scenery, and solitude

with respect to disturbance by motorized or other developed uses. Grazing and mineral development is believed to degrade the desired experience given associated damage to visual quality and opportunities for solitude.

Integrating recreation use with city and county trail networks or patterns of use off BLM land was often expressed. For example, integrating adjacent OHV trails on USFS land to improve enforcement and enhance long distance trail riding experiences was suggested. Another specific example suggested a trail from municipal soccer fields to San Ildefonso and Caja del Rio.

Individuals and groups interested in recreation depend upon opportunities provided by the BLM landscape, which can be characterized by the natural capital, as described under section 3.4.11. These opportunities foster human and social capital within the recreation community. In this manner, the BLM's management of area natural capital supports community resiliency.

Individuals and Groups Interested in Ranching

Commercial and small scale livestock operations are found within the Taos Field Office. Ranching has been a part of area life for over a hundred years providing supplemental income, subsistence,[2] and a way of life. An often poor and Hispanic population makes up a large portion of the demographic of area ranchers (see Environmental Justice discussion below). Local Hispanic ranchers often view their livestock as "banks-on-the-hoof" that can be used as back-up during hard times or to cover emergencies, unemployment, or tuition (Raish 2000). Subsistence by way of meat and milk are also important. There is a strong sense of stewardship by permittees who make improvements to the land they lease (Atencio 2004; pages 11–12). Prosperity is viewed by these operators in terms of the security of future generations, the continuity of traditional lifestyles, and the integration of community with the surrounding landscape (Raish 2000). Engagement of these ranchers and the traditional livestock community was a concern expressed in comments.

Ranchers want the BLM to consider allotment rest, rotation, grass banks, and continued monitoring. Comments received also portrayed concern about retaining soil integrity, lack of cattle guards, maintaining existing levels of grazing, and interest in grazing additional BLM land. Many area ranchers were concerned about the loss of allotments with land disposal. The spread of noxious and invasive weeds and fire danger were also cited as concerns that might be remedied by strategic grazing.

Urban growth in the western portion of the planning area has increased the incidence of conflict between public land users and ranching operations. Cut fences, animal disturbance, and trash dumping were issues expressed. Ranching has played a historic role in the community and many would like to see this traditional use continue. Conversion of land traditionally used for ranching to ranchettes and other nonagricultural uses was seen as the dissolution of area culture and a traditional way of life.

Natural capital and cultural capital are important assets to the ranching community and are tied to BLM management in the Taos Field Office. As discussed above, continued resilience of this community is tied to access and the quality of allotments provided by the BLM. Rancher resilience may be waning since the tradition of area ranching may be in decline. The younger generation is often not following in the family tradition given new challenges presented by changing market conditions (personal communication with Taos Field Office staff).

[2]Subsistence is defined as the minimum (as of food and shelter) necessary to support life, or as a source or means of obtaining the necessities of life.

Individuals and Groups Interested in Traditional Uses

Traditional use of BLM land within the Taos Field Office involves recreation, subsistence, and cultural uses. Many of these uses have been a part of local culture and community identity long before area land was ever designated for administration by the BLM. For example, the people of the Keresan Pueblos of Cochiti, Laguna, and Santo Domingo have ancestors who once inhabited La Cienega ACEC. In addition, historic use by Europeans has occurred in the area since Coronado's party entered the area over four hundred years ago in 1540. Several of these important area sites include sections of the Camino Real de Tierra Adentro, and a church at San Lazaro Pueblo in the Galisteo Basin. Continuation of traditional uses by Hispano communities is dependent upon grazing, fuelwood gathering, and timber harvest on former grant land that is now federally managed (Raish 2000). In her discussion of Hispano communities in northern New Mexico, Carol Raish describes an ongoing loss of access to land and resources traditionally used by these individuals and groups. She posits that changing land-use priorities, increasing regulation and restriction of traditional rural economic pursuits (such as grazing and timbering on public land), contribute to this loss (Raish 2000).

Continued access to materials for traditional use such as plants, clay, or ash was a concern expressed by the public during public comment. Additionally, access to culturally important sites such as those mentioned above was also a concern. Irrigation methods used by area farmers and ranchers, called acequias, were a traditional use of concern as well. Other uses on BLM land, such as OHV, were seen as potential threats to the integrity of these uses; therefore, the public noted that the continued use of these resources and sites depends on continued protection by the BLM. The public further acknowledged the BLM's role in supporting community diversity by ensuring site access and site integrity. Area designations were suggested as possible means to ensure these continued uses. It was also suggested that area residents and pueblos should be engaged in the planning process in order to ensure these continued traditional uses. Such groups may have little organization and power, and consequently less chance of influencing policy. Consequently, such groups may be denied access to use rights on public land or have those rights diminished owing to their lack of power and influence (Raish 2000). While their concerns pertaining to traditional uses may not be apparent from the NEPA public involvement process, they are examined in the sections that follow.

Access to resources important for traditional uses and the integrity of these uses are maintained by the Taos Field Office, which ensures these traditional uses will continue. The resilience of this community is thus dependent on access to and the quality of area natural capital which sustains these resources. Therefore, their resilience is fostered by BLM management as it relates to natural and cultural capital protection. During the early public involvement process, it was also noted that political capital is sometimes lacking in area traditional communities (EPS workshop Rio Arriba). While the resilience of those interested in traditional uses may be highly dependent on the predominant area cultural capital, political capital is often required to access these resources and achieve community goals.

Individuals and Groups Who Give a High Priority to Resource Use

Within this community, people put a high value on traditional sectors such as mining and grazing. These sectors remain important culturally and politically, and people express high degrees of uncertainty about area social and economic well-being if these uses discontinue. For example, ranching is a highly valued way of life and people laud its contribution to the social, economic, and ecological health of the area; they often portray that grazing use is not

synonymous with grazing abuse. Others advocate that mining could occur as long as adverse impacts are mitigated.

Many of these groups and individuals noted access was important to continue commercial uses of public and private lands that their livelihoods depend upon. Local supply of resources for local uses was advocated as long as such use continued in a sustainable fashion. Permits for commercial uses such as grazing and guiding were seen as an important means to continue these uses. Utility rights-of-way and energy corridors were also deemed important given the infrastructure they support to the community. Others advocated that land tenure adjustment could be used to facilitate R&PP transfer of land for community uses, such as solid waste transfer stations, or well sites. Use of BLM land for wind energy production was also encouraged as long as impacts to wildlife were avoided.

The use of resources on BLM land provides financial capital for area residents and sometimes built capital as land is transferred for community use under R&PP agreements. In turn, social capital and human capital are cultivated and community resiliency is strengthened. Many of these uses depend upon the continued integrity of landscape health, or natural capital, maintained by the BLM. Therefore, resilience of those interested in resource use depends on maintenance of the quantity and quality of area natural capital.

Individuals and Groups Who Give a High Priority to Resource Protection

Cultural sites, wildlife habitat, riparian health, soils, open space, scenery and other resource values in the planning area are a priority to many individuals and groups. Control of invasive species, special area designations, land tenure adjustment, and other means were suggested as ways to achieve healthy ecosystems and protect resources. This community sees limits on pesticide use, motorized use, mineral development, and grazing as effective tools to protect resources. A strong interest in protecting resources for future generations was also often expressed.

Many of these individuals believe that protected resources attract visitors and thus provide economic benefits to the area. Local citizens are aware of how the unique nature of the local area contributes to their current and future social and economic wellbeing. In their opinion, continued resource protection would ensure these benefits in the future. For example, many expressed concern about impacts to private property values with damage to visual quality. Many saw the rural character of the area as an asset ensured by the BLM; this rural character was cited as an integral part of community identity seen as susceptible to change with the influx of newcomers.

The resilience of those individuals and groups interested in resource protection is related to BLM management through the provision of natural capital. Air, soil, and water quality as well as landscape health and biodiversity are maintained by BLM management within the Taos Field Office. Human capital and social capital are additionally tied to natural capital maintained; human health, a sense of belonging and trust in the BLM are fostered by successful stewardship of natural capital in the planning area. Cultural capital of this community is also sustained by BLM management, considering the outstanding cultural resources in the planning area.

Pueblos

The Pueblos in the area can be described as both a community of place and a community of interest. Given their geographic proximity to BLM land and their ties to its resources, these pueblo communities are intimately tied to the BLM. Many of the archaeological sites on BLM

land within the planning area were inhabited by ancestors of pueblo people who live in the area. Pueblos located within and adjacent to the boundaries of the planning area include the Tiwa Pueblos of Taos and Picuris and the Tewa Pueblos of Nambe, Ohkay Owingeh, Pojoaque, Santa Clara, San Ildefonso, and Tesuque. In addition, the people of the Keresan Pueblos of Cochiti, Laguna, and Santo Domingo had ancestors who once inhabited the La Cienega ACEC. These people have a strong interest in the integrity of BLM land and access to culturally important sites on BLM land within the planning area. Additionally, subsistence uses of BLM land sustain many of these people; often grazing and fuelwood from BLM land are important components of their daily lives.

The resilience of the pueblos in the area is highly dependent on rich sources of cultural capital. A diversity of language, traditions, and heritage is evident. The Taos Field Office actively fosters their cultural capital by protecting, interpreting, and providing access to cultural resources on BLM land. For example, on public lands day, field office archeologists take area youth into the field to survey and archive existing and often new cultural sites on BLM land. This fosters a sense of heritage in the next generation while increasing area knowledge of cultural resources.

Land Grants

The loss of communal land grants has been attributed to regional poverty. At the turn of the 20th century over 80 percent of community land grants were lost to the public land system (Atencio 2004; page 15). Many comments focused on returning public land to the communal land grants given their sacred, subsistence, and collective value to these communities. Continuation of traditional use practices is dependent to a considerable degree upon access to resources on former grant land that is now federally managed (Raish 2000). Other comments focused on maintaining the integrity of these lands until Congress reaches a decision on repatriation.

Several existing land grant holders expressed concern about impacts to pollution, habitat, soil erosion, water degradation, and cultural impacts from actions on adjacent BLM land within the planning area. Comments suggested that disposal should be coordinated with these land grants. The local land grants were also interested in additional access to grazing land.

Public Health and Safety

Human health and safety were concerns expressed by users of BLM-administered land within the Taos Field Office. Use of BLM-administered land for target practice was often cited as a concern. Additionally, OHV use in play areas was seen as a threat to public safety in adjacent communities. Congestion from mining development on the existing transportation system was seen as a traffic safety issue by many users of the public land. For example, public land users were concerned about the threat from open shafts in the San Pedro's. In addition to physical threats, the public wanted assurance that human health effects are considered with existing and proposed mining developments, such as impacts to water quality.

To a certain extent, landscape health effects human health; consequently natural capital maintained by the Taos Field Office contributes to the area community resiliency by partially maintaining public health, an element of human capital. By mitigating safety concerns on BLM land, human capital and area resiliency is further sustained.

3.4.13 *Environmental Justice*

Environmental justice refers to the fair treatment and meaningful involvement of people of all races, cultures, and incomes with respect to the development, implementation, and enforcement

of environmental laws, regulations, programs, and policies. Executive Order 12898 requires Federal agencies to "identify and address the…disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

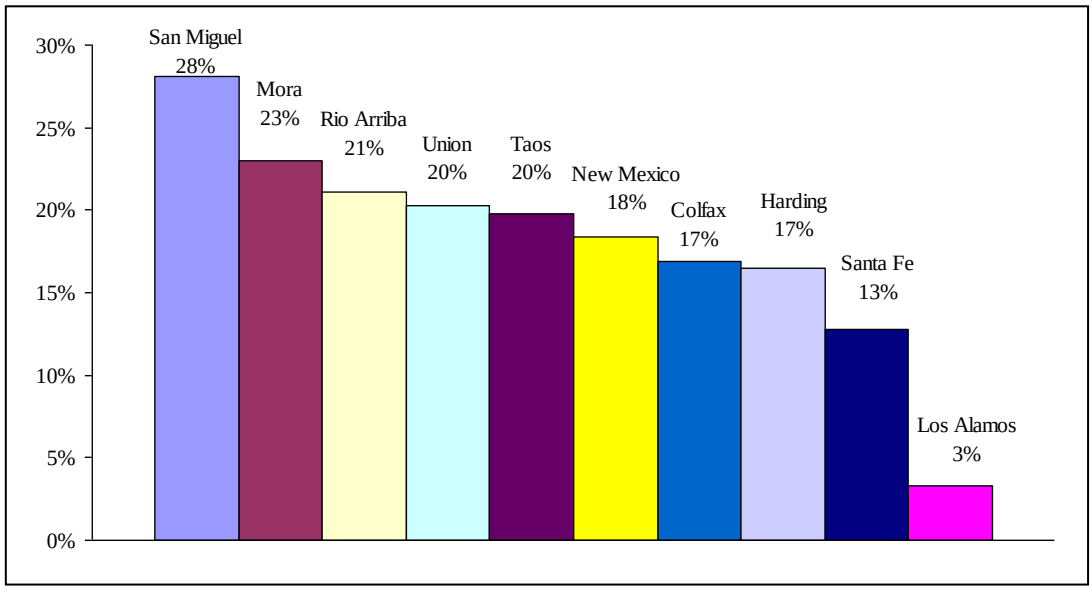


Figure 3-12. Percent of county population below poverty level (2005) (*Source:* U.S. Census Bureau SAIPE, 2005)

As discussed in the demographic overview above, minority, low-income, and Native American populations exist within the Taos Field Office. According to the Council on Environmental Quality's (CEQ) Environmental Justice Guidelines for NEPA (1997), "minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis." As defined by CEQ, Hispanic populations were greater than 50 percent in four planning area counties, and were greater than the state Hispanic population percentage (representative of the general Hispanic population) in all except Los Alamos and Union counties in 2000. Union County still contains a higher proportion than the Nation (12.5 percent) while Los Alamos is only slightly below at 11.7 percent (see Table 3-45). On a national level, in 2004, New Mexico had the second-highest percentage of Native Americans after Alaska (U.S. Census Bureau 2004). While the American Indian population did not exceed 50 percent in any planning area county, population shares exceeded national levels in all planning area counties and the state level in Rio Arriba County. Thus, the U.S. Census data in Tables 3-45 and 3-46 suggest minority populations meet the CEQ's Environmental Justice criterion in the planning area.

Figure 3-12 indicates the majority of planning area counties had a higher proportion of people living in poverty than the state as a whole in 2005. Estimates of median household income for 2005 indicate all planning area counties except Los Alamos and Santa Fe counties were below the state estimate of $37,603. All planning area counties, except for Los Alamos County, had a higher share of people living in poverty and a lower median household income than the national level estimates for 2005. These Small Area Income and Poverty Estimates (SAIPE) indicate the

area contains a high proportion of low-income people living in poverty compared to the state and Nation.

Given the important role of ranching in the planning area, information on the race and ethnicity of operators is relevant to the Environmental Justice consideration of BLM planning actions. Data from the USDA National Agricultural Statistical Service indicates New Mexico has the largest share of principal operators of Spanish, Hispanic or Latino origin of all 50 states; its share of 28 percent was 19 percent greater than California which had the second largest state share in the Nation. Within the impact area, all counties except Colfax, Harding and Union exceeded the state share of Spanish, Hispanic or Latino operators while Mora County had the greatest share (76 percent) within the impact area and the state. San Miguel, Rio Arriba and Taos counties were also amongst the state's top five counties in terms of share of Hispano operators containing 75, 71 and 68 percent, respectively (see Table 3-52).

Table 3-52. Racial and ethnic composition of farm operators

	White	American Indian or Alaska Native	Black or African American	Asian	Native Hawaiian or Other Pacific Islander	More than One Race	Spanish, Hispanic, or Latino[3]
New Mexico	75.4%	20.6%	0.2%	0.1%	0.1%	0.8%	27.7%
Impact Area	92.2%	3.9%	0.2%	0.2%	0.2%	1.1%	57.0%
COLFAX	93.1%	2.3%	NA	NA	NA	0.6%	18.6%
HARDING	96.7%	0.7%	NA	NA	NA	0.4%	26.6%
LOS ALAMOS	100.0%	NA	NA	NA	NA	NA	33.3%
MORA	95.7%	1.9%	0.2%	NA	NA	0.7%	76.0%
RIO ARRIBA	90.3%	4.4%	NA	0.2%	0.4%	1.9%	71.0%
SAN MIGUEL	91.9%	3.5%	0.4%	0.3%	0.6%	0.7%	74.7%
SANTA FE	90.2%	6.2%	0.3%	0.3%	NA	0.8%	32.3%
TAOS	90.0%	6.9%	0.3%	0.3%	NA	1.1%	67.7%
UNION	97.0%	0.8%	NA	NA	NA	0.7%	8.0%

(Source: USDA [2007])

The potential effects of the alternatives on these minority and low income populations are discussed in Chapter 4. Subsistence uses, recreation opportunities, and land bases used by these populations are discussed above under the Livestock Production, Forest Products and discussion of groups interested in Traditional Uses, Ranching, Pueblos and Land Grants. Effects to these uses and groups are discussed in sections that follow.

[3] Shares do not add to 100 as those of Spanish, Hispanic or Latino decent can be of any race.

Chapter 4 Environmental Consequences

4.1 Introduction

The purpose of this chapter is to disclose the potential environmental consequences of the proposed Federal action on the "human environment." The proposed Federal action subject to NEPA analysis is the BLM's selection and implementation of a resource management plan on which future land use actions would be based. Council on Environmental Quality regulations on implementing NEPA state that the human environment includes "the natural and physical environment and the relationship of people with that environment" (40 CFR §1508.14).

This chapter characterizes the potential impacts on the environment from implementing the alternatives described in Chapter 2. The remainder of this introductory section addresses the methods and approach to the impact analysis by identifying analytical assumptions, defining the types of effects, and disclosing any critical elements that are not addressed or present and areas of incomplete information. Subsequent sections of this chapter characterize the impacts that are predicted to result from actions that are common to all alternatives, the direct and indirect impacts that are predicted to result from each alternative, and cumulative effects.

As in previous chapters, the term *planning area* is used to reference all land, both public and private, within Union, Mora, Colfax, San Miguel, Los Alamos, Harding, Taos and Santa Fe counties, and the eastern half of Rio Arriba County. The BLM considers potential impacts on all resources within the inclusive planning area, regardless of jurisdiction or ownership. The decisions contained in the RMP would only apply to BLM-administered public land and subsurface Federal mineral estate within the nine counties.

4.2 Analytical Assumptions

The impact analysis is based on existing conditions in the planning area as characterized in Chapter 3, Existing Environment, and descriptions of the alternatives provided in Chapter 2, Alternatives. The alternatives in this Final EIS are designed to provide general management guidance for all resource programs. Specific projects for some areas or resource programs may be detailed in future activity plans, project plans, and site-specific proposals. These projects and plans would address more precisely how a particular area or resource is to be managed and must comply with the management direction in the approved RMP.

Additional NEPA analysis and documentation would be conducted as needed. Usually this would occur when the project or activity plan has not been specifically addressed in the RMP. These plans and projects may include such things as implementing a travel management plan, issuing a right-of-way, constructing a range improvement, or approving an application for a permit to drill for oil or gas. NEPA documentation in these cases could consist of a categorical exclusion, a determination of NEPA adequacy, an environmental assessment with accompanying finding of no significant impact, or an EIS, as appropriate. These documents would be tiered to this RMP/EIS, as applicable.

Information necessary to quantitatively evaluate impacts may be lacking for some of the analysis. For example, Taos Field Office does not have a complete inventory of riparian areas within the planning area, such that acreages of riparian areas affected by some decisions cannot be quantified. Where the BLM may be lacking such information, a qualitative analysis may be relied upon to be adequately informed of the impacts.

In all alternatives, it is assumed that best management practices, such as those described in Appendix C, would be used to reduce potential impacts on resources.

The cumulative impact analysis incorporates consideration of reasonably foreseeable future actions by the BLM and other Federal and non-Federal entities in the planning area. These are described in section 4.9 as part of the discussion of past, present, and future actions that serve as a basis for the cumulative effects analysis.

Climate change analyses are comprised of several factors, including greenhouse gas (GHGs) emissions, land use management practices, and the albedo effect. The tools necessary to quantify incremental climatic impacts of specific activities associated with those factors are presently unavailable. As a consequence, impact assessment of effects of specific anthropogenic activities cannot be performed. Further, this RMP is a planning document and does not authorize implementation of any on-the-ground activities. Therefore, climate change analysis for the purpose of this document is limited to accounting and disclosing factors that may contribute to climate change. Qualitative and/or quantitative evaluations of potential contributing factors within the planning area are included where appropriate and practicable. As additional tools and guidance for analyzing and addressing climate change are developed, they will be used when appropriate in project-specific NEPA processes.

Some additional program- or resource-specific assumptions are included in respective sections below.

4.3 Types of Impacts Evaluated

Impacts and effects are used synonymously in this analysis and are generally considered a modification to the environment as it presently exists as a result of an action undertaken by the BLM such as implementing the RMP, or in the case of cumulative effects, an action undertaken by any party. Impacts may be beneficial or adverse and can vary in significance from only slightly discernible change to a full modification or elimination of the environmental condition.

Section 4.2 and this section provide an analysis of *direct* and *indirect* effects, presenting them according to whether they are adverse or beneficial. A *cumulative* effects analysis is presented in section 4.9. Table 4-1 provides an overview of the types of impacts discussed in this chapter.

Table 4-1. Types of impacts

Type	Description
Direct Impacts	Direct impacts occur at the same time and place as the action responsible for the impact. For example, removal of vegetative cover caused by facility construction would be considered a direct impact on vegetation resources.
Indirect Impacts	Indirect impacts are caused by the action but occur later in time and farther removed in distance. For example, removal of vegetative cover caused by facility construction that consequently results in increased surface runoff and sedimentation of nearby streams would be considered an indirect impact on riparian resources. Indirect impacts may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and other related effects on natural systems.
Cumulative Impacts	Cumulative impacts result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions that take place over time.

4.4 Incomplete or Unavailable Information

Existing data were used for preparation of this RMP/EIS and, for the most part, are sufficient for the RMP-level decisions. Project-specific information on future activities and uses in BLM's decision area are unknown at this time. As activities and uses are proposed throughout the life of the plan, it is assumed that subsequent NEPA analysis would occur as appropriate to evaluate the types of impacts that could occur on a site-specific basis, as described above in section 4.1.

Transportation inventories are not complete for the Chama, Ojo Caliente, Palacio, Sombrillo, Galisteo Basin, and East Side transportation areas, and are only partially completed for the West Santa Fe area. Where inventory information is available, it is essentially out-of-date and inaccurate. (Efforts are currently underway to remedy these deficiencies.) Though documented route inventories and information on levels of use in all transportation areas may be limited, BLM staff collectively has a good generally knowledge of routes and access opportunities throughout the planning area. However, the deficient data on the existing transportation network is not a critical factor in establishing OHV area designations and classifications.

The locations and extent of potential renewable energy projects on BLM-administered lands are largely unknown. Likewise, forecasts for potential future oil and gas development in the area are based on the best available information, which is limited due to the speculative potential for oil and gas in the planning area. For both of these resource uses only generalized effects are described based on typical surface disturbing scenarios experienced by the BLM in similar developments.

A comprehensive inventory of invasive species has not been completed for the Taos Field Office. Aquatic and terrestrial species are known to occur in the planning area and certain areas have been inventoried and recorded.

Monitoring information for the majority of allotments is not considered current. However, rangeland health assessments have been conducted on allotments prior to a permit/lease renewal.

No formal surveys of visitors regarding their preferences for recreational settings and experiences have been conducted.

In addition, the Taos Field Office has not inventoried GHG emissions or sinks within the planning area. Therefore, the extent to which BLM activities contribute to or reduce ambient GHG concentrations in the atmosphere is unknown. However, a qualitative analysis of potential emissions, which gives consideration to the limited foreseeable leasable mineral development scenario, is provided (see sections 4.5.1, 4.9.2.1, and 4.9.2.2).

4.5 Resources

4.5.1 *Air and Atmospheric Values*

Primary drivers affecting air quality in the planning area relate to sources such as vehicle and equipment emissions, fugitive dust, and smoke, and sinks such as vegetation that sequester atmospheric pollution. Emissions include those from nonrenewable resources such as coal, oil, and gas and those from renewable resources such as firewood burning. Some resource allocations such as vegetation treatments or prescribed burning may result in short-term air quality impairment, but improve air quality over the long term by creating healthy vegetation

and soils that can more readily sequester certain emissions. Impairments may be mitigated at the RMP level by:

- Vehicle and equipment emissions—reduced vehicle access, and limited resource development
- Fugitive dust—reduced vehicle access, limited land use authorizations, and limited land disposals
- Smoke—reduced use of fire use and potential for wildfires

Differences among alternatives are estimated based on acreage allocations that would increase activities associated with drivers listed above that affect air quality. Programs in this plan that have no decisions affecting air quality are fish and wildlife, special status species, visual resource management, and water resources.

A. Direct and Indirect Impacts

1. Adverse Impacts

a. Impacts from Vegetation Management. Vegetation management would require the use of vehicles, chainsaws, and other equipment powered by nonrenewable fuels, which results in emissions such as carbon monoxide, particulate matter, and nitrous oxides as well as GHG emissions. Vegetation management, including invasive and noxious species control, may also increase fugitive dust by exposing soils to wind erosion or disturbing soil structure during treatment projects. Also, the treatment of vegetation using fire generates smoke and releases carbon from plants.

b. Impacts from Wildland Fire. Any use of wildland or prescribed fire to meet the goals and objectives of wildland fire management, such as to restore fire frequency and intensity regimes and to reduce hazardous fuel buildup, would emit carbon into the atmosphere typically as short-term, localized emissions.

c. Impacts from Land Tenure and Land Use Authorizations. Land disposal is expected to increase equipment emissions of criterion pollutants, GHGs, and fugitive dust by opening land up to potential development. This could also result in loss of vegetative sinks for carbon emissions.

d. Impacts from Livestock Grazing. Cattle operations on BLM-managed lands generally use gas powered equipment that contributes vehicle emissions. Also, studies have shown that livestock contribute to methane emissions, which is a GHG; however, most of these studies relate to feedlot livestock. It is assumed that range livestock produce fewer emissions as they exert more energy and eat grasses that result in few emissions. As few studies have addressed range livestock, it is not possible to calculate emissions as a result of these planning decisions. It is also expected that changes in AUMs in the planning area would not decrease overall emissions as livestock would most likely be converted to other lands or feedlots to meet demand.

e. Impacts from Mineral Resource Management. Increased opportunity for mineral development is likely to increase emissions from equipment, fugitive dust, and, in the case of oil and gas development, volatile organic compounds and GHGs from well development. Development would also reduce vegetative sinks for carbon emissions by removing ground cover in portions of developed areas. Also, in cases where mineral material development is precluded in areas in close proximity to where it is needed (e.g., for road maintenance,

developing residential areas, etc.), additional haul lengths to supply those needs would contribute to increased emissions.

f. Impacts from Recreation Management. Increased recreation activity could result in increased vehicle emissions. Recreation sites also may contribute to fugitive dust where vegetation is damaged or removed.

g. Impacts from Renewable Energy. Development of wind, solar, geothermal, and other renewable energy projects would create short-term impacts to air quality, including fugitive dust and vehicle emissions from construction.

h. Impacts from Transportation and Access. Increasing available land area to vehicle use could result in increased vehicle emissions and fugitive dust from exposed road surfaces.

2. Beneficial Impacts

a. Impacts from Cultural Resources, Paleontology, and Soils. All of these programs could reduce fugitive dust by protecting soils through use restrictions.

b. Impacts from Vegetative Management. Proper vegetation management would result in better soil protection and reduced fugitive dust. Vegetation may also act as a sink for carbon and nitrogen produced by burning fossil fuels.

c. Impacts from Invasive Species/Noxious Weeds. Although invasive/noxious vegetation is often actively eradicated by the BLM, such vegetation often covers ground soon after disturbance, providing protection from fugitive dust.

d. Impacts from Management of Lands with Wilderness Characteristics. Areas managed for wilderness characteristics would have more restrictions on use, resulting in reduced fugitive dust and reduced vehicle emissions that would have a beneficial impact on air quality.

e. Impacts from Wildland Fire Management. Restoration of fire regime would improve the long-term health of vegetation and may enhance carbon sequestration. However, the need to use nonrenewable fuels and the surface disturbance required to control and manage fire would reduce the actual benefit derived.

f. Impacts from Land Tenure. Disposals and rights-of-way can reduce air quality impacts if they allow local communities to reduce travel times. However, this beneficial impact is difficult to assess at this planning level and would be addressed by project-specific analysis.

g. Impacts from Renewable Energy. Development of wind, solar, biomass and geothermal energy sources would help maintain or improve air quality by replacing use of nonrenewable energy sources (e.g., coal, oil, or gas).

h. Impacts from Special Designations. It is anticipated that all special designations would help to improve air quality because these lands would have increased use restrictions compared to lands that do not have special designations.

B. Differences Between Alternatives

While the Taos Field Office does not have an inventory or monitoring program related to air quality or emissions, it is likely that, except for mineral leasing, implementation of any alternative and subsequent activities would result in very low emissions relative to total

emissions within the planning area for the life of the plan. EPA data for counties with intensive oil and gas production in New Mexico show point source emissions for all Criteria Air Pollutants except NH_3. It is likely that increased fluid mineral activity in the planning area would result in an increase of Criteria Air Pollutants from both point (production wells) and non-point/mobile (transportation) sources. Vehicle emissions resulting from BLM management would be offset by BMPs for project implementation, vegetation restoration projects, and development of renewable energy resources on public lands. Short-term air quality impairments would occur from BLM project activities such as prescribed burning.

Compared to Alternatives A and B, potential impacts on air quality would be greater under the no action alternative and Alternative C, due to fewer use restrictions dealing with travel management, mineral development, and other surface-disturbing activities. Impacts to air quality would be about equal between the no action alternative and Alternative C because available mineral leasing acreage is similar in both. Air quality impacts would be lowest for Alternative B, which closes an additional 300,000 acres to mineral leasing as compared to Alternative A.

4.5.2 *Cultural Resources*

Cultural resources are subject to numerous impacts. For the purposes of this document, adverse impacts can be characterized as those that result in the loss, degradation, or destruction of NRHP-listed or eligible cultural properties (sites or districts), traditional cultural properties, or cultural landscapes. Beneficial impacts, for example, may be characterized as the protection of cultural resources through certain VRM designations, special designations, land acquisition, and restricting certain types of uses dealing with travel management and access, energy development, and recreation.

Uses of public lands include mineral exploration and extraction, granting of rights-of-way, recreation projects and activities, and renewable energy development. When these uses require Federal authorization, they are reviewed to ensure that potential effects on cultural resources are considered. Many uses, including issuance of rights-of-way, transportation management and mineral development, have secondary, indirect effects resulting from the creation of new vehicle access routes, which often leads to inadvertent damage and vandalism to fragile cultural resources. By altering the local environment, these developments also can degrade the integrity of nearby cultural resources if their environmental settings are important aspects of their historical values.

Land use decisions that authorize surface-disturbing activities may result in adverse impacts to cultural resources. Examples of ground-disturbing actions that would need project-specific NEPA and/or compliance with cultural resource laws and regulations include proposed mineral exploration and development, communications sites, rights-of-way within utility corridors, community pits, open OHV management areas, habitat restoration, water catchments, range improvements, and others.

Programs that have no decisions affecting cultural resources are air and atmospheric values, fish and wildlife, and special status species.

A. Direct and Indirect Impacts

1. Adverse Impacts

a. Impacts from Land Tenure Adjustments. While site-specific survey, evaluation, and mitigation would be completed prior to any disposal or Recreation and Public Purpose (R&PP)

lease, some residual cultural resource values could be lost after mitigation if cultural resources are present within lands that leave Federal ownership.

b. Impacts from Land Use Authorizations. Impacts from rights-of-way such as roads, pipelines, and transmission lines include destruction of cultural resources due to construction activities and impacts to the visual nature of certain cultural resources. Cultural resource protection procedures require mitigation of national register eligible sites that would be affected by construction activities. This usually involves data collection, including excavation. However, after mitigation through data collection, the sites may be destroyed by construction activities. Roads and transmission lines can impact important cultural resources where their settings contribute significantly to their scientific, traditional, public, or conservation values. This is especially the case in Ojo Caliente, La Cienega, Galisteo Basin, and along national historic trails. In general, establishing specific utility corridors encourages project applicants to place utility lines in certain confined areas. Confining utilities to corridors helps to avoid impacts to cultural sites in other areas, and reduces overall impacts to cultural resources.

c. Impacts from Livestock Grazing. Adverse impacts to cultural resources from grazing include trampling of artifacts and archaeological features. This is especially true in areas where cattle congregate, such as corrals, water sources, and salt or nutrient licks. Trailing along fence lines can also damage sites. Damage to structural sites has occurred from the presence of cattle, especially when the ground is wet; however, grazing animals have been fenced out of nine Pueblo sites within the planning area to mitigate this effect. Taos Field Office archaeologists have visited most of the grazing allotments within the area over the past decade as part of the assessment process for reissuing grazing permits. Some effects to cultural resources due to grazing have been documented, but most visited archaeological sites are not being adversely impacted by ongoing grazing activities.

d. Impacts from Transportation and Access. There would be the potential of sub-surface resources being disturbed, exposed, or lost within areas designated as open to OHV use. In conjunction with development of a transportation plan network, inventories of designated routes would be conducted to identify and protect cultural resources. Until routes are analyzed and route designations are made, cultural resources would continue to be impacted by OHV travel, especially in areas that were designated open within the 1988 RMP.

Cross-country travel can inadvertently damage sites from surface disturbance or provide vehicular access to previously remote areas, which may result in artifact collection, breakage, displacement, vandalism, and looting. Parking off of inventoried routes for camping has the potential to damage cultural resources from compaction, artifact breakage, and displacement, resulting in loss of scientific data. Continued use of inventoried routes in areas of high site density may increase the potential for vandalism and damage to cultural resources.

e. Impacts from Mineral Resource Management. Minerals management actions resulting in construction that is visible on or above the surface would have the potential to directly impact the visual integrity of cultural properties that derive their significance from natural settings or from settings relatively devoid of modern intrusion.

Potentially significant impacts to cultural resources and the cultural landscape from development of mineral resources could occur in known areas of high sensitivity for cultural resources, where their settings contribute significantly to their scientific, public, traditional, or conservation values. This is especially the case in the Ojo Caliente, La Cienega, Galisteo Basin, and the Pueblos ACECs, where the landscape context is an important component to the cultural value.

f. Impacts from Recreation. Potentially significant impacts to significant cultural resources may occur as a result of SRMA allocations and subsequent recreation management. In the past, increased visitation to areas with cultural sites has often resulted in increased artifact collection and vandalism of cultural resources. SRMA designations could increase visitor use of these areas, leading to increased surface disturbance, unauthorized artifact collection, and other depreciative behavior.

Activities that are not subject to the permitting process, such as dispersed recreation and cross-country OHV use, also have the potential to disturb cultural resources. Disturbance to cultural resources from OHV use has been observed by BLM staff throughout the Taos Field Office. Prehistoric habitation walls have been driven over and knocked down and agricultural features have been disturbed. Most of these problems occur on the public lands bordering communities, where OHV users travel out of their residential areas onto the BLM lands, creating their own trails without BLM input. These trails often dissect archaeological sites, and indirect impacts from erosion have been very destructive. Some impacts to cultural resources would continue due to allowances for parking and camping within 300 feet of existing or designated roads.

When hikers, bikers, and equestrian users stray from established trails, adverse impacts may occur to cultural resources. Bikes and horses in particular have the potential to cause adverse impacts to cultural resources that are located on sensitive soils.

Some visitors to the public lands commit acts of vandalism which can include illegal excavation of archaeological sites (i.e., pot hunting) and defacement of petroglyphs.

g. Impacts from Renewable Energy. Impacts to cultural resources and the cultural landscape from renewable energy development could occur in known areas of high sensitivity for cultural resources, where their settings contribute significantly to their scientific, public, traditional, or conservation values. Potentially significant impacts could occur if renewable energy development were to occur in or near the Ojo Caliente, La Cienega, Galisteo Basin, and Pueblos ACECs, where the landscape context is an important component of the cultural value.

h. Impacts from Special Designations. National historic trails and national byways in the planning area were proposed to manage increased visitor use on routes with outstanding scenic, historic, recreational, cultural, archaeological, and/or natural qualities. The designations may increase public awareness of the heritage resources along these routes and thereby increase the potential for site vandalism and artifact collection. This is offset by increased public interpretation which encourages a stewardship ethic.

2. Beneficial Impacts

a. Impacts from Soils, Vegetation, and Water Resource Management. Management to stabilize soils, improve vegetative cover, and protect water quality would generally have a beneficial impact on cultural resources. Erosion is a major cause of disturbance to archaeological sites and, therefore, any reduction of erosion would reduce potential disturbances to cultural resources.

b. Impacts from Visual Resource Management. Restrictions on development based on VRM class I or II designations would also help to protect cultural resources within these areas. VRM classes and actions proposed under all alternatives could affect qualities that contribute to the eligibility of cultural resource sites for nomination to the NRHP. These qualities include integrity of setting (which refers to the level of disturbance to the physical environment surrounding a

site), and integrity of feeling (which refers to a site's expression of the aesthetic or historic sense of a particular period of time).

c. Impacts from Land Tenure Adjustments. Land acquisitions would provide additional protection for cultural resources because those lands would then be subject to Federal cultural resource laws and regulations. Land acquisitions would therefore have a beneficial effect on any cultural resources that exist within the acquired property.

d. Impacts from Mineral Resource Management. Decisions to restrict mineral development would provide additional protection for cultural resource sites.

e. Impacts from Recreation Management. SRMAs are designated to identify and enhance targeted recreational opportunities and experiences. There is a potential for beneficial impacts to cultural resources as a result of these allocations and subsequent management. Posi Pueblo, La Cieneguilla Petroglyphs, and the Ward Ranch would be primarily managed to provide the public with sustainable cultural resource viewing opportunities.

f. Impacts from Transportation and Access. Limiting OHV travel to existing routes until the route designation process is complete would provide a clearly delineated travel network, reduce route proliferation, and facilitate law enforcement. This approach generally would have the beneficial effect of controlling impacts of OHV use on cultural resources.

Use of nonmotorized trails by the public for hiking, biking, and equestrian use would have the potential to reduce impacts to cultural resources if users restricted their activities to the identified trails.

g. Impacts from Special Designations. Potential benefits to cultural resources are likely to occur as a result of BLM special designations. Management guidance and directions for designated WSRs, WSAs, national historic and recreation trails, national byways, and ACECs would provide benefits to cultural resources from restricting certain degrading activities and practices. Cultural sites that are located within ACECs, especially where they are considered relevant and important values, would have additional protection from impacts that could be caused by mineral extraction or similar surface disturbing activities. If an area is not withdrawn from mineral entry, special mitigation would be required to avoid impacts to resources. The cultural ACECs would have management plans developed to provide for the protection, preservation, and interpretation of the cultural resources within the ACEC.

B. Differences Between Alternatives

a. Impacts from Visual Resource Management. Alternatives A and B would result in the protection of the visual setting for the greatest number of cultural resource sites. Under these two alternatives, approximately 505,000 and 517,000 acres, respectively, would be classified as class I or II. The no action alternative has no classifications for VRM, and for Alternative C approximately 260,000 acres would be class I or II.

Visual integrity is especially important for the sites listed in the Galisteo Basin Archaeological Sites Protection Act. Even though this Act withdraws 1,303 acres of Federal land within the sites from mineral development, there is potential for development on adjacent public, private and State lands that could affect the visual integrity of these significant archaeological sites. However, under Alternatives A and B the entire Galisteo Basin planning unit would not be leased. This would be the most effective way to protect the visual integrity of the Galisteo sites,

as well as the many unknown archaeological sites that could be affected by oil and gas development within the basin.

b. Impacts from Land Tenure Adjustments. All alternatives include acquisition of properties adjacent to public lands that contain significant cultural resources including, but not limited to, properties eligible for inclusion to the NRHP. Alternatives A and B provide for the acquisition of roughly four times as much land than is provided under the no action alternative and Alternative C (140,269 acres vs. 34,351 acres).

c. Impacts from Land Use Authorizations. One utility corridor would be designated by the no action alternative and Alternative C (all other right-of-way needs would be considered on a case-by-case basis in a manner to avoid cultural resources). Five corridors would be designated under Alternatives A and B, which could have a greater potential to impact archeological sites. Two of these, one within the Ojo Caliente ACEC and one within the Santa Fe Ranch ACEC, could have some impacts to cultural resources. Alternatives A and B also propose an exclusion area for a large portion of the Ojo Caliente ACEC, which would provide the most protection for cultural resources within the ACEC.

d. Impacts from Mineral Resource Management. Planning area-wide, mineral management is much more restrictive under Alternatives A and B than the no action alternative and Alternative C. There would be approximately three times more subsurface acres withdrawn for locatable minerals under Alternatives A and B (involving twice as much surface acreage), while mineral material disposal would be closed on about four times more subsurface acres. Oil and gas restrictions, including closed to leasing, no surface occupancy, and controlled surface use would include between two to three times more acres under Alternatives A and B than the no action alternative and Alternative C. Most of the minerals withdrawals, closures, and restrictions are located within special designations, including those designated to protect the Taos Field Office's most important cultural resources.

Minerals management actions resulting in construction that is visible on or above the surface would have the potential to directly impact the visual integrity of cultural properties that derive their significance from natural settings or from settings relatively devoid of modern intrusion. This is especially the case in the Ojo Caliente, La Cienega, Pueblos, Santa Fe Ranch and Galisteo ACECs. The restrictions discussed above and the fact that oil and gas has low potential in all of these ACECs except the Galisteo Basin means that cultural resources would be protected from potential impacts from minerals management in the Ojo Caliente, La Cienega, Pueblos and Santa Fe Ranch ACECs, especially under Alternatives A and B.

Locatable and salable minerals actions generally would affect only small and localized areas. Impacts on cultural resources from locatable and salable minerals extraction activities would be similar to those impacts occurring from leasable minerals activities, but on a much smaller scale.

e. Impacts from Recreation Management. All alternatives except the no action alternative would designate SRMAs to identify and enhance targeted recreational opportunities and experiences, which would generate both adverse and beneficial effects on cultural resources. As long as recreational activities are well planned and managed, most potential impacts to cultural resources would be reduced.

The Posi and Cieneguilla SRMAs under Alternatives A and B offer cultural resources viewing and interpretation as central themes, which give the visitor a better understanding and appreciation for the Native American cultures that inhabited the areas in the past. This is

significant because education is an important part of protecting cultural resources on the public lands.

f. Impacts from Renewable Energy. Renewable energy actions resulting in construction that is visible on or above the surface would have the potential to directly impact the visual integrity of cultural properties that derive their significance from natural settings or from settings relatively devoid of modern intrusion. This would be especially important in the Ojo Caliente, La Cienega, and Galisteo ACECs and El Camino Real de Tierra Adentro and Old Spanish National Historic Trails. However, these ACECs and El Camino Real de Tierra Adentro and Old Spanish Trail corridors would be closed to wind energy development or to both wind and solar development under Alternatives A and B, with exception to transmission facilities. Renewable energy development is allowed in some of these areas under the no action alternative and Alternative C (see respective tables in Appendix A).

g. Impacts from Transportation and Access. The no action alternative and Alternative C would respectively designate 64,605 acres and 53,165 acres as open to OHV use. Compared to Alternatives A and B, this would likely result in increased impacts to cultural resources due to increases in surface disturbance. Conversely, the protection of cultural resources in Alternatives A and B would also be greater, because they have a higher percentage of closed designations compared to the no action alternative and Alternative C. Alternatives A and B would also offer more protection of cultural resources compared to the no action alternative and Alternative C, due to the limited and designated route designations and related surface-disturbance activities.

h. Impacts from Special Designations. Alternatives A and B would have greater acreage under ACEC designations compared to the no action alternative and Alternative C. This would result in increased protection of cultural resources due to limitations in surface disturbance activities and other uses.

Under Alternatives A and B approximately 408,000 and 410,000 acres, respectively, of BLM-managed surface land within special designations would be managed to protect or enhance natural and cultural resources. The acres within these specially designated areas would be six times the acreage proposed under the no action alternative, and over three times the acreage proposed under Alternative C. Therefore, there would be more coincidental beneficial effects on cultural resources through more protective management prescriptions within specially designated areas.

Under Alternatives A and B, La Cienega and Ojo Caliente ACECs would be expanded to protect additional cultural resources within these archaeologically rich areas. The Ojo Caliente ACEC would be expanded to include much of Black Mesa and lands to the west and south of the current designation. The new ACEC would include thousands of recently recorded petroglyphs on Black Mesa, the important Tewa villages of Ku, Te'ewi, Sandoval Pueblo, and Leafwater, and recently recorded prehistoric agricultural complexes east of El Rito Creek. Under Alternatives A and B, the Santa Fe Ranch ACEC would improve the BLM's ability to manage and preserve the resources of the area. These alternatives would provide the highest level of protection for cultural resources as a result of ACEC designation.

4.5.3 *Fish and Wildlife*

4.5.3.1 Fish

A. Direct and Indirect Impacts—Fish

As outlined in section 3.2.3, drivers of impacts to fisheries include habitat loss and alteration (altering hydrologic regime), habitat fragmentation (barriers to movement), and competition with introduced species. All aspects of habitat would be directly impacted by surface water quality and quantity and riparian management, as well as indirect and cumulative impacts associated with management of uplands and the BLM's ability to acquire water rights.

Programs that have no decisions affecting fisheries are air and atmospheric values, and visual resource management.

1. Adverse Impacts

a. Impacts from Vegetation Management. Management that incorporates vegetative treatments would result in direct loss of vegetative cover that could indirectly reduce fish populations through reduction of spawning and foraging habitat. Use of vehicles and equipment to implement treatments would disturb soils and vegetation and could also result in loss of fish or loss of spawning habitat. Increases in fish mortality could occur if pesticides used to treat vegetation migrate into ground or surface waters.

b. Impacts from Land Tenure, Land Use Authorizations, and Renewable Energy. Disposals, rights-of-way, leases, and authorizations related to renewable energy may cause alteration or removal of soil and protective vegetation during land development resulting in sediment loading in surface waters. Sediment loading in streams would reduce available habitat for foraging and spawning of fish. Disposals may also directly result in loss of aquatic habitat.

c. Impacts from Livestock Grazing. Livestock grazing can result in alteration of vegetative cover and composition exposing soil to erosion into adjacent surface waters, reducing spawning and foraging habitat.

d. Impacts from Mineral Development. Removal of vegetation, soil and underlying parent material increase the likely offsite migration of sediment laden water, reducing spawning and foraging habitat for fish. Percolation of water over sites may result in contamination of springs or seeps feeding surface waters, leading to fish mortality. Water quantity may be reduced by mining activities that use water for extraction, resulting in reduced habitat for all fish life phases and increased water temperatures which favor warm water species over cold water species.

e. Impacts from Recreation. Recreation activities would impact fish directly through removal of fish by anglers and cause habitat damage from recreationists walking in rivers and streams. Management of Santa Cruz Lake would have impacts to habitat caused by leakage of fuel and lubricants from boats. Indirect impacts would include water quality impairments caused by erosion from parking areas and trails used by recreationists.

f. Impacts from Transportation and Access. OHV and other types of vehicle use on routes and roads generally subject to very limited to no maintenance would increase the potential for erosion and water runoff into adjacent surface waters, potentially impairing water quality and reducing available fish habitat. Maintenance can reduce indirect and cumulative impacts by

reducing runoff. For this analysis, expected impacts would decrease in proportion to the acreage of land designated closed to vehicles.

2. Beneficial Impacts

a. Impacts from Cultural and Paleontological Management. Decisions to protect these resources would protect soils in which they occur, and thereby helping to safeguard fish habitat in adjacent surface waters.

b. Impacts from Vegetation Management. Protection and management of species diversity in vegetative communities indirectly protects fisheries by reducing water quality impacts caused by wind and water erosion of uplands soils, and provides faster recovery for soils after disturbance, resulting in better water quality in adjacent stream reaches. Protection of riparian vegetative communities provides protection against upslope erosion, prevents erosion of floodplain soils that store water, attenuates flood flows, and maintains water temperature necessary for fisheries by shading.

c. Impacts from Water Resources. Management of water quantity and quality directly impact fish habitat. Development of instream flow rights would allow the BLM to maintain aquatic habitat and water temperature during low water periods.

d. Impacts from Management of Lands with Wilderness Characteristics. Restricting uses within lands managed for wilderness characteristics that would disturb soil surface would protect fish habitat in adjacent stream reaches.

e. Impacts from Withdrawals. Actions that remove land from mineral development would protect fisheries by reducing potential surface water quality impacts, as well as reducing potential consumption of surface or ground water for mineral development activities.

f. Impacts from Recreation. Management of recreation activities provides direct protection for aquatic resources through mitigation of adverse impacts. Recreation can also provide indirect protection for aquatic resources by developing an individual's knowledge and appreciation of resources. Appreciation of resources results in development of an individual's land ethic that can modify user behavior and help the BLM implement and maintain resource protections.

g. Impacts from Special Designations. It is expected that all special designations would decrease adverse impacts to fisheries because greater management oversight and restrictions on uses would limit opportunities to impair water quality. Special designations may also allow the BLM to seek water rights that would protect physical habitat in BLM-managed streams and lakes.

B. Differences Between Alternatives—Fish

There are no differences expected among alternatives for impacts from wildland fire management, vegetation management, water resources, recreation, or special status species.

a. Impacts from Cultural and Paleontological Resources. Alternatives A and B would have greater acreage under ACEC designations where special protective management would be applied to cultural and paleontological values compared to the no action alternative and Alternative C. This would result in increased protection of fish aquatic habitats due to limitations in surface disturbance activities which could contribute to water quality impairment.

b. Impacts from Fish and Wildlife Resource Management. Under Alternative A and B, the Taos Field Office would actively manage fish populations and habitat on 230 miles of perennial steams, whereas under the no action alternative and Alternative C, management attention would only be given to certain select reaches.

c. Impacts from Management of Lands with Wilderness Characteristics. Benefits to fish and aquatic habitat from management of lands with wilderness characteristics under the no action alternative and Alternative C would occur from only 2 percent of the area, versus about 11 percent under the Alternative A and 15 percent under Alternative B.

d. Impacts from Land Tenure Adjustments. Disposal area is lowest for the no action alternative (14 percent of total surface area), so the impact to both water quality and quantity is expected to be the least under this alternative, therefore having the least potential impact on fish. Under Alternative A and B, disposal acreages would be 15 percent of total surface area, potentially having slightly greater indirect impact to fish. Under Alternative C, disposal acreage is similar to Alternative A, but authorization restrictions are equal to the no action alternative, so indirect impact would be 0.5 percent higher than Alternatives A and B.

e. Impacts from Land Use Authorizations. Land use authorizations would result in similar water resource impacts as those for land disposal. Restrictions on authorizations are nominally fewer for the no action alternative and Alternative C (10.5 percent of total surface area); therefore indirect impacts to fishery populations would be greater due to possible water quality impairment. Under Alternatives A and B, authorization restrictions (not including renewable energy) would increase to about 23 percent of the total surface area.

f. Impacts from Livestock Grazing. Even though management would comply with Rangeland Health Standards and Guidelines under all alternatives, the areas unavailable to livestock grazing under Alternative A and B, roughly 8-9 percent of the planning area, could further help to ensure adequate vegetative cover and soil stability around aquatic habitat, compared with roughly 3 percent under the no action alternative and Alternative C.

g. Impacts from Mineral Resource Management. The no action alternative and Alternative C would remove the fewest acres from mineral development resulting in the greatest potential impacts to fish and aquatic habitat through increased sediment deposition in adjacent waters. Mineral development under the no action alternative would withdraw about 100,800 acres of locatable minerals, close approximately 133,100 acres to mineral material sale, and close 101,300 acres to leasing. Most of these exclusion areas overlap, however. At a minimum, these restrictions cover about 14 percent of BLM-administered surface.

Under Alternative A, there is a large reduction in potential impact to fish habitat relative to the no action alternative and Alternative C because of the greater restrictions to mineral development. Under Alternative A, about 94 percent of BLM-administered surface area would be closed to leasables, 36 percent to locatables, and 65 percent to mineral material. Alternative B results in slightly less impact from locatable and mineral material restrictions, but increases areas closed to leasing by more than 68,000 acres relative to Alternative A, resulting in the least potential impact to fish and aquatic habitat than the other alternatives.

h. Impacts from Transportation and Access. The no action alternative would have the greatest indirect impact on fish as it contains the greatest amount of open and the least amount of closed acreage, resulting in increased water quality impairments from runoff associated with roads.

Differences of impacts between limited to designated routes and limited to existing routes cannot be assessed as presented but would be assessed during implementation.

Under Alternative A, reducing open areas by about 64,000 acres and increasing closed areas by more than 54,000 acres would significantly reduce soil loss as compared to the no action alternative, thus resulting in a smaller impact to fish and fish habitat.

Alternative B provides the best fish habitat protection from transportation related impacts as no areas are designated open, a designation that results in maximum potential aquatic habitat damage from no vegetated area runoff. However, Alternative B would otherwise impact fish equally to Alternative A.

Travel management under Alternative C has fewer indirect impacts to fish and aquatic habitat than the no action alternative because it has fewer open acres and more designated acres, but more impact than Alternative A or B because more than 53,000 acres are still designated as open.

i. Impacts from Special Designations. In addition to existing Congressional designations, Alternatives A and B have the greatest number of proposed ACECs and acreage with accompanying use restrictions resulting in reductions to water quality impairment. These two alternatives, therefore, would have less direct and indirect adverse impacts to fish and aquatic habitats, compared to the no action alternative and Alternative C.

4.5.3.2 Wildlife

A. Direct and Indirect Impacts—Wildlife

The impact analysis focuses on those management actions that have the potential for physical disturbance to habitat, loss of habitat, and the loss or disturbance of wildlife within the planning area. Impacts can be direct or indirect.

Direct impacts result from an activity or action that affects a change of existing conditions, either by a change in vegetation composition or structure, or behavior of a given species or population such as migrating or nesting in a particular area. Indirect impacts to wildlife may occur when actions result in environmental changes that indirectly influence the survival, distribution, or abundance of a species (or increase the abundance of undesired nonnative species).

Activities on public lands which could result in adverse effects to wildlife include, but are not limited to:

1. Direct or indirect harm, harassment, or loss of an individual animal regardless of how long the impact may occur;
2. Toxic contamination of wildlife, or the loss of habitat for populations to reestablish due to toxic materials either on the surface or below-ground;
3. Short- or long-term loss or degradation of wildlife abundance, diversity, or habitat from impacts to key wildlife habitat areas;
4. Impacts from inadvertent violations of Federal, State, or local plans, regulations, laws and statutes for the protection of wildlife, regardless of how long the infraction may occur;
5. Loss or degradation of wildlife habitat from introduction of invasive, nonnative or exotic flora or fauna.

Avoidance is the preferred method to prevent loss or degradation to wildlife or habitat. If a measure to prevent the loss of habitat is not available, then an action (mitigation) should be designed to minimize impacts to all affected areas, including consideration of offsite mitigation and studies to determine magnitude of impacts for adaptive resource management techniques which would adjust management accordingly.

The potential impacts (direct and indirect) to wildlife resources are categorized below as those resulting in adverse or beneficial impacts.

Programs that have no decisions affecting wildlife are air and atmospheric values, cultural resources, paleontological resources, soils, visual resource management, and withdrawals.

1. Adverse Impacts

a. Impacts from Vegetation Management, Wildland Fire, and Forestry and Woodland Products. Successional changes in vegetation, including unnatural expansion of vegetation favored by certain climatic or site-specific variables, can displace some wildlife species while other species better suited to site conditions would thrive. Within the planning area, encroachment of piñon-juniper, sagebrush, and saltcedar (*Tamarix* spp.) have been observed and documented in monitoring files. These changes are slow (virtually imperceptible), and wildlife is nominally impacted provided sufficient quality habitat remains in the area.

Similarly, vegetative treatment actions, including those under the Forestry and Woodland Products, Vegetation Management, or Wildland Fire programs, to address invasive vegetation or forest health would result in the loss of habitat for some species through the loss of vegetative cover or forage resources, while it may provide habitat for other species. For example, a piñon-juniper treatment may decrease available habitat for some woodland species of migratory birds, while increasing habitat for those species preferring grass or shrublands, such as mule deer (Watkins, et al. 2007).

Piñon-juniper vegetation treatments in gray vireo habitat would be restricted from May 1 through July 31. Surveys for nesting birds would be conducted in potential habitat prior to treatments within that time period and, in consultation with the NMDGF, seek to avoid adverse impacts to the species. Direct effects could include disturbance from personnel or vehicles in or adjacent to nesting habitat and nest abandonment. Indirect effects would include reduced fitness or mortality resulting from loss of vegetative cover, reduction or loss of food resources, and increased risk of predation and/or nest parasitism. Effects would vary from short- to long-term.

Sagebrush treatments are intended to disturb a climax community, while providing for retention of old-growth sagebrush to provide cover, perching, nesting, and foraging habitat for a variety of species, as well as maximum edge and/or transitional habitat to allow for higher floral and faunal diversity across the landscape. These treatments represent disturbance and set back vegetation communities to different successional stages, providing temporary changes in habitat, and are short-term in nature.

Therefore, there would be minimal direct and indirect effects to wildlife from loss or temporary alternation of wildlife habitat from vegetation, wildland fire, or forestry and woodland products management under all alternatives including the no action alternative.

b. Impacts from Land Tenure. Disposal of lands could result in fragmentation of otherwise contiguous habitat, depending on land use and ownership patterns. By transferring lands to private ownership, development and human activities, including introduction of domestic pets or

livestock, could disturb wildlife or degrade adjacent habitat quality. Indirect impacts from land disposals could include disturbance to wildlife and degradation of habitat on those lands that remain in public ownership adjacent to the associated disposed lands. Land disposals surrounding urban areas could result in the potential elimination of a buffer zone protecting wildlife and wildlife habitats. Under the no action alternative and Alternatives A and C, Archuleta Mesa would be designated for disposal and would represent a loss of BLM management authority over this high priority habitat for wildlife. Under Alternatives A and C, an area near Wind Mountain is designated for disposal that would also remove high priority wildlife habitat from BLM management.

c. Impacts from Land Use Authorizations. Land use authorizations (i.e., rights-of-way, leases, and permits) could cause fragmentation, barriers, and/or loss of wildlife habitat through removal of vegetation, construction of fences, and construction of other structures and facilities.

When the land use request includes unavoidable destruction of vegetation, the BLM would seek to limit sites to previously disrupted areas. Under all alternatives, wetlands or riparian areas would be avoided for a no-net loss of riparian vegetation in the planning area. Any area with disturbed vegetation would be seeded by the requesting organization to a diverse mix of native species that could lead to better long-term habitat than the vegetation originally disturbed. Most of this type of work occurs in summer and fall when the ground is not frozen. The duration of any single project is usually 1 to 8 weeks. Occasionally, work may occur during the breeding bird nesting season, but the size of the disturbance zone is usually minimal. The quality of the habitat in the disturbed zone may be diminished for up to several years following the project.

Most impacts would be along existing roads in areas already subject to habitat deterioration due to existing right-of-ways. In some cases, a utility right-of-way can split an otherwise contiguous block of quality habitat. In these settings, the disturbance from machinery and construction activity would be temporary, but the impact to wildlife and migratory birds is likely greater due to fragmentation of habitat. While an existing right-of-way already results in some disturbance, a decision to authorize new right-of-way areas or allow temporary work outside of an existing right-of-way would increase the magnitude of the disturbance.

Temporary disturbances to lands adjacent to rights-of-way would usually have only short-term effects on wildlife and their habitat. Work within authorized rights-of-way is under the authority of the BLM to regulate by influencing the timing and scope of work to minimize harm to wildlife and key wildlife habitats. Restricting right-of-way work to winter months would help prevent soil damage and minimize potential erosion and impacts to wildlife resources. Ensuring that all State and Federal laws pertaining to wetland impacts are complied with would ensure that any damage to wetlands is temporary and fully restored or mitigated. Restoration of disturbed sites may, in some cases, increase productivity by providing more robust vegetation than what was originally present (refer to wildlife mitigation in Appendix C).

d. Impacts from Livestock Grazing. Direct effects from livestock grazing can be alteration of wildlife habitat by affecting plant species composition, diversity, patchiness, and structure (Desmond 2004; Martin and Possingham 2005). Plant species diversity may increase in grazed areas relative to ungrazed areas, but wildlife populations are probably more influenced by grazing-induced direct alterations of habitat structure and heterogeneity across the landscape (Rangelands 1997). Both direct and indirect impacts from livestock grazing on vegetative cover and biomass are documented in the BLM allotment files and the Riparian and Aquatic HMP, and include adverse impacts to vegetation composition, abundance, diversity and structure, which effects wildlife habitat and populations.

Studies in foothill sagebrush grasslands of Montana showed that a foraging niche overlap (i.e., percentage of dietary overlap with percentage of feeding habitat use) exists between summer-fall cattle use and winter-spring elk use, and benefits elk when forage utilization by cattle does not exceed moderate levels. In turn, grazing by elk and mule deer in spring is unlikely to compete with cattle use in summer and fall, provided that elk or mule deer grazing is not excessive (Torstenson et al. 2006). Where monitoring adjusts livestock grazing activity under all alternatives, some short-term direct or indirect impacts to big game would be anticipated while long-term adverse impacts would be avoided by adaptive resource management.

Where domestic sheep grazing is available in allotments adjacent to or in relative close proximity to the bighorn sheep population established within and around the Rio Grande Gorge, there is high potential for the domestic sheep to transmit disease to the bighorn sheep, compromising their population.

No survey data is available on populations of small mammals, such as rabbits or rodents, as a prey base for predators in the planning area; therefore, it is difficult to assess the alternatives on impacts to these species and its indirect affect to other wildlife.

Grazing of livestock in streams and associated riparian habitats can significantly affect avian abundance/richness and mammal or amphibian communities by influencing vegetation, water quality, and other site characteristics (Tewksbury et al. 2002; Giuliano and Homyack 2004). Annual breeding bird surveys along the Santa Fe River have scored lower in riparian avian detection rates and riparian species richness every year from 2000 to 2007 (Hawks Aloft 2007a), due in part to the limited floodplain, but could also be attributed to years of livestock grazing.

Nest success of ground-nesting birds in ponderosa pine forest and pine savanna in northern Arizona reveal that cattle grazing is associated with a 75 percent reduction in nest success due to trampling and increased predation rates or parasitism by brown-headed cowbirds (Walsberg 2005). Each species of ground-nesting birds preferentially use certain habitats for nesting. Grazing can alter availability of preferred nesting habitats through changes in vegetation structure and plant species composition (Fondel and Ball 2003).While ground-nesting birds such as mountain plovers appear to be stable in active grazing allotments in the Taos Plateau planning unit, effects of livestock on these habitat types is otherwise unknown.

Livestock grazing plays an important role in the ecology of rangelands through a series of specific factors associated with the presence of cattle (Clegg 2005; Kohler et al. 2004; Pando-Moreno et al. 2004).

Loss of organic matter is associated with soil compaction and a decline in soil fertility, resulting in a general deterioration of soil quality and wildlife habitat (Bohn et al. 1993). It has also been documented that replacing a natural vegetation community with grassland for grazing can be significant for increasing salinization of rangelands (Bettenay 1986). While these impacts are known to occur, they have not been documented on active grazing allotments within the planning area and, depending on the degree of livestock grazing, would be minimal under Public Land Health Standards and Guidelines. Use of the Public Land Health Standards and Guidelines, development of allotment management plans to incorporate new approaches in grazing management, and regular monitoring of key forage species within key areas of each allotment would minimize or avoid direct and/or indirect adverse impacts to wildlife under any of the alternatives (see Appendix C for additional information).

e. Impacts from Mineral Resources Management. Mining and mineral extraction activities would result in the loss of habitat and habitat features, including the loss of boulders and other rock shelters, as well as surface disturbance that would denude areas of vegetation and reduce forage, cover, and habitat available to wildlife. Impacts of mining and mineral activities would include the fragmentation of habitat and creation of barriers to wildlife movement. Mining and mineral extraction activities have the potential to increase human harassment of wildlife. Short-term impacts from mining activities include changes in wildlife behavior because of human presence and the presence of unnatural objects. Long-term impacts include the overall change in species diversity and composition including the potential for introduction and expansion of invasive species.

Direct and indirect impacts of oil, gas, and other mineral development are associated with ground disturbances involving vegetation removal, excavation, drilling, construction of road networks, and installation of well pads, pipelines, and other associated infrastructure, as well as disturbance due to ongoing maintenance. Direct loss of habitat results primarily from construction and production phases of development. The presence of well pads, open pits, roads, pipelines, compressor stations, and out buildings directly removes habitat from use. Production activities require extensive infrastructure, and depending on scale, density, and arrangement of the developed area, collateral loss of habitat could be extensive (Watkins et al. 2007; Sawyer et al. 2006).

Habitat loss from roads has broader effects than just the conversion of a small area of land to road surfaces from original vegetation. Roads fragment wildlife habitat by changing landscape structure, which may have direct and indirect impacts, depending on species. Habitat effects of roads on the landscape include dissecting vegetation patches, increasing the edge-affected area and decreasing contiguous interior area, and increasing the uniformity of patch characteristics such as shape and size (Reed et al. 1996). Road avoidance behavior is characteristic of large mammals such as elk. Avoidance distances of 100 to 200 meters are common for some big game species (Lyon 1983). The effects analysis of habitat fragmentation would focus on fragmentation from roads, which are the predominant linear features in the planning area, based on a review of relevant studies for the western U.S. and documented impacts to wildlife (chiefly big game). Effects of roads on small mammals and songbirds are generally described as less severe, with changes expressed as modifications of habitat that cannot readily be classified as detrimental or beneficial. This interpretation is also probably true for amphibians and reptiles.

Currently, minerals management has the potential to impact key wildlife areas in the Taos Plateau, Galisteo (San Pedro Mountains), Chama, and Ojo Caliente planning units; these types of impacts would be minor depending on the degree of use. Site-specific NEPA analysis would seek to avoid adverse impacts to wildlife and priority wildlife habitat through the use of stipulations and BMPs, including the use of onsite and offsite mitigation.

f. Impacts From Recreation. In general, wildlife can be adversely impacted by recreation due to human interactions, including higher noise levels, litter, and wildlife harassment and/or degradation of habitat (Knight and Gutzwiller 1995). While camping tends to be more concentrated along riparian areas, such as the Rio Grande and Rio Chama, locally there can be major impacts to vegetation and stream bank stability.

During hunting seasons, mostly in Taos and Rio Arriba counties, nominal impacts occur in upland pine forests. In these undeveloped settings, wildlife could be collected or harvested, displaced, harassed, and disturbed, and degradation of habitat can occur from trampling or vegetative collection (authorized and unauthorized firewood collection, plant/seed collection).

Collection of firewood for campfires has the potential to adversely impact wildlife with removal of live, dead, and downed material. This material provides shelter for various species, including birds, small mammals, bats, reptiles and amphibians. OHV use and other disturbances to soils from unauthorized travel increase soil loss due to wind and water erosion which can further degrade habitat quality. Where this occurs repeatedly, impacts to wildlife, vegetation, and soils could be an issue at the site, but minor at the landscape scale.

Increased development of trails, climbing routes, and other recreation pursuits throughout the planning area where they do not currently exist could increase habitat fragmentation and adversely impact wildlife (Rost and Bailey 1979; Wisdom et al. 2005). While nonmotorized recreational trail activities, such as hiking, biking, and equestrian use, generally disturb wildlife and wildlife habitat much less than motorized activities (Forman and Alexander 1998; Havlick 2002), hikers that bring dogs along can cause increased impacts to wildlife through harassment by temporally introducing a perceived predator, which can disturb and frighten wildlife. These types of activities occur throughout the planning area. SRMAs, proposed under Alternatives A, B, and C, could potentially attract an increase of visitors to these areas because they are managed to provide a special recreation niche. Recreationists could be attracted to these areas in order to experience whatever niche is emphasized in that area, which could result in an increase in human disturbance to wildlife.

Recreational boating, which occurs primarily along the Rio Grande and Rio Chama, may cause the degradation of aquatic habitat by uprooting vegetation, eroding shorelines, suspending bottom sediments, and directly harming fish and wildlife. Boating activity also impacts habitats surrounding water bodies by noise, trampling, and beaching of boats. Maintenance activities associated with boat ramps and docks could alter river structure, but the area affected by these activities would likely be only a fraction of an acre individually and likely only a few acres cumulatively. Recreational use in riparian habitat increases the risk of wildfires that could remove riparian vegetation along a river corridor.

Golden eagle and ferruginous hawk are the raptor species that seem to be the most sensitive to human disturbance (Harmata et al. 1978; Watson and Dennis 1992). This is particularly the case during the incubation period and early nestling period when the potential for nest abandonment is the highest (Fyfe and Olendorff 1976; Watson and Dennis 1992; Olendorff 1993). Human activity that occurs in close proximity either below or above active nest sites (e.g., camping, hiking, boating, or fishing), has the potential to adversely affect nest success. There are several golden eagle nest sites and one ferruginous hawk nest that are potentially susceptible to human disturbance (e.g., low cliff height, close proximity to river, roads, and trails, narrow gorge width). The recreational use of the Rio Grande gorge area continues to increase, and the need for effective nest protection measures during the breeding season would be provided under Alternatives A and B.

g. Impacts from Renewable Energy. Direct impacts from both solar and wind generated renewable energy would be habitat loss in those areas where facilities are built and the maintenance roads and outbuildings necessary to operate them.

With present technology, solar thermal generation facilities require 5 acres per megawatt which would equate to an equivalent loss of habitat. All utility-scale solar energy facilities require relatively large areas for solar radiation collection when used to generate electricity at a commercial scale, and the large arrays of solar collectors may interfere with natural sunlight, rainfall, and drainage, which could have a variety of effects on plants and animals (USDI-BLM 2008c). Solar arrays may also create avian perching opportunities that could affect both bird and

prey populations. Proper siting decisions would avoid and mitigate adverse land disturbance and land use impacts.

Wind facilities can cover relatively large areas (e.g., several square kilometers). The BLM Programmatic Environmental Impact Statement (USDI-BLM 2005a) estimated that the permanent footprint of a facility is 5 percent to 10 percent of a site, including turbines, roads, buildings and transmission lines. To date, direct loss of habitat for large mammals as a result of wind development has not been considered important due to an adequate supply of sufficient habitat for these species (Arnett et al. 2007). Short-term construction surface disturbance has been estimated to be as much as three times the long-term surface disturbance. Construction impacts primarily result from wide construction rights-of-way to accommodate large cranes and the wide turning radius required to accommodate trucks hauling turbine blades. Staging and equipment storage areas are additional temporary disturbances. The length of time required to reclaim a site depends on climate, vegetation, and reclamation objectives. The greatest habitat-related impact to wildlife may result from disturbance and avoidance of an area during construction. Because direct habitat loss appears to be relatively small for wind power projects, the degree to which this disturbance results in habitat fragmentation depends on the behavioral response of animals to turbines and human activity within the wind facility.

Included in direct impacts for wind energy, mortality to bats, migratory birds, and raptors can be caused by moving turbine blades (Tuttle 2005; Arnett et al. 2007). National averages for avian mortality range from 2.3 to 3.5 birds per megawatt and, of particular concern, 78 percent of birds killed at facilities outside of California were species protected under the Migratory Bird Treaty Act (Wildlife Management Institute 2007).

Due to differences in respiratory anatomy between birds and bats, sudden air pressure drops near the tips of turbines can cause barotrauma (internal hemorrhaging) to bats where birds are not so effected (Baerwald et al. 2008). Studies have also found that most bat mortality involves migrating tree- or foliage-roosting bats, with the hoary bat experiencing highest casualties (Arnett et al. 2008; Kunz et al. 2007; Cryan 2008; Johnson et al. 2004; Cryan and Brown 2007; Horn et al. 2008). Bats actively investigate and forage around operating turbines, both rotating and nonrotating blades, and follow blade-tip vortices becoming trapped in them and subsequently struck by rotating blades (Horn et al. 2008). There appears to be a higher risk of bat fatality near the end of turbine strings (Arnett et al. 2008) and on nights with low wind speeds (<6 meters/second) (Arnett et al. 2008; Horn et al. 2008; Cryan and Brown 2007). It is possible that wind energy facilities may act as population sinks due to mating behaviors of some bats that center on the tallest trees in a landscape or due to prominent landmarks identified during migration (Cryan 2008; Cryan and Brown 2007). While extensive bat surveys have not been conducted across the planning area, many bat species use riparian areas throughout the planning area, and hoary bats are known to migrate through, therefore, bats could be at risk if extensive wind farm development were to occur in the area.

Raptors, especially red-tailed hawks and golden eagles, as well as American kestrels and burrowing owls, are susceptible to collisions due to their specific foraging and flight behavior (Hoover and Morrison 2007; Smallwood and Thelander 2008). Incidents of turbine-caused mortality for burrowing owls were highest in active livestock grazing allotments and where turbines were located within 90 meters of burrows (Smallwood et al. 2007). All of these species occur throughout the planning area and could be at risk if extensive wind development were to occur in the area.

While the diameter of wind turbines do not seem to influence rates of bird or bat mortality, the height of the turbines seem to increase bat mortality exponentially because bats migrate at lower altitudes (the airspace where newer, larger turbines are positioned) than nocturnal migrating birds (Barclay et al. 2007).

Indirect impacts include the associated infrastructure required to support an array of wind turbines or solar panels, including roads and transmission lines, resulting in human disturbance and habitat fragmentation in the area during routine maintenance and operations, and can provide avenues for invasion by exotic species. In addition, it has been postulated that due to noise from wind turbines, small mammals would be unable to hear or detect predators, resulting in an unbalanced food web and increased hunting opportunities for some raptor or carnivorous species (Kuvlesky et al. 2008; Arnett et al. 2007).

h. Impacts from Transportation and Access. Roads fragment wildlife habitat by changing landscape structure, which may have direct and indirect impacts, depending on species. Habitat effects of roads on the landscape include dissecting vegetation patches, increasing the edge-affected area and decreasing contiguous interior area, and increasing the uniformity of patch characteristics such as shape and size (Reed et al. 1996). Road avoidance behavior is characteristic of large mammals such as elk. Avoidance distances of 100 to 200 meters are common for some big game species (Lyon 1983). Effects of roads on small mammals and songbirds are generally described as less severe, with changes expressed as modifications of habitat that cannot readily be classified as detrimental or beneficial. This interpretation is also probably true for amphibians and reptiles. Currently, frequency of use on backcountry dirt roads is low and impacts to wildlife are nominal.

Unauthorized routes used by OHVs or ATVs constitute direct impacts to wildlife by disturbing movement patterns and altering or degrading habitat (Knight and Gutzwiller 1995), particularly if use increases. Impacts to movement corridors could potentially alter behavior, foraging, and breeding activities. OHV activities can create noise, ground disturbance, allow human use where in areas not previously accessible, increase litter, and result in harassment that has negative impacts to wildlife species.

Within designated open areas, motorized travel would not be limited to existing or inventoried routes, and visitors would be able to travel cross-country wherever they choose. The impacts to wildlife from open area designations, therefore, would be more severe than recreational trail use that is limited to designated or existing routes.

i. Impacts from Special Designations. The designation of proposed ACECs could potentially increase recreational use in those areas, resulting in a greater amount of impacts to wildlife and wildlife habitat. Increased interpretation, monitoring, maintenance, and enforcement along proposed ACECs by the BLM and interested partners would strive to minimize existing or additional impacts to wildlife from recreational use. Increased public use could result in increased harassment of wildlife. However, these types of impacts would be nominal depending on the degree of use. Because wildlife management is one of the primary purposes of many of the ACECs, future recreational use limitation decisions would attempt to minimize these impacts.

2. Beneficial Impacts

Beneficial impacts to wildlife resources are expected to occur from vegetation treatments, fuel and fire management, employing Public Land Health Standards and Guidelines (2000), and use

of BMPs for land use activities. Other benefits to wildlife and habitat include the removal of invasive species, range and wildlife habitat improvements, protective area designations such as wilderness and ACECs, and other protective allocations.

a. Impacts from Vegetation Management and Forestry and Woodland Products. Vegetative treatments would result in improvements to habitat which may benefit many wildlife species. Studies have shown that where dense stands of piñon-juniper have been thinned, understory vegetation increased dramatically on the heaviest thinned plots and number of vegetation species present also increased significantly. While vegetation composition changed, deer use increased in correlation with the amount of trees removed, and overall small mammal abundance increased on all treated plots (Albert et al. 1994).

Sagebrush treatments that provide minimal disturbance to soils, including the use of prescribed fire, fire use or mechanical blading (shaving), would increase vegetative diversity, providing greater habitat choices to a variety of species. Piñon-juniper thinning, either through prescribed fire or mechanical means, would allow more sunlight and water to reach the understory for growth of grasses and forbs, increasing vegetative diversity and structure which provides additional habitat for more species of animals. Some areas would be treated for priority species habitat, such as mule deer, which would benefit other species, such as hawks, rodents, game birds, reptiles and amphibians.

Vegetative treatments to reduce invasive species, such as saltcedar, cheatgrass, thistles or knapweeds, would be beneficial to wildlife habitat because they restore native plant communities, improving ecological health of the area. Prescribed fire would likely result in the temporary loss of habitat, but would have beneficial impacts in the long term.

All alternatives would benefit wildlife habitat by using prescribed burning, native seed when possible, and establishing natural disturbance regimes across the landscape to increase biodiversity and structural diversity, having long-term benefits to wildlife habitat for as many species as possible.

b. Impacts from Fish and Wildlife and Special Status Species Management. Fish and wildlife habitat improvement projects would have beneficial impacts to wildlife by providing watering sites which are made wildlife accessible and modifying fences for improved mobility of wildlife species. Conservation, enhancement, and restoration projects for special status species would have beneficial impacts on wildlife habitat within the planning area.

c. Impacts from Management of Lands with Wilderness Characteristics. Where lands with wilderness characteristics would be provided protective management, these areas would have indirect beneficial impacts to wildlife and wildlife habitat by preventing various land uses and developments from occurring, thereby avoiding loss or degradation of habitat from human disturbance or fragmentation.

d. Impacts from Wildland Fire. Under all alternatives, an emphasis on acquisitions and land exchanges that would consolidate lands with important resources and resource uses would benefit the BLM's effort in fire management suppression operations and fuels management, benefitting wildlife and habitat. Prescribed fire would likely result in the temporary loss of habitat, but would have beneficial impacts for wildlife in the long term.

e. Impacts from Invasive Species/Noxious Weeds Management. Vegetative treatments to reduce invasive species, such as saltcedar, cheatgrass, thistles or knapweeds, would be beneficial

to wildlife habitat because such treatments restore native plant communities, improving ecological health of the area.

f. Impacts from Land Tenure. Acquisition of lands could have beneficial long-term impacts to wildlife by providing for larger contiguous blocks of land that are easier to manage. Additional lands acquired, along with any acquisitions of split estate for minerals, could directly benefit wildlife by providing surface protection and forage, shelter, and breeding habitat, where they fall within special designated areas that are managed with wildlife habitat objectives.

g. Impacts from Livestock Grazing. Adherence to the New Mexico Standards for Rangeland Health and Guidelines for Livestock grazing would result in beneficial direct impacts to wildlife by reducing soil erosion and promoting the development of riparian and wetland plant communities. Adhering to these standards and guidelines would have positive long-term impacts to biological resources by maintaining the ecological rangeland condition for those areas currently in healthy condition and by improving those areas that are currently substandard, ultimately improving priority plant and wildlife habitat.

Grazing can impact net nitrogen mineralization rates in soil (Rossignol et al. 2005), which in some cases can improve forage quality for herbivorous species of wildlife.

Manipulating vegetation resources to affect animal populations is the cornerstone of wildlife habitat management, and grazing by domestic stock is a tool with which managers can alter plant succession to the benefit of wildlife resources. Livestock grazing, when properly managed, can be used to create the mosaic of habitat types needed to sustain maximum biodiversity. Livestock grazing has been used as an effective means of setting back the phenology of grasses to a stage more palatable to wildlife species, such as elk and antelope. Decreases in vegetative cover associated with heavy stocking may serve as important habitat for some species of prairie birds, such as the mountain plover and killdeer.

Changes in grazing management, including incentives to redistribute livestock across the landscape, protection of critical areas such as riparian zones, and altering grazing regimes over the long term would have beneficial effects on wildlife resources and biodiversity.

h. Impacts from Mineral Resource Management. If it is determined that offsite mitigation is necessary to incorporate into the mineral permitting and land use authorization process, it would be used to improve degraded habitats elsewhere in the planning area. Long-term, post-mineral development reclamation activities would result in restoring habitats in areas that may have had lower quality habitat due to previous land uses.

i. Impacts from Recreation. Designation of areas as SRMAs or ERMAs could impose a mechanism to limit number of special recreation permits and require permits for noncommercial use using the limits of acceptable change process. This could be an indirect benefit to wildlife habitat in the long term by monitoring and limiting use in these areas.

j. Impacts from Renewable Energy. While land use under this program has the potential to remove wildlife habitat or impact populations by disturbance or fragmentation, it also has the potential to diminish indirect adverse effects from traditional fossil fuel development (see section 4.9.2, Cumulative Impacts).

k. Impacts from Transportation and Access. Within proposed closed areas, no motorized travel would be allowable. Impacts to wildlife would not occur within the proposed closed areas

and wildlife habitat would be maintained or enhanced. Fenced off areas, such as certain riparian zones, creates a movement barrier and may remove travel routes away from forage, water, and breeding areas.

l. Impacts from Special Designations. Enhancement and protective designations such as ACECs, WSRs, wilderness, etc. would benefit wildlife habitat by limiting human activities and disturbances in these areas. Placing former SMAs into ACECs would strengthen management and protection of important wildlife habitat, and would allow BLM opportunities to acquire nonpublic portions of these areas. Those areas designated for cultural or paleontological resources would have coincidental benefits to wildlife and protection to wildlife habitat.

B. Differences Between Alternatives

a. Impacts from Forestry and Woodland Products. Alternative B differs from the other alternatives by closure to fuelwood cutting of the northern area within Zone 1 of the El Palacio planning unit, including Mesa de la Cejita. This closure would remove approximately 13,000 acres containing woodland resources from public fuelwood harvest. This would retain the energy this resource represents in the local ecosystem and limit wildlife disturbing activities, having beneficial impacts to wildlife and wildlife habitat.

b. Impacts from Land Tenure. The no action alternative and Alternative B would result in the least amount of habitat loss (2,131 acres) through land disposal, while Alternatives A and C would have a slightly larger loss of wildlife habitat (2,433 acres).

The no action alternative and all action alternatives propose disposal of an area referred to as Archuleta Mesa. Loss of this area would remove approximately 2,313 acres of high quality wildlife habitat from BLM management; however, consolidated ownership and management capabilities would not adversely impact these wildlife species. Currently this land is surrounded to the south and east by private lands and to the west by the Jicarilla Apache Indian Reservation. There are only two roads that lead into BLM lands and both are controlled by tribal authorities (either the Jicarilla Apache Indian Reservation in New Mexico or the Ute tribe in southern Colorado). Part of the reason why this area is so valuable for wildlife is due to limited public access and the protected nature of the area. Disposal of these lands would likely be given to the adjacent Jicarilla Apache Indian Reservation and, because of their current management for high quality and trophy big game habitat, the disposal would not be an adverse impact to local wildlife species.

Alternatives A and C propose the disposal of approximately 120 acres near Wind Mountain for alternative energy purposes. This area is part of critical winter range for deer and elk and adjacent to a big game migratory corridor. Disposal of this property could have impacts to big game migratory routes in the area, fragment habitat and, depending on the facility and mitigation applied, decrease winter range for elk or deer. Alternative B would retain the property near Wind Mountain and manage for big game migratory and winter range.

Alternative A would benefit management capabilities for wildlife mostly by adding additional lands in the Taos Plateau, Lower Gorge/Copper Hill, Chama, and West Santa Fe planning units, and near Sabinoso Wilderness/ACEC. Alternative B is similar to Alternative A; however, it does not include those lands identified near Sabinoso Wilderness/ACEC as an acquisition area. Alternative C is the least beneficial in that it does not include those lands previously considered in Alternative A for Chama and West Santa Fe, certain areas in the Lower Gorge/Copper Hill planning units, or lands near Sabinoso Wilderness.

c. Impacts from Land Use Authorizations. The establishment of utility corridors under Alternative A would promote the consolidation of disturbed locations. Locating rights-of-way in these corridors would reduce additional impacts to wildlife and habitat than if previously undisturbed areas are used. The establishment of a 0.25-mile wide utility corridor under Alternative C would promote the consolidation of locations for new linear facilities along Buckman Road in the West Santa Fe planning unit.

Alternative A and B have the most protection to wildlife habitat with the addition of right-of-way exclusion areas in the Chama, Ojo Caliente, Lower Gorge/Copper Hill, and West Santa Fe planning units, along with sites near Sabinoso Wilderness/ACEC. Impacts would be greater under Alternative C because it does not include those additional exclusion areas, with the exception of specific sites in the Lower Gorge/Copper Hill ACEC. The no action alternative and Alternative C would result in fewer areas closed to development activities and use restrictions thereby generating greater potential impacts to wildlife habitat. Under all alternatives, land use authorizations would not materially interfere with or detract from wildlife habitat with BMPs and stipulations in place.

d. Impacts from Livestock Grazing. Surveys along the Santa Fe River in the West Santa Fe planning unit have shown that livestock grazing has negatively affected breeding bird populations under the no action alternative. Alternative A and B would allow for protection of this area from livestock grazing until riparian vegetation has recovered to functionality.

Further negative impacts to riparian vegetation are documented along the Ojo Caliente and Rio Chama due to unauthorized grazing activity. Alternatives A and B would provide a higher level of protection for riparian area grazing activity to enhance and protect vegetation in these and other areas. Alternative C would have fewer stipulations than Alternatives A or B to protect riparian habitat, although adherence to the Riparian and Aquatic HMP and laws and regulations to protect water resources would be maintained under all alternatives.

Livestock grazing can have direct or indirect impacts on soil fertility, organic matter, pH, structure, and compaction (Bohn et al. 1993; Bettenay 1986; Floyd et al. 2003; Kimball and Schiffman 2003), which can influence the distribution and condition of vegetation that would alter or impact wildlife habitat. Although monitoring studies for these attributes have not been conducted across the planning area, the no action alternative and Alternative C can be predicted to cause more adverse impacts due to the higher AUMs across the planning area, while Alternative A and B would cause lesser impacts under similar livestock grazing regimes.

Where grazing is unavailable on portions of Ute Mountain acquired in 2003 and 2005 under Alternative A and B and unallotted under the no action alternative, the additional forage and lack of disturbance from livestock would be a beneficial impact for big game and other wildlife of special management emphasis, as well as adjacent private landowners. If, under Alternative C, this area were placed in a reserve common allotment, depending on the timing, duration and frequency of livestock grazing, impacts to wildlife habitat could be insignificant if the area was rested and managed conservatively.

Monitoring studies on soil fertility, organic matter, pH, structure, and compaction, and resulting shifts in vegetation due to livestock grazing has not been conducted. Because of the deficiency of information, an analysis of affects to wildlife from livestock grazing cannot be adequately conducted. However, the no action alternative and Alternative C have more potential for adverse impacts due to higher AUMs allocated to livestock grazing across the planning area than under

Alternatives A and B, which would have similar if not equal potential for impacts under a similar livestock grazing program.

The no action alternative and Alternative B would provide no increase in AUMs for livestock grazing in the San Antonio SMA. Therefore, additional forage is available under the no action alternative for use by wildlife in critical winter range areas and migratory corridors. Alternative A would apportion additional AUMs to either livestock grazing or wildlife, depending on resource conditions and a determination by the authorized officer (with input from resource specialists) as to the highest and best use of the vegetation. Alternative C would increase AUMs for livestock grazing purposes to the extent it does not negatively impact wildlife or watershed resources. Therefore, impacts to wildlife are anticipated under all the alternatives, and would be greatest under Alternative C due to an emphasis on maximizing AUMs, and least under Alternative B due to the addition of certain allotments that are closed to grazing.

It is possible that under Alternative C, with an emphasis on allocating the greatest number of AUMs that could be obtained, livestock grazing could adversely affect habitat or vegetation composition and structure, as well as ground-nesting birds. Due to use of the Public Land Health Standards and Guidelines, development of allotment management plans to incorporate new approaches in grazing management, and regular monitoring of key forage species within key areas of each allotment, long-term negative impacts to wildlife are not expected under the no action alternative and Alternatives A and B.

In addition, under the no action alternative and Alternative C, where domestic sheep grazing is available in allotments adjacent to or near the bighorn sheep population established within and around the Rio Grande Gorge, there is high potential for the disease to be transmitted to the bighorn sheep. Under Alternatives A and B, however, the nine mile buffer precluding domestic sheep grazing would alleviate this threat to the bighorn sheep population.

e. Impacts from Mineral Resource Management. The area with the highest potential for fluid mineral development, the Santa Fe Embayment (see Map 3-15), occurs where there is no key wildlife habitat or migratory corridors.

Areas of moderate potential for fluid mineral development that occur on key wildlife areas are within the Chama planning unit where migratory corridors for avian and big game species are found, along with key aquatic and terrestrial habitat, and big game winter and summer ranges. The no action alternative and Alternative C would close a portion of this area to development, while Alternative A would close the same area while applying a controlled surface occupancy restriction on the remainder of the unit. Alternative B would effectively close the entire unit to oil and gas development. Therefore, Alternative B would provide the most protection to key wildlife habitats, followed by Alternative A. The no action and Alternative C would provide the least restrictions and could have greater impacts to wildlife habitat and populations.

The remainder of the planning area has either low or no potential for fluid mineral development. Timing limitations or other constraints (i.e., CSU or NSO), in addition to discretionary and nondiscretionary closures, protect wildlife habitat in these areas even though the potential for development is minimal.

For locatable and mineral material development, the no action alternative and Alternative C are similar, with more areas open for development in key wildlife habitat in Ojo Caliente, an area with winter and summer range for big game species and an avian migratory route. Alternative C provides the least amount of protection for wildlife in that much of the Taos Plateau, Chama, and

Ojo Caliente planning units are available for development of locatable and/or salable mineral material. Depending on the degree of use, this could impact key terrestrial and aquatic habitat, wildlife migratory corridors, and seasonal big game ranges. Alternatives A and B would provide the greatest protection of wildlife habitat.

f. Impacts from Recreation Management. Under Alternative B, the BLM would not expand or develop any new recreation site, providing the most protection to wildlife habitat due to minimal disturbance. Under the no action alternative and Alternatives A and C, the BLM would use adaptive management on a case-by-case basis to determine if expansion or development of new recreation sites would be appropriate.

Alternative A and B include SRMAs that could benefit wildlife by increasing the level of management and prescriptions for the areas. However, the SRMAs could also attract more people, resulting in more dogs off leash, increased target shooting, and expansion of camping activities that would fragment the habitat and cause disturbance to wildlife species, soils, and vegetation, depending on the degree of use. Proposed areas for recreation emphasis that contain priority wildlife habitat include: Rio Grande Gorge Recreation Area SRMA (73,221 acres), Cieneguilla SRMA (6,826 acres), and Diablo Canyon SRMA (713 acres). Diablo Canyon is highlighted as a climbing area which could negatively impact peregrine falcon. Alternative C would allow more motorized use in the Lower Gorge and Copper Hill planning unit and Sabinoso ACEC and the addition of an amphitheater near Diablo Canyon that could adversely impact wildlife habitat in those areas.

g. Impacts from Renewable Energy. Alternative A and B exclude more areas (499,760 acres) to wind development than the no action alternative or Alternative C. In the Ojo Caliente planning unit, about 66,000 acres are closed to wind or solar development under these alternatives to protect an important avian migration route and other resources, while 11,000 acres would be designated as open to solar energy development in this area. The Taos Plateau planning unit, which contains all key wildlife habitat areas, also has almost 186,000 additional acres closed to both solar and wind development under Alternative A and B, with no areas designated as open for this land use. Under Alternatives A and B, the West Santa Fe planning unit would change 36,000 acres previously open to wind or solar development to excluded from wind and avoided by solar to protect the bat and avian species that frequent the area.

Under the no action alternative, 23 percent of BLM lands in the planning area are excluded from renewable rights-of-way, primarily to protect special designation areas. The remaining 77 percent of BLM land is open on a case-by-case basis, allowing for field office discretion to accept or reject projects depending on their potential impacts. Therefore, there would be fewer impacts to wildlife and loss of wildlife habitat under Alternatives A and B than the no action alternative or Alternative C.

h. Impacts from Transportation and Access. Alternatives A and B close more areas (75,425 acres) to motorized vehicles compared to Alternative C (64,065 acres), while all three alternatives close substantially more than the no action alternative (21,180 acres). The action alternatives would provide for less loss or degradation of habitat than the no action due to the change from limited to “existing” routes to limited to “designated” routes. Travel on existing routes leaves routes open for interpretation by the user, where designated routes are administratively determined. There are no open areas under Alternatives A and B. Alternative C would propose 53,165 acres as open for cross-country travel by OHVs, having a direct impact on habitat loss and indirect impact to wildlife species due to disturbance and fragmentation.

The no action alternative would have the greatest impact on wildlife and habitat by designating 64,605 acres as open to cross-country travel and 316,525 acres limited to designated routes.

i. Impacts from Special Designations. Alternative B proposes the greatest protection of important wildlife habitat, including habitat in Chama Canyon, Lower Gorge, Copper Hill, La Cienega, Ojo Caliente, Santa Fe Ranch-Diablo Canyon Zone, Taos Plateau, and the Riparian/Aquatic ACECs. Alternative B exceeds the protection in Alternative A only by the inclusion of the Riparian/Aquatic ACEC.

The Taos Plateau and Chama Canyon ACECs would protect the areas' natural systems and features, including wildlife and habitat, from irreparable damage.

Important changes benefitting wildlife under Alternative A include the incorporation of Orilla Verde into the Lower Gorge ACEC for management of riparian-obligate species such as the southwestern willow flycatcher, as well as the expansion of the Rio Chama SMA into a larger Chama Canyons ACEC for better management of big game and priority species habitat. The Taos Plateau ACEC would incorporate smaller designated areas into one larger boundary for consolidation of management decisions for many priority wildlife species, including deer, elk, pronghorn, raptors, bats, prairie dogs, mountain plover, and burrowing owl. Given increasing use in the area, Santa Fe Ranch ACEC is an additional designation that could be managed for priority species such as peregrine falcon. La Cienega ACEC would be expanded from 3,556 acres to 13,724 acres, mostly on La Bajada Mesa, where habitat for gray vireo have been located and recorded.

Under Alternative B, higher level use restrictions on mineral development and rights-of-way would benefit wildlife species. Alternative C would have the least number of designations that would protect wildlife habitat from loss or degradation from other land uses. Special designations for protection of natural resources would be expanded under Alternative A by 208,235 acres compared with the no action alternative. In total, 141,375 acres of BLM land would be managed within special designations to protect cultural resources as a primary objective, providing additional, coincidental protection of wildlife resources compared with the no action alternative.

Alternative C would maintain the SMAs and ACECs designated under the no action alternative specifically to protect wildlife resources. Likewise, the total area of special designations under Alternative C would be the same as the no action alternative.

4.5.4 *Paleontological Resources*

Impacts to paleontological resources can be characterized as those designations or actions that result in loss, degradation, destruction, or benefits to vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. Avoidance is the preferred method to prevent loss, but other mitigation can reduce and resolve adverse effects to significant localities, including records and literature searches, sampling or survey by a qualified paleontologist, or other types of paleontological research. Under all alternatives, adverse impacts to paleontological resources would be avoided or minimized to the maximum extent possible through management actions and BMPs.

The Taos Field Office would use a paleontology sensitivity map during the environmental impact evaluation process for all proposed earth disturbing projects (see sections 2.4.1.4 and 3.2.5). The sensitivity map is developed using geologic maps, known locality data, and professional

judgment to evaluate geologic units' potential to produce important paleontological resources. All land use actions with a potential to impact vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils would be screened against this map.

Under Alternative A, impacts to paleontological resources from surface disturbing activities would be mitigated by a survey of areas where significant resources are known to occur and potential monitoring of such activities by a qualified paleontologist. All class III and IV areas within these units should be considered critical areas. Impacts to any existing resources would be avoided or minimized.

With the implementation of the procedures outlined above, it is anticipated that cultural resource management, fish and wildlife management, vegetation management, visual resource management, livestock grazing, and renewable energy would not affect paleontological resources.

A. Direct and Indirect Impacts

The potential direct and indirect impacts to paleontological resources are categorized below as those resulting in loss/degradation or protection/beneficial.

1. Adverse Impacts

a. Impacts from Land Tenure. Paleontological resources may occur on the lands identified for disposal under any of the alternatives. If disposal of lands with paleontological resources occurs, the disposal would result in a loss of these resources.

b. Impacts from Land Use Authorizations. Land use authorizations that involve surface-disturbing activities could result in adverse impacts to paleontological resources. Construction activities, such as powerlines, pipelines, communications sites, and roads in areas with potential for paleontological resources could result in destruction, degradation, and loss. These potential effects cannot be quantified at this time since they would depend on location, size, and nature of future proposals for authorizations. However, any site-specific action within areas of high paleontological potential would be inventoried by an approved paleontologist and significant paleontological locations would be avoided or otherwise mitigated.

c. Impacts from Mineral Resources Management. Mining activities have the potential to disturb or destroy paleontological resources. These affects could be largely if not completely mitigated through the use of paleontological-specific measures such as use of the sensitivity map, pre-work surveys, onsite monitoring by a qualified paleontologist, and other applicable measures in addition to BMPs.

d. Impacts from Recreation Management. Recreationists may adversely impact paleontological resources by exposure or damage during activities such as hiking, biking, OHV, and equestrian use and recreational collection. Fossil theft, vandalism, and intentional disturbance of paleontology sites by the public would also be a possible adverse impact (Santucci and Koch 2003).

e. Impacts from Transportation and Access. OHV use has the potential to adversely impact paleontological resources through damage to slopes, soils, and vegetation that could affect formations through directly destroying surface fossils, wearing down rock formations, or accelerating soil erosion (Farmington RMP). Areas allocated as open OHV management areas would receive a higher level of use and would therefore be more susceptible to impacts on

potentially occurring paleontological resources. The continued use of inventoried routes could result in impacts to paleontology if the routes occur in areas with high or moderate paleontological sensitivity.

2. Beneficial

a. Impacts from Land Tenure Adjustments. Land acquisitions provide additional protection for paleontological resources because those lands would then be subject to Federal management. Land acquisitions would therefore have a beneficial effect on any paleontological resources that exist within the acquired property.

b. Impacts from Recreation. SRMAs would be designated to identify and enhance targeted recreational opportunities and experiences. The emphasis to protect cultural values within SRMAs would also provide protections to potential paleontological resources found within these areas. There is a potential for beneficial impacts to significant paleontological resources as a result of interpretation and public education.

c. Impacts from Transportation and Access. Closed OHV management areas would have coincidental beneficial impacts by protecting known and unknown paleontological resources from impacts of OHV use. Allocation of areas as limited or closed to OHV use, and limiting OHV travel to inventoried routes until the route designation process is complete, would provide a clearly delineated travel network, reduce route proliferation, and facilitate law enforcement. This would generally have the beneficial impact of controlling impacts of OHV use on paleontological resources.

d. Impacts from Special Designations. Management guidance and directions for special designations in BLM land use planning including those for ACECs could also provide coincidental benefits to paleontological resources. The Sombrillo ACEC, especially in Alternatives A and B, has prescriptions that would greatly protect and enhance paleontological resources. The Ojo Caliente ACEC contains great amounts of paleontological resources, and the protective prescriptions for cultural resources would apply to paleontological resources also. Areas proposed for designation as SRMAs would be managed such that short-term and/or long-term benefits to paleontological resources would also be likely to occur. The emphasis to protect cultural values within SRMAs would also provide protections to potential paleontological resources found within these areas.

B. Differences Between Alternatives

Differences between alternatives for impacts to paleontological resources are primarily in the differences in acreages for surface-disturbing activities, and the differences in acreages for actions and allocations that provide coincidental benefits to paleontological resources.

a. Impacts from Land Tenure Adjustments. All alternatives include criteria for acquisitions that would enhance management of significant cultural and natural resources. Alternatives A and B each propose acquisition of 105,918 acres of more land than proposed under the no action alternative and Alternative C. If the designated lands are acquired, it is likely that at least some lands may contain paleontological resources. In that case, Alternatives A and B would provide greater potential for paleontological resource protection than the no action alternative and Alternative C by increasing the amount of land with BLM paleontological survey requirements by almost 18 percent.

b. Impacts from Recreation Management. All alternatives except the no action alternative would designate SRMAs to identify and enhance targeted recreational opportunities and experiences. Alternative A would designate eleven SRMAs throughout the planning area. Different marketing strategies would vary by SRMA. As noted, both adverse and beneficial impacts could result from increased recreation.

As long as recreational activities are well planned and managed, then most potential impacts to paleontological resources, like removal of fossils and erosion from trails, should not have much of an effect on the resources. Increased interpretation of paleontological resources through signing and development of displays could help educate the public and therefore help to protect the resource.

c. Impacts from Transportation and Access. The no action alternative would designate 64,605 acres and Alternative C would designate 53,165 acres as open to OHV use. Consequently, these alternatives would result in greater impacts to paleontological resources due to surface disturbance from OHV activities. In contrast, Alternatives A and B would not designate any acres as open, which would make them the most protective. All alternatives would require paleontological inventory of the open areas within areas of high potential for the presence of paleontological resources before implementation.

Prior to the inventorying of designated open areas under the no action alternative and Alternative C, managing OHV use to avoid or mitigate effects on fossil sites would be difficult and expensive. It is anticipated that a good deal of damage to paleontological resources would occur in the interim.

One major change to travel management affecting paleontological resources is within the presently designated Fun Valley SMA. Under the no action alternative, 17,850 acres would remain open for transportation in this area. Since this SMA contains a high frequency of paleontological resources, this would continue to cause damage to or a loss of fossil resources. Alternatives A, B, and C would rescind the SMA and manage the area as El Palacio SRMA. Since Alternatives A and B would have no acres open and 64,990 acres of designated routes in this area, these alternatives offer a greater degree of protection to paleontological resources.

Cross-country travel would be prohibited except in the open areas under the no action alternative and Alternative C. The no action alternative would limit OHV use to existing routes. Under Alternatives A, B and C, OHV use on BLM-administered lands would be limited to existing inventoried routes until the route designation process is complete.

Most of the planning units (all but Lower Rio Grande/Copper Hill and El Palacio) would have areas closed to OHVs under Alternatives A, B and C. This would provide potential beneficial impacts to paleontological resources, since no motorized travel would be allowed in these closed areas. The no action alternative would only have closed areas within the Chama planning unit.

d. Impacts from Special Designations. Alternatives A and B contain the greatest acreages of specially designated areas and, therefore, would have the most coincidental beneficial effects on paleontological resources.

The Sombrillo ACEC has helped to protect paleontological resources since 1988 by using management prescriptions limiting OHV use, controlled surface use for minerals production, and limited fire suppression strategies. The no action alternative and Alternative C would continue this management on the 8,600-acre ACEC. Alternatives A and B would enlarge the ACEC to

18,080 acres including about 9,520 acres containing known paleontological resources within the badlands north of the Santa Cruz River valley. The paleontological resources within this new addition to the ACEC are very important, and ACEC designation would help to protect them by prescriptions that limit development and earth disturbing activities. Alternatives A and B would also withdraw a 60-acre traditional cultural property from mineral entry to ensure that the clay and ash materials would remain available for Pueblo potters. The 60-acre withdrawal would also ensure no paleontological resources are disturbed.

Other ACEC and special areas designated to protect cultural and natural resources would have coincidental beneficial effects on paleontology through more protective management prescriptions including OHV restrictions, right-of-way exclusion areas, and mining restrictions, and protective VRM classes. This is the case for the Ojo Caliente, Galisteo Basin, La Cienega and Santa Fe Ranch ACECs, all of which contain areas of important paleontological resources.

4.5.5 *Soils*

Impacts to soils would occur where soil is exposed to wind and water forces. A combination of bare soil surface caused by vegetation removal or changes in community structure, erodible soils, and slope leads to greatest potential for soil damage. Highly erodible soils on steep slopes occur most frequently in the Lower Gorge/Copper Hill and El Palacio planning units, but are also found occasionally in other planning units.

Differences between alternatives are based on acreage allocations that would increase activities associated with soil loss or exposure. Programs in this plan that have no decisions affecting soils are air and atmospheric values, visual resource management and water resources.

A. Direct And Indirect Impacts—Soils

1. Adverse Impacts

a. Impacts from Forestry and Woodland Management. Adverse impacts to soil resources could occur as a result of firewood collection, off-road driving in order to retrieve firewood. Exposed and disturbed soils would be more susceptible to erosion immediately after the firewood harvest.

b. Impacts from Wildland Fire Management. The loss of vegetative cover by the use of prescribed fire and other vegetative treatments would expose soils to erosion.

c. Impacts from Land Tenure and Land Use Authorizations. Surface-disturbing activities associated with realty actions, particularly those following land disposals when lands would no longer be managed by the BLM, could cause alteration or removal of soil and protective vegetation, resulting in adverse impacts to soils.

d. Impacts from Livestock Grazing. Reduction in cover from removal or trampling by livestock would result in exposure of soils and increase erosion risk. Changes in composition from selective removal by animals may result in loss of herbaceous cover types that provide better erosion control and water infiltration than woody species. In addition, any loss of organic matter is associated with soil compaction and a decline in soil fertility, resulting in a general deterioration of soil quality (Bohn et al. 1993).

e. Impacts from Mineral Resource Management. Impacts from mineral resource exploration and development include direct removal of soil and underlying parent material, mixing of soil

layers, and loss of organic matter in stockpiled soils. Indirect impacts can be caused by erosion from water migration off of developed or otherwise disturbed sites.

f. Impacts from Recreation Management. Management actions leading to increased recreational use in concentrated areas could result in localized impacts similar to those described for Transportation and Access below.

g. Impacts from Transportation and Access. Vehicle use results in direct soil loss, particularly during wet conditions where roads are not maintained. Maintenance can reduce impacts by controlling runoff such that erosion is reduced. Expected impacts decrease in proportion to the acreage of land designated closed.

2. Beneficial Impacts

a. Impacts from Forestry and Woodland Management. Beneficial impacts would occur when forest thinning and fuelwood projects include lop and scatter treatments which leave behind slash to protect soils from erosion and aid the establishment of herbaceous and shrub vegetation.

b. Impacts from Cultural and Paleontological Resources. Decisions to protect these resources would also protect soils in which these resources occur.

c. Impacts Fish and Wildlife and Special Status Species Management. There would be an indirect protection of soils by protection of vegetation that provides wildlife habitat, as well as a direct protection of soils by restricting or controlling disturbance in important habitat areas.

d. Impacts from Vegetation Management. Protection of and management of species diversity in vegetative communities indirectly protects soils from wind and water erosion, and provides faster recovery for soils after disturbance.

e. Impacts from Management of Lands with Wilderness Characteristics. Management to protect lands with wilderness characteristics would result in direct protection of soils by restricting soil or surface disturbing activities.

f. Impacts from Land Tenure. Acquisition of lands would provide for greater protection of soils, as BLM management of acquired lands would generally limit surface disturbing activities or ensure disturbances are mitigated.

g. Impacts from Withdrawals. Actions that remove land from mineral development would protect soils from loss through surface disturbance or subsequent wind and water erosion.

h. Impacts from Special Designations. It is expected that all special designations would result in decreased adverse impacts to soil because of increased management oversight which protect vegetation and place restrictions on uses that damage soils.

B. Differences Between Alternatives

There are no differences expected among alternatives for impacts from cultural resources, paleontological resources, livestock grazing, wildland fire management, fish and wildlife management, or special status species.

a. Impacts from Land Tenure. The transfer of land out of public ownership could lead to loss of soil from potential development and use of the land and indirect impacts to soils offsite through increased erosion pathways. Disposal areas are lowest for the no action alternative (14

percent of total BLM-administered surface area) and related impacts to soils are expected to be least. Under Alternative A and B, disposal acreages nominally increase to 15 percent of total BLM-administered surface area. Under Alternative C, disposal acreage is similar to Alternative A.

The benefits provided by land acquisitions would be substantially greater under Alternatives A and B, than under the no action alternative and Alternative B.

b. Impacts from Land Use Authorizations. Land use authorizations and associated surface disturbing activities could result in potential erosion of soils. Not including restrictions on wind energy development, restrictions on authorizations are the least for the no action alternative and Alternative C (10.5 percent of total BLM-administered surface area), so it is expected to have the greatest impact on soils. Under Alternatives A and B, authorization restrictions (not including wind) would nominally increase to 23 percent.

d. Impacts from Mineral Resource Management.

The no action alternative and Alternative C provide the least protection for soils compared to the other alternatives due to the fewest acres being removed from mineral development. Under Alternative A, there would less impact to soils relative to the no action and Alternative C because of greater restrictions to mineral activity. Under Alternative A, about 65 percent of BLM-administered surface area would be closed to oil and gas leasing, 36 percent would be closed to locatables and 65 percent to salables. Alternative B would result in slightly less impact to soils from locatable and mineral material restrictions, but increases areas closed to oil and gas by more than 68,000 acres compared to Alternative A. Therefore, Alternative B has less potential impacts to soils than the other alternatives.

e. Impacts from Transportation and Access. Travel management would have a greater direct impact on soils throughout the area than other resource activities. The no action alternative would have the greatest direct and indirect impact resulting in soil loss as it contains the greatest amount of open and the least amount of closed acreage. Differences of impacts between limited to designated routes and limited to existing routes cannot be assessed as presented but would be assessed during implementation of the travel management plan. However, under Alternative A, reducing open areas by over 64,000 acres and increasing closed areas by more than 54,000 acres would reduce soil loss when compared to the no action alternative. Alternative B would provide the most soils protection of all alternatives as no areas would be designated open. Travel management under Alternative C would have less impact to soils than the no action alternative, but greater impact than Alternatives A or B.

f. Impacts from Special Designations. Prescriptions to protect relevant and important or other values applied to special designations under Alternatives A (473,085 acres) and B (476,335 acres) would protect substantially more soil resources than under the no action alternative (264,850 acres) and Alternative C (182,680 acres).

4.5.6 *Special Status Species*

The impact analysis focuses on those management actions that have the potential for physical disturbance to habitat, loss of habitat, and the loss or disturbance of special status species within the planning area (see Table 3-12). These types of effects are considered and discussed in section 4.5.3.

A Biological Assessment (BA) was submitted to the USFWS on June 7, 2010, in accordance with the provisions of the Endangered Species Act (ESA) of 1973 (ESA; 7 U.S.C. § 136, 16 U.S.C. § 460 et sep.). The USFWS issued a concurrence on the BA on June 21, 2010 (Cons. #22420-2008-I-0013) and its determination of "may affect, not likely to adversely affect" for the Southwestern willow flycatcher and designated critical habitat on BLM-administer lands within the planning area (see Appendix L for the BA and concurrence from USFWS).

Avoidance is the preferred method to prevent habitat loss and impacts to special status species. If a measure to prevent the loss of habitat is not available, then an action should be designed to minimize impacts to all affected areas. Beneficial impacts to special status species are expected to occur from vegetation treatment and removal of invasive species, range and wildlife habitat improvements, protective area designations such as wilderness and ACECs, and other protective allocations.

Programs that have no decisions affecting special status species are air and atmospheric values, cultural resources, paleontological resources, soils, and visual resource management.

A. Direct and Indirect Impacts

1. Adverse Impacts

a. Impacts from Vegetation Management, Wildland Fire, and Forestry and Woodland Products. Overall, vegetative treatments would be designed to benefit most special status species; however, there could be a loss of habitat for some species through the loss of vegetative cover of forage resources, while providing habitat for other special status species.

Vegetation treatments would avoid burrowing owl habitat during their nesting season, April through August, and by association would mitigate impacts to Gunnison's prairie dog (montane population), ferruginous hawk, mountain plover and loggerhead shrike. Vegetation treatments would also avoid Southwestern willow flycatcher habitat during their nesting season, April through September. Surveys for nesting birds and prairie dogs would be conducted in potential habitat prior to treatments within that time period and, in consultation with the appropriate management agencies, the BLM would seek to avoid adverse impacts to these species. Direct effects could include disturbance from personnel or vehicles in or adjacent to special status species habitat and, in the case of ferruginous hawk, possible nest abandonment. Indirect effects would include reduced fitness or mortality resulting from reduction or loss of food resources, and increased risk of predation and/or nest parasitism. Effects would vary from short- to long-term; however there would be no jeopardy to the continued existence of the mountain plover, or adverse impacts to the Southwestern willow flycatcher or its designated critical habitat.

Long-legged myotis and Yuma myotis can use exfoliating tree bark as day or night roost sites. Direct effects could include loss of habitat or mortality from the removal of piñon-juniper woodland habitat due to vegetation treatments.

There is only one known location for northern goshawk in the planning area, and consideration for the species would be included in potential vegetation treatments to avoid any direct or indirect affects to this species. Minimal to no direct or indirect impacts are expected from vegetation treatments to any other species listed in Table 3-12 due to lack of habitat for those species in proposed vegetation treatment areas.

b. Impacts from Land Tenure. Disposal of lands under certain alternatives could result in the net loss of habitat, which in turn would potentially cause direct and indirect impacts to

individuals and populations of special status species. Special status species within disposed lands could suffer direct mortality or injury as a result of activities within the disposal lands.

In El Palacio planning unit, 120 acres identified for potential disposal contain known habitat for the Santa Fe cholla. In order to ensure continued Federal protection of this species, plant surveys would be conducted within the area and consultation with the U.S. Fish and Wildlife Service would occur to identify and preclude disposal of land with populations of Santa Fe cholla. There are no other lands identified for disposal that contain habitat for special status species.

Riparian zones contain potential habitat for a variety of special status species. Disposal of riparian habitat would only occur where management would benefit from consolidated ownership, including the conservation of these species. Therefore, there would be no adverse impacts from disposal of riparian areas in the planning area.

c. Impacts from Land Use Authorizations. Impacts to habitat for special status species could occur during land use authorization activities (e.g., utility corridors, communications sites, rights-of-way), particularly in areas with resources that are known to be used by special status species. However, these authorizations require site-specific NEPA analysis for each action, which must undergo a biological assessment including consultation with appropriate wildlife management agencies to determine listed species are not likely to be harmed.

d. Impacts from Livestock Grazing. The impacts of livestock grazing on special status species would be mitigated and prevented by stipulations carried forward from the Rio Grande Corridor Plan, the San Antonio/Pot Mountain HMP, the Riparian and Aquatic HMP, and several ACECs under all alternatives as they outline operation, construction, and maintenance of range developments. While trampling of mountain plover nests or eggs may occur with livestock grazing, the impacts of this have not been formally studied, nor has there been a negative trend in the population of plovers where active grazing occurs on public lands within the planning area. Therefore, there would be no jeopardy to the continued existence of the mountain plover as the population is stable and increasing (Hawks Aloft 2007c) under the current grazing program. In addition, there would be no adverse impacts to the Southwestern willow flycatcher, or its designated critical habitat, due to management prescriptions for livestock grazing carried forward under the Rio Grande Corridor Plan and the Riparian and Aquatic HMP.

e. Impacts from Mineral Resource Management. Impacts to habitat for special status species may occur during mining and mineral extraction activities in the planning area from injury or mortality, loss of habitat, increased risk of contact with toxic substances, and disturbance. Areas of potential impact include those acres designated as high to moderate potential for development in the Taos Plateau and Chama planning units, as they contain potential habitat for the Gunnison's prairie dog (montane population), ferruginous hawk, northern goshawk, bald eagle, mountain plover, burrowing owl, loggerhead shrike, Pale Townsend's big-eared bat, small-footed myotis, fringed myotis, long-legged myotis, Yuma myotis, big free-tailed bat, long-eared myotis bat, grama grass cactus, and Ripley's milkvetch. Site-specific NEPA and ESA analysis would seek to avoid adverse impacts to special status species of wildlife and priority wildlife habitat through the use of stipulations and BMPs, including the use of both onsite and offsite mitigation.

f. Impacts from Recreation Management. Increasing recreational boating access and fishing opportunities increase the probability that recreational activities could impact special status species habitat for Southwestern willow flycatcher or bald eagle within the Lower Gorge and Orilla Verde Recreation Area. Ongoing recreational activities could lead to disturbance of

Southwestern willow flycatcher nesting sites by humans. The probability of nest abandonment from such activities is low, but not discountable.

The allocation of SRMAs to provide niches for public recreationists might attract an increase of visitors to some areas, which could potentially result in a disturbance to wildlife from human presence and motorized equipment. Boating use rarely disturbs wintering bald eagles in the planning area. Recreational float boating access would be maintained under all alternatives along the WSRs. Public use increases the risk of wildfires that remove riparian vegetation along the river corridor, which would have an adverse impact on wildlife habitat.

Certain habitat types within floodplains and upland communities take a long time to recover from certain surface disturbance activities affecting the long-term productivity of the areas, potentially adversely impacting the use of these areas by wildlife. Short-term uses of areas can result in the loss, fragmentation, and degradation of wildlife habitat.

There would be no jeopardy to the continued existence of the mountain plover from recreation activities in the area as the population is stable and increasing (Hawks Aloft 2007c) under current management. Likewise, there would be no adverse impacts to the Southwestern willow flycatcher or its designated critical habitat due to management prescriptions for recreation being carried forward under the Rio Grande Corridor Plan and Riparian and Aquatic HMP.

g. Impacts from Transportation and Access. Impacts to special status species habitat by habitat fragmentation and disturbance could occur during OHV activities or use of routes in the planning area. Travel management plans will address habitat concerns for all special status species that have the potential to occur, avoiding adverse impacts to Southwestern willow flycatcher, bald eagle, ferruginous hawk, mountain plover, burrowing owl, loggerhead shrike, and Gunnison's prairie dog (montane population). There would be no jeopardy to the continued existence of the mountain plover as the population is stable and increasing (Hawks Aloft 2007c) under the current transportation management. Likewise, there would be no adverse impacts to the Southwestern willow flycatcher, or its designated critical habitat, due to management prescriptions for transportation and access under the Rio Grande Corridor Plan and Riparian and Aquatic HMP.

h. Impacts from Special Designations. Designation of the Riparian/Aquatic ACEC under Alternative B would result in increased management attention to habitat for the Southwestern willow flycatcher. All known habitat for the Southwestern willow flycatcher is covered by a special area designation under the no action alternative. Management prescriptions under Alternatives A and C would provide for the protection, improvement, and enhancement of all special status species habitat. In Alternative B, unknown riparian areas that have the potential to contain Southwestern willow flycatcher habitat would be protected through a designated Riparian ACEC.

Designation of the Taos Plateau ACEC would result in increased management attention to habitat for the mountain plover. Management prescriptions under Alternatives A and C would provide for the protection, improvement, and enhancement of all special status species habitat.

There would be no jeopardy to the continued existence of the mountain plover as the population is stable and increasing (Hawks Aloft 2007c). Also, there would be no adverse impacts to the Southwestern willow flycatcher, or its designated critical habitat, due to management prescriptions under the Rio Grande Corridor Plan and Riparian and Aquatic HMP.

2. Beneficial Impacts

a. Impacts from Vegetation Management, Wildland Fire, and Forestry and Woodland Products. Vegetation treatment projects would generally not be proposed in special status species habitats except to enhance survival and recovery of these species. Any vegetative treatments planned within special status species habitat could result in improvements to the habitat, including that for the southwest willow flycatcher, which may benefit many other wildlife species. Vegetation treatments in areas not currently occupied by Southwestern willow flycatcher may provide or improve habitat where these species can relocate. Degradation of habitat potentially occurs from invasive nonnative species in the planning area. Vegetative treatments to reduce invasive species are primarily beneficial to wildlife habitat, because they restore native plant communities, thus improving the overall ecological health of the area. Prescribed fire would result in the temporary loss of habitat, but would have beneficial impacts in the long term.

b. Impacts from Lands Tenure. Acquisition of lands could have beneficial long-term impacts to special status species. Any additional lands acquired along with any acquisitions of split estate for minerals, would directly benefit wildlife, including special status species, by providing surface protection and forage, shelter, and breeding habitat where those lands fall within areas protected for wildlife and special status species.

c. Impacts from Livestock Grazing. Adherence to the New Mexico Standards for Rangeland Health and Guidelines for Livestock Grazing would result in beneficial direct impacts to special status species by reducing soil erosion and promoting the development of riparian and wetland plant communities. Adhering to these standards and guidelines would have positive long-term impacts to biological resources by maintaining the ecological rangeland condition for those areas currently in healthy condition and by improving those areas that are currently substandard, ultimately improving priority plant and wildlife habitat.

d. Impacts from Special Designations. Enhancement and protective designations such as ACECs would benefit special status species habitat by limiting human activities and disturbances in these areas. Enhancement and protective allocations such as SRMAs, WSRs, and WSAs, and areas closed to OHV use would also be beneficial to special status species habitat because of their resource protection.

B. Differences Between Alternatives

a. Impacts from Land Tenure. The no action alternative and Alternative C would dispose of 120 acres of habitat for Santa Fe cholla. Depending on the use of the land outside Federal ownership, the existing population of Santa Fe cholla could be at risk or lost. Alternative A would limit disposal of 120 potential acres in the El Palacio planning unit to only the area where the Santa Fe cholla habitat does not occur. Alternative B would retain those lands in public ownership for management and protection of the species.

b. Impacts from Recreation Management. Under Alternative B, the BLM would not expand or develop any new recreation sites, and the impacts to the special status species would be limited to the existing recreation sites. Under the no action alternative and Alternatives A and C, the BLM would use adaptive management on a case-by-case basis to determine if the expansion or development of new recreation sites would be necessary to meet public demand or address user and resource conflicts. Therefore, no adverse impacts are expected from recreation to special status species habitat under these alternatives.

c. Impacts from Travel Management. The open area identified in Alternative A would not impact special status species habitat because no habitat for special status species occurs in this area. The no action and Alternative C could have greater impacts to special status species due to the less restrictive route categories and greater opportunities to travel throughout the planning area; however, there would be no jeopardy to the continued existence of the mountain plover, and there would be no adverse impacts to the Southwestern willow flycatcher or its designated critical habitat.

d. Impacts from Special Designations. The creation of the Riparian/Aquatic ACEC under Alternatives B would increase management attention either directly or indirectly benefiting special status species of wildlife. While the remaining alternatives do not allow for this ACEC, protective management prescriptions for the enhancement of riparian zones (see section 2.4.1.7) would allow for beneficial effects to all special status species.

Alternatives A and B would designate the Taos Plateau ACEC, which would insure protection to species such as Gunnison's prairie dog (montane population), Baird's sparrow, mountain plover, Ripley's milkvetch, northern goshawk, bald eagle, ferruginous hawk, burrowing owl, loggerhead shrike and all the bat species. The La Cienega ACEC is proposed for expansion under Alternatives A and B, which would enhance protection for the loggerhead shrike, Southwestern willow flycatcher, and many of the bat species. Alternatives A and B propose ACECs adjacent to WSRs where many special status species occur. The impacts of these designations would be beneficial because ACECs include prescriptions specifically aimed at managing the area to protect its "critical" environmental resources. These designations protect the area's natural systems and features, including wildlife and habitat, from irreparable damage.

Therefore, Alternative B provides the most protection of special status species due to the designation of the Riparian ACEC, while Alternatives A and B provide more protection of special status species habitat than the no action or Alternative C.

4.5.7 *Vegetation*

4.5.7.1 Vegetative Communities—Riparian

Both beneficial and adverse impacts could occur from vegetation treatment activities, land use authorizations (including utility corridors, rights-of-way, leases, and development), surface-disturbing activities, mineral development, recreation, and OHV use. These activities generally lead to disturbance, degradation, and loss of vegetative resources in the planning area as well as the introduction of exotic and invasive species. Impacts to vegetation resources, including special status and priority plant species, as a result of vegetation treatments and surface-disturbing activities would be assessed on a case-by-case basis and would be implemented using BMPs (see Appendix C). The analysis of potential impacts to vegetation resources is based on review of existing literature and the expertise of BLM resource specialists. Potential effects cannot be quantified at this stage since quantification would depend on site-specific future proposals. Impacts to riparian vegetation from noxious weed and invasive species can be found in section 4.5.7.2.

Programs that have no decisions affecting riparian resources are air and atmospheric values, cultural resources, paleontological resources, and soils.

A. Direct and Indirect Impacts—Vegetative Communities—Riparian

Potential impacts to vegetation resources are categorized below into adverse or beneficial impacts.

1. Adverse Impacts

a. Impacts from Vegetation Resource Management, Wildland Fire, and Forestry and Woodland Products. While vegetation treatments may create short-term disturbance to selected riparian areas, the long-term benefit to the ecosystems would result in a no net loss of riparian vegetation.

Treatment of nonnative invasive vegetation may include short-term impacts including both adverse and beneficial impacts on native vegetation resources (e.g., herbicide overspray or inadvertent mechanical removal of nontarget native species). Some impacts are immediately beneficial because of a reduction in competition for native species from the removal of invasive species. Treatment of nonnative invasive vegetation would also impact species composition, resulting in a beneficial alteration of the immediate plant community. Firewood collection, if not monitored, would result in direct and indirect adverse impacts to vegetation resources (USDI 2007b). Firewood collection, including that associated with recreational activities, removes nutrients and microclimates which provide for plant growth and seed germination.

b. Impacts from Land Use Authorizations. Temporary losses of vegetation resources would occur during surface-disturbing activities associated with construction and maintenance of authorized facilities adjacent to riparian areas. These activities include, but are not limited to, grading, trench excavation, clearing, and/or removal of existing vegetation. Permanent loss of vegetation may occur when access roads needed to maintain authorized facilities are constructed. If lands available for disposal contain riparian areas, disposal may cause long-term or permanent impacts to riparian vegetation through alteration or development of those lands.

c. Impacts from Land Tenure. Potential development of disposed lands may indirectly impact vegetation or wildlife habitat on adjacent public lands due to increased human pressure on the undeveloped lands. Indirect impacts would include noise or air pollution, or visual disturbance from human activities that degrade habitat quality in riparian zones adjacent to lands identified for disposal.

In addition to the reduction in riparian resources, disposal of parcels with riparian vegetation would no longer be managed under the policies and guidance designed to benefit riparian ecosystem health in the public domain and could result in degradation or alteration of the vegetation depending on ultimate disposition of the land. However, land tenure actions where disposals are involved would generally avoid riparian areas unless management of those areas would benefit from a change of ownership.

d. Impacts from Livestock Grazing. Riparian areas provide attractive forage for livestock and are often the primary, if not only, watering places for livestock on rangelands. However, the management of livestock grazing in accordance with the New Mexico Public Land Health Standards and Guidelines for Livestock Grazing is assured to cause negligible impacts to riparian vegetation.

e. Impacts from Mineral Resource Management. Because the areas of highest potential for fluid mineral development occur outside riparian areas, there are minimal impacts expected from this type of development. In the Chama planning unit where there is a moderate potential for

fluid minerals, special area designations and restrictions on occupancy would serve to protect those riparian zones. All other areas in the planning area have either low or no potential for fluid mineral development and, therefore, there would be nominal impact to riparian zones for the remainder of the planning unit.

Locatable and mineral material development would be sited outside riparian areas to minimize impacts to these areas; therefore, there would nominal direct or indirect impacts depending on the degree of use.

f. Impacts from Recreation. The BLM has developed campgrounds and other recreational facilities in several locations throughout the planning area containing riparian habitat. Continued upgrades to these facilities, and the increase in demand for recreation opportunities, would continue to alter riparian vegetation due to unofficial trails and degradation from physical disturbance or trampling of tree species. There could also be an increase in the use of OHVs which could degrade riparian resources, especially through the creation or expansion of unauthorized trails.

g. Impacts from Renewable Energy. Rights-of-way to accommodate energy transmission, access roads, and other linear infrastructure could transect riparian areas, potentially resulting in a loss of riparian vegetation. Effects may be mitigated through BMPs and other measures including aggressive reclamation and the burrowing of lines under riparian features.

h. Impacts from Transportation and Access. Within designated open areas, motorized travel would not be limited to existing or inventoried routes. Therefore, increased degradation of riparian vegetation from transportation activities would result within proposed open areas that intersect with riparian zones. Minimal adverse impacts from loss and removal of riparian vegetation would occur in limited and closed areas, as travel is closed within the area or limited to existing inventoried routes.

2. Beneficial Impacts

a. Impacts from Vegetation Resource Management. Restoration projects, such as prescribed burning and post-fire seeding and revegetation, potentially benefit riparian vegetation resources. Invasive species management treatments produce long-term beneficial impacts to native vegetation by reducing competition with native species for limited resources. Long-term effects would improve growth of native plant species. Vegetation treatments are expected to increase the density and quality of native riparian plant communities. The use of native plant species when restoring or rehabilitating disturbed or degraded areas would result in reestablishment of native plant communities.

b. Impacts from Visual Resource Management. VRM class I and II areas allow minimal impacts to vegetation resources because of the limits placed on visual contrast in these areas. These limitations generally reduce surface disturbing activities within the area which allow plant communities to remain intact.

c. Impacts from Land Tenure. Land tenure actions could benefit riparian vegetation management where BLM riparian lands are consolidated into larger contiguous blocks. Once acquired, lands brought under protective BLM management prescriptions for riparian areas could reverse any ongoing degradation or alteration of those acquired riparian lands.

Land disposals would not occur within the Rio Grande and Rio Chama WSR corridors. All lands within WSRs in Federal ownership would be retained unless patented under the mining laws or

identified for disposal. By retaining these lands, riparian vegetation would remain protected by the management for the WSR designations.

d. Impacts from Livestock Grazing. Adherence to New Mexico Public Land Health Standards and Guidelines for Livestock Grazing would result in beneficial direct impacts to riparian vegetation by reducing soil erosion and promoting the development of riparian and wetland plant communities. Adhering to these standards and guidelines would have positive long-term impacts to biological resources by maintaining the ecological rangeland condition for those areas currently in healthy condition and by improving those areas that are currently not meeting existing standards, ultimately improving priority plant species and wildlife habitat. Management that achieves proper utilization of key forage species ensures adequate cover to maintain appropriate watershed conditions and reduces soil loss through wind and water erosion. Long-term environmental consequences from implementation of rangeland health standards and guidelines and restoration efforts would be maintenance or a gradual improvement of upland soil, watershed conditions, and ultimately riparian habitat adjacent to it.

The Riparian and Aquatic Habitat Management Plan, which applies certain limits on livestock grazing in riparian and aquatic environments, represents continuing management that would be carried forward under all alternatives, pursuant to Table 4-2, resulting in reduced impacts to vegetation.

Table 4-2. Livestock grazing actions related to riparian areas

Riparian Area	Current Management Practices and Activities	Acres/Miles
Lobo Canyon	Fenced in 1998, unavailable to livestock grazing	1.4/0.8
Ojo Caliente Demonstration Area	Fenced in 1987, riparian area demonstration project, unavailable to livestock grazing	325/1.25
Rio Cebolla	Fenced on east side of riparian area, unavailable to livestock grazing	8.3/2.3
Rio de los Pinos	Unavailable to livestock grazing	77.3/5.8
Rio Nutrias	Unavailable to livestock grazing	12.5/2.5
Rio San Antonio	Water gaps installed in 1995, unavailable to livestock grazing	120.1/13.2
Rio de Truchas	Dormant season grazing only	1,033/7.5
Santa Cruz Lake	Unavailable to livestock grazing	135/2.5
Above Santa Cruz Lake	Unavailable to livestock grazing	9/1
Santa Fe River	Fencing to exclude trespass domestic livestock grazing completed in 2000; domestic livestock grazing would be unavailable in the riparian area; collect data until recovery occurs; thereafter, dormant season grazing may occur with limitations on levels of use	32.7/6
Total		1,754.3/42.85

e. Impacts from Transportation and Access. Within designated closed areas where no motorized travel is allowable, riparian vegetative productivity would be maintained or enhanced.

Transportation management actions would likely have direct and indirect effects on all riparian vegetation. More restrictive regulations (i.e., closed and limited to designated status) would directly and indirectly benefit vegetation resources by minimizing the amount of disturbance associated with vehicle travel within the riparian zone and/or on the uplands, while more lenient regulations may result in an increase of these disturbances. These effects may be the greatest in

the Ojo Caliente planning unit, as this unit shows the greatest change in transportation planning between alternatives where riparian vegetation is present.

f. Impacts from Special Designations. Land use allocations and designations such as WSAs, Wilderness, WSRs, and ACECs would result in beneficial impacts to riparian vegetation resources by providing increased protection to these resources. These designations serve to prevent loss or removal of the riparian vegetation and could enhance and improve riparian habitat when activity- and project-level plans are complete and implemented. It is recognized within specially designated areas where riparian zones are significant and specific measures are identified to conserve and enhance those features for the benefit of wildlife, watershed health, and public enjoyment. Prescriptions used to meet these objectives include fencing to exclude herbivory by domestic stock or excessive use by wildlife, seasonal restrictions on recreational use, closure of roads, and/or supplemental vegetative plantings, among others. In all cases of special designations, there is some avenue for riparian restoration actions. Special designations could also indirectly benefit riparian vegetation resources through limiting surface-disturbing activities.

B. Differences between Alternatives—Riparian

a. Impacts from Land Tenure. The no action alternative and Alternative A and B put an emphasis on acquisitions and land exchanges that would consolidate BLM-administered lands and riparian resources managed for ecosystem health and wildlife habitat. Contiguous Federal ownership of riparian zones enhances the ability of the BLM to manage these resources effectively.

Alternative C would provide the least protection to riparian vegetation resources. Land tenure actions where disposals are involved with riparian habitat would remove these resources from the public domain. It is unknown at this time the extent of which parcels nominated for disposal contain riparian vegetation.

b. Impacts from Livestock Grazing. Since the Riparian and Aquatic Habitat Management Plan would be carried forward under all alternatives, there would be no differences in impacts amongst alternatives.

c. Impacts from Mineral Resource Management. Under the no action alternative, riparian areas would be protected from mineral development under specific river management plans. Outside those areas, the no action alternative would have a larger impact to riparian zones than Alternatives A, B, or C. Under Alternatives A, B, and C, development of mineral resources would not result in the loss of riparian vegetation resources due to a setback and other restrictions. However, limited linear access or transmission infrastructure could transect riparian features, potentially causing a loss in riparian vegetation. Effects could be mitigated through BMPs, reclamation, burrowing of lines under riparian features, and other measures. Any proposed mineral development would require site-specific NEPA analysis, which would evaluate the potential impacts and provide for mitigation and monitoring.

d. Impacts from Renewable Energy. Under the no action alternative, renewable energy proposals would be considered on a case-by-case basis. Some riparian areas would be open to development, resulting in loss of riparian vegetation. In contrast to the no action alternative, Alternatives A and B would not allow wind or solar development in any riparian area and there would be no loss or removal of riparian resources under those alternatives, with exception to

limited linear access and transmissions features on a case-by-case basis. Alternative C would be the same as the no action alternative, with consideration of development on a case-by-case basis.

e. Impacts from Transportation and Access. Alternatives A and B would apply more restrictive management of travel, which would limit potential for damage of riparian vegetation, by the associated off-road vehicle use, including use in fuelwood gathering areas or by the public during recreational pursuits. These alternatives would allow a greater amount of protection from motorized vehicles when compared to the no action alternative and Alternative C. Alternative B would further limit vehicle access in the El Palacio Planning Urea, increasing the BLM's ability to protect riparian resources and provide an indirect benefit to overall riparian vegetation health. This alternative provides the greatest protection for riparian vegetation in the vicinity of the Rio Truchas.

f. Impacts from Special Designations. Under Alternatives A and B, ACECs containing riparian habitat include Chama Canyons, Copper Hill, La Cienega, Lower Gorge, Ojo Caliente, Chama Canyons, Riparian/Aquatic, Sabinoso, San Antonio Gorge, Santa Fe Ranch, and Taos Plateau. The Rio Grande and Rio Chama WSRs also afford protection of riparian habitat. Alternative C would provide the least protection to riparian vegetation resources. Under this alternative, fewer special designations would result in greater potential for damage to vegetation resources through increased access and vehicle use than under the other alternatives.

The no action alternative retains an SMA that includes all riparian areas, both known and unknown, as well as the riparian areas under the river management plans for the Rio Grande and Rio Chama, with special management prescriptions that would prevent loss or removal of those riparian features.

4.5.7.2 Vegetative Communities—Terrestrial

The majority of impacts to terrestrial vegetation from the different alternatives are to forest and woodland vegetation resources. Impacts to invasive and noxious weed management can be found in 4.2.7.3.

Programs that have no decisions affecting terrestrial vegetative communities are air and atmospheric values, cultural resources, paleontological resources, soils, visual resource management, water resources, land use authorizations, and renewable energy.

A. Direct and Indirect Impacts—Terrestrial

1. Adverse Impacts

a. Impacts from Wildland Fire. Although planned and unplanned wildland fire ignitions would be managed in such a way so as to provide benefits to multiple resources, it is foreseeable that there would be a loss of terrestrial vegetation in any wildland fire situation. The natural disturbance of wildland fire could have an adverse direct impact to terrestrial vegetation if fuel loading is too high in a particular area due to departure from natural fire regimes.

b. Impacts from Forestry and Woodland Management. Direct impacts of forest and woodland management could be foreseen as an adverse impact when vegetation is cut or destroyed in order to employ forestry practices. This would commonly open areas of dense terrestrial vegetation up to higher levels of public use which could result in fuelwood theft or other resource damage.

c. Impacts from Land Tenure. In general, land tenure actions where disposals are involved would reduce the vegetation resources on that parcel available for use by the public. In addition to the reduction in available resources, these parcels would no longer be managed under the policies and guidance designed to benefit ecosystem health in the public domain. The most obvious effect to terrestrial vegetation would be the potential indirect loss of forest and woodland resources through construction and development activities. Depending on the size of the parcel disposed of, and the woodland resources on that parcel, there could be a decrease in the availability of fuelwood for public use.

d. Impacts from Livestock Grazing. Overall, the management of livestock grazing in accordance with the New Mexico Public Land Health Standards and Guidelines for Livestock Grazing is assured to cause negligible impacts to terrestrial vegetation.

e. Impacts from Mineral Resource Management. Surface-disturbing activities associated with mineral resource development would cause the short-term or long-term loss of vegetation, depending on the specific activity. In many cases, interim reclamation would offset much of the loss, but not until final reclamation on disturbances has occurred—whether in the short- or long term—would the loss of vegetative resources be recovered.

f. Impacts from Transportation and Access. Existing vegetation would generally be reduced on designated route surfaces. In areas open to OHV use, vegetation could also be lost to the extent route proliferation occurs.

g. Impacts from Special Designations. Special designations generally have specific values or resources identified for protection or additional management attention. Some proposed vegetation treatments in these areas may have to be modified somewhat to, for example, maintain existing visual quality or to assure protection of sensitive habitat, which could add to the cost or time needed to implement a specific project.

2. Beneficial Impacts

a. Impacts from Forestry and Woodland Management. Beneficial impacts would occur when forest thinning and fuelwood projects result in overall forest health improvements to terrestrial vegetation resources.

b. Impacts from Wildland Fire. Benefits would be realized when wildland fire is managed as either a planned or unplanned ignition is used as a natural disturbance in areas where terrestrial vegetation has been altered from its natural fire regime.

c. Impacts from Land Tenure. Land tenure actions could also benefit terrestrial vegetation management where existing and future BLM lands are consolidated into larger contiguous blocks. Small and isolated parcels containing woodland resources prove difficult to manage under a permit system for fuelwood gathering due to challenges with the law enforcement monitoring of many small, isolated parcels versus larger, more contiguous blocks of BLM lands along with the transportation management associated with fuelwood gathering activities.

d. Impacts from Livestock Grazing. Livestock grazing managed properly allows terrestrial communities to flourish by aiding in nutrient cycles and mimicking natural disturbances. Livestock grazing that adheres to New Mexico Public Land Health Standards and Guidelines for Livestock Grazing would result in positive long-term impacts to biological resources by maintaining the ecological rangeland condition for those areas currently in healthy condition and by improving those areas that are currently not meeting existing standards. Management that

achieves proper utilization of key forage species ensures adequate cover to maintain appropriate watershed conditions.

e. Impacts from Special Designations. Special designations could provide for the enhancement of vegetative communities, particularly where wildlife habitat is managed as a special value. In all cases of special designations, there is some avenue for vegetative restoration actions. Special designations could also indirectly benefit terrestrial vegetation resources through limiting surface disturbance (i.e., oil and gas development limitations, cultural resource protections, and wildlife area stipulations) and the associated impacts to vegetation.

f. Impacts from Transportation and Access. More restrictive travel management designations such as closed and limited areas would benefit vegetation resources by reducing the amount of disturbance associated with vehicle travel.

B. Differences between Alternatives—Terrestrial

Alternative A puts an emphasis on acquisitions and land exchanges that would consolidate BLM lands. Forest and woodland resources are managed for ecosystem health, fuels mitigation in fire management, fuelwood for local communities, and wildlife habitat improvement. Contiguous BLM ownership of forests and woodlands enhances the ability of the BLM to manage these resources effectively. Increased enforcement of travel management plans, as proposed in this alternative, would increase the BLM's ability to manage fuelwood harvest by the public, and correspondingly, mitigate damage to vegetation resources by the associated off-road vehicle use in fuelwood gathering. This alternative would allow an increase in the amount of protection from motorized vehicles when compared to the no action alternative.

Alternative B would further limit vehicle access in the El Palacio planning unit, increasing the BLM's ability to protect woodland resources and provide an indirect benefit to overall terrestrial vegetation health. This alternative provides the greatest protection for terrestrial vegetation.

Alternative C would provide the least protection to terrestrial vegetation resources. Land tenure actions where disposals are involved, and that contain forests and woodlands, would remove these resources from the public domain. It is unknown at this time whether parcels nominated for disposal contain forests or woodlands. Under this alternative, fewer special designations would result in an increased potential for damage to vegetation resources through wood poaching and vehicle use.

4.5.7.3 Vegetative Communities—Noxious Weeds/Invasive Species

Analytical Assumptions.

1. Control of invasive species would be done in an integrated pest management (IPM) method.
2. Actions would be conducted according to standard operating procedures (SOPs) identified in the CFR, BLM manuals and applicable EISs.
3. Invasive species are and would continue to be a concern within the planning area.
4. Locating and identifying invasive species would be a cooperative effort with the public, including other government agencies and organizations.
5. Inventories and actions would be subject to the availability of funds for such activities.
6. Actions would be taken in cooperation with other landowners, government agencies, and organizations.

Noxious weeds and invasive species cause a loss of forage production, decline and loss of native species, loss of real property values, decline in the function of watersheds, and the increase cost for reclamation of disturbed sites.

Programs that have no decisions affecting noxious weeds and invasive species are air and atmospheric values, cultural resources, paleontological resources, soils, and visual resource management.

A. Direct and Indirect Impacts

1. Adverse Impacts

a. Impacts from Wildlife and Fisheries. The impacts to invasive species management by wildlife and fisheries are their ability to act as vectors (carriers) for the translocation of invasive species. Special designations for wildlife and introductions of species such as bighorn sheep may preclude the use of domesticated sheep and goats as biological control agents in areas. However, since other nonbiological means may be applied to control invasive species, this impact could be inconsequential.

b. Impacts from Vegetation Management. Invasives may be the target of vegetation management and therefore cause a decline in the vegetation and the species that utilize the invasives. Native vegetation requirements may impose intensive management of areas and removal of invasive species. Depending on the prescribed type of vegetation management there may be a potential in disturbed areas for the introduction of invasive species

c. Impacts from Visual Resource Management. VRM requirements may require control or management of invasives and the need for additional funds to address the invasive species.

d. Impacts from Land Tenure. The BLM would have additional management responsibilities if parcels of land containing invasive species were acquired.

e. Impacts from Land Use Authorizations. Land use authorizations could create conditions vulnerable to the spread of invasive species. The disturbance of vegetation and soils during the construction of facilities and roads provide opportunities for the establishment of invasive species. An indirect effect of new road rights-of-way authorizations is the opportunity for illegal trash dumping, thus providing for the introduction of invasive species.

f. Impacts from Livestock Grazing. Livestock and the equipment used to handle livestock may act as vectors for invasives.

g. Impacts from Minerals Resources and Renewable Energy. Mineral resource operations provide opportunities for establishment of invasives through disturbance of the surface and the use of vehicles and equipment which may translocate invasives.

h. Impacts from Recreation. Recreational activities can act as vectors for invasive species. Invasives can be translocated by pets, vehicles, clothing, boats, and camping gear, causing their spread where disturbances are associated with recreational use (e.g., trails, campsites, and staging areas).

i. Impacts from Transportation and Access. Transportation corridors are one of the main vectors for the establishment of invasive species. Surface disturbance along routes and roads are vulnerable to the translocation of noxious weeds and invasive species by vehicles.

j. Impacts from Special Designations. Special designations may preclude the use of certain control methods and measures used to address invasive species. Examples are the use of herbicides within wilderness or WSAs or the use of fire in cultural areas.

2. Beneficial

a. Impacts from Land Use Authorizations. The BLM, operators, or third parties would be responsible for maintaining areas granted under rights-of-way or other authorizations to control invasive species, including monitoring rights-of-ways for invasive species.

b. Impacts from Livestock Grazing. Livestock may be used as a tool to control or manage invasive species. Livestock operators and employees trained in invasive identification can assist in the location of invasive species.

c. Impacts from Mineral Resource Management. Mineral resource developers responsible for maintaining roads, sites, or other infrastructure associated with their lease, claim, or other authorization would be responsible for monitoring and controlling invasive species throughout these developed areas.

d. Impacts from Transportation and Access. The greater restrictions on OHV use through area closures and route designations would help control or limit the spread of invasives.

B. Differences Between Alternatives

Invasive species management under the no action alternative would continue to address species as they are identified. Under Alternatives A and C, emphasis would be placed on the development of coordinated weed management areas (CWMAs) within the field office. The development of CWMAs would allow invasive species to be addressed on a watershed or landscape scale including all landowners. Considerations would be given to the location and method of control necessary for the invasive. This alternative would consider the control method to a greater extent than Alternative B. Under Alternative B a more aggressive approach to control would be utilized and less concern would be given to the methods of control. Herbicides would receive greater consideration due to their effectiveness. Control of invasives would be the highest priority.

Alternatives A and B propose acquisition of four times as much land (140,269 acres) than the no action alternative and Alternative C (34,351 acres). While it is unknown at this time if any of the proposed lands contain populations of invasive species, potential impacts and costs of control or resources needed to address invasive species would likely be highest under Alternatives A and B.

4.5.8 *Visual Resources*

Assessment of impacts would use visual contrast ratings comparing the level of change from projects to the characteristic landscape and then determining whether they fall within VRM class management objectives. The basic design elements of form, line, color, and texture are used to make the comparison. The VRM program includes many standard mitigation measures for projects to reduce their impacts. These include use of color, the placement of structures or roads, and revegetation of disturbances.

The following programs would not adversely or beneficially affect visual resources: air and atmospheric values, cultural, resources, fish and wildlife, paleontological resources, soils, special

status species, vegetation, water, wildland fire ecology, forest and woodland products, land tenure, livestock grazing, withdrawals, and socioeconomics.

A. Direct and Indirect Impacts

1. Adverse Impacts

a. Impacts from Land Use Authorizations. Impacts may include vegetation loss, fragmentation from roads, intrusions from water tanks, power poles, tower lattices, and lines, and the development of other structures impacting visual resources by creating a contrast in the basic visual elements of form, line, color, and texture.

b. Impacts from Mineral Resource Management. Impacts from mineral exploration and development activities include removal of vegetation and soil resulting in changes to landscape forms and production of fugitive dust from associated traffic. Development of fluid minerals would result in the development of roads, well heads, or pump jacks, pipeline related valves, meter houses, and other structures which could cause visual contrast.

c. Impacts from Renewable Energy. Renewable energy impacts include multiple new roads and fragmentation of the landscape, structures such as solar panel and wind turbine installations spread across open space that may skyline against the horizon. Turbines would have moving parts and solar panels may reflect light over distances, negatively impacting visual resources.

d. Impacts from Recreation. New recreation developments would be constructed to meet VRM class objectives. However, new surface disturbances and the loss of vegetation could impact disrupt visual elements. There could also be an increase in litter in concentrated use areas, further impacting visual resources.

e. Impacts from Transportation and Access. Increases in the number of routes and open areas would increase the level of dust and vegetation loss. Dust could be visible during regular short term intervals, reducing visibility of landscape features and the quality of light and the atmosphere. Lines of vegetation loss would be visible long term due to creation of new routes resulting in changes to color and texture of the characteristic landscape.

2. Beneficial Impacts

a. Impacts from Visual Resource Management. Allocating the visual resources with higher management objectives than the relative value they were rated for in the inventory can protect scenic quality according to the value placed on it by the public. While VRM objectives generally do not allow or preclude activities, areas to be managed according to VRM classes that have more restrictive objectives have greater potential to maintain views that appear undeveloped at the broad landscape level.

b. Impacts from Land Use Authorizations. Consolidation of utilities in rights-of-way corridors would concentrate visible structures in a limited number of areas rather than spreading them across the landscape.

c. Impacts from Recreation. Increased value and awareness of resources through increased management could reduce vandalism, litter, and vegetation loss from recreational users.

d. Impacts from Transportation and Access. Any decrease in motorized routes and/or an increase in closures would reduce the level of dust and vegetation loss. A greater value of resources through increased management could also limit inappropriate OHV use.

e. Impacts from Special Designations. More restrictive VRM classes prescribed for special designations would allow less change to the form, line, color, and texture of the characteristic landscapes.

B. Differences between Alternatives

a. Impacts from Visual Resource Management. Alternative A would apply VRM class I (111,006 acres) and class II (393,708 acres) to over twice as much acreage of public land than would be applied class I or II under the no action alternative, which reflects the Visual Resource Inventory classifications. Alternative A would, therefore, reduce the amount of lands managed per the less restrictive class III (53,182 acres) and IV (37,546 acres) objectives. This is largely due to managing certain ACECs for their scenic values, particularly in the Ojo Caliente, La Cienega, and the Taos Plateau areas (there would be 200,806 acres managed for class II in the Taos Plateau planning unit alone).

Under Alternative A, approximately 56 percent of the areas proposed to be managed as VRM class I inventoried at a higher class (i.e., class II, III, or IV), particularly class II and III, and would be provided greater protection from visual intrusion or contrast. Approximately 67 percent of the proposed VRM class II areas inventoried as a higher class (i.e., class III and IV) and would also be provided greater protection. While the majority of VRM class III areas were inventoried at this class level, 38 percent inventoried as class IV, and about 8 percent inventoried at class II, such that this latter acreage could be subject to greater visual contrast from actions which would reduce the visual quality. Of the acreage proposed to be managed as VRM class IV, approximately 84 percent inventoried as class III and 1 percent as class II, such that a substantial amount of the VRM class IV acreage could be reduced in visual quality by implementation-level actions.

Management of visual resources at higher classes than inventoried provides greater protection to areas more visible along travel routes and where the open topography is less able to absorb larger scale or multiple developments. These areas are highly valued by users, including travelers along the multiple travel routes, and are currently undeveloped and expansive open space. In addition, areas such as Diablo Canyon, Cieneguilla Petroglyphs, Ute Mountain, and San Antonio Mountain would be managed as class I instead of the class II values they portrayed using the Visual Resource Inventory, Scenic Quality Rating criteria.

The VRM proposals under Alternative B are substantially the same as under Alternative A, with slightly more acreage (about 6,000 acres, mostly in the Ojo Caliente area) to be managed as VRM class I, thereby essentially eliminating potential impacts to visual resources within this additional acreage. On the other hand, nearly 6,000 more acres would be managed as class IV than is proposed under Alternative A, which would allow more visual contrast within this acreage.

Alternative C is similar to the no action alternative, with exception to having about 12 percent more acreage managed as class II instead of class III. This acreage would be provided more protection from visual contrast than the objectives indicated by the inventory class. In comparison to Alternatives A and B, Alternative C would have much more acreage designated as class III and IV, the difference primarily in the La Cienega and Buckman areas of Santa Fe County.

b. Impacts from Land Use Authorizations. Under Alternatives A and B, designated rights-of-way corridors would consolidate utilities, limiting overall visual impacts throughout the planning area. The no action alternative and Alternative C would not provide this type of protection.

c. Impacts from Mineral Resource Management. Generally, areas outside of special designations open to oil and gas leasing such as the East Side and Chama planning units have low scenic quality, and areas with higher scenic quality have low potential for oil and gas. The proposed management classes here are largely similar to the current scenic values portrayed in the Visual Resource Inventory and the no action alternative. The area between Cebolla and the Chama WSA is an example of a landscape's ability to absorb high levels of development primarily due to low visibility from users and travel routes as well as its surrounding topography. Scenic quality is not likely to be impacted by oil and gas leasing in Alternative A. Where oil and gas potential is moderate in the Chama planning unit, there are proposed closures and controlled surface use restrictions. Development or disposal of mineral material under Alternative A in corridors along NM Highways 64 and 285 may be visible by travelers. Alternative B provides the most protection within this corridor, effectively closing the whole area.

d. Impacts from Recreation. The increased recreation and travel management presence and information services provided in Alternatives A, B, and C would help provide for the maintenance of scenic quality. Moreover, the increase in management may serve to help protect the environment through a greater value and appreciation of resources. Minor to moderate adverse changes would occur at localized new developments such as trailheads, staging areas, and interpretive signs. However, these developments would meet the VRM objectives for each area in the respective alternatives.

e. Impacts from Renewable Energy. Under the no action alternative and Alternative C, most of the Taos Plateau, except specially designated areas, would be open to the development of wind and solar energy. Depending on the scale of development, this could dramatically change the landscape character over large expanses and be visible for miles because this area is undeveloped, fairly flat, and visible from multiple travel routes. However, Alternatives A and B would exclude wind energy development from the planning unit while solar energy development would be excluded from most of the unit. Small areas south of NM Highway 64 would be managed as class III where solar development would be considered on a case by case basis. This area was inventoried which portray class III and class IV values and would be managed as such under the no action alternative.

There could be moderate to strong changes to scenic quality and the recreation setting on public lands in the Cerrillos Hills, Burnt Corn, and Chimayo areas, and along the west side of NM 285 in the Taos Plateau due to potential development of solar and wind energy under Alternative A. Likewise, development of solar energy could have similar impacts around Cienega, La Bajada Mesa, Buckman, and Palacio.

f. Impacts from Transportation and Access. Alternatives A and B eliminate areas for cross-country travel. This would result in decreased impacts (e.g., vehicular traffic, OHV use, fugitive dust emissions, and loss of vegetation) to visual resources compared to the no action alternative and Alternative C. Alternatives A and B also have a greater amount of closed acreage resulting in less visual impact compared to the other two alternatives.

g. Impacts from Special Designations. Whether or not visual resources is identified as a relevant and important value, prescriptions to protect such values applied to special designations under Alternatives A (473,085 acres) and B (476,335 acres) would protect substantially more

visual resources than under the no action alternative (264,850 acres) and Alternative C (182,680 acres).

4.5.9 *Water*

As outlined in section 3.2.10, primary drivers of water quality include land use, sewage effluent, and floodplain/watershed condition. Within this plan, land use and floodplain/watershed condition on BLM lands can be managed to protect water resources. Sewage effluent is not generally under BLM control, except where the BLM manages recreation areas with septic systems.

Generally, impacts identified in section 4.3 relate to land use and watershed condition that result in indirect impacts to surface water quality as soils are eroded into streams (nonpoint sources). In addition to impacts listed under soils, mineral development may impact surface and groundwater quality through leaching, evaporation, and overland flow. Drivers of water quantity (availability) include climate (temperature and precipitation) and community demands. Prior appropriation of water rights on adjacent state or private lands may directly impact availability of water on BLM managed lands. Indirect and cumulative impacts from various state and private land use activities may also result in decreased water availability.

Programs in this plan that have no decisions affecting water resources are air and atmospheric values and visual resource management.

A. Direct and Indirect Impacts

1. Adverse Impacts

a. Impacts from Vegetation Management. Management that incorporates vegetative treatments would result in direct loss of vegetative cover that could indirectly impact water quality through increased turbidity and sedimentation in perennial streams. Use of vehicles and equipment to implement treatments would disturb soils and vegetation and could also result in water quality impairment. Use of pesticides for treatments could result in direct water quality impairment if pesticides migrate into ground or surface waters.

b. Impacts from Land Tenure. Disposals may lead to alteration or removal of soil and protective vegetation during land development resulting in sediment loading in surface waters. It is assumed that these actions always result in adverse impacts to soils.

c. Impacts from and Land Use Authorizations. Rights-of-way and leases may cause alteration or removal of soil and protective vegetation during land development resulting in sediment loading in surface waters.

d. Impacts from Livestock Grazing. Impacts include alteration of vegetative cover and composition that expose soil to erosion and increase sediment load into adjacent surface waters.

e. Impacts from Mineral development. Removal of vegetation, soil, and underlying parent material increase the likely offsite migration of sediment laden water. Percolation of water over a site can result in contamination of groundwater by chemicals used for extraction or equipment. Water quantity may be reduced by mining activities that use water for extraction

f. Impacts from Transportation and Access. Vehicles use and road construction result in direct loss of vegetation and soil and expose soil to erosion, increasing the potential for water runoff into adjacent surface waters and the impairment of water quality. Maintenance can reduce

indirect impacts by reducing runoff. For this analysis, expected impacts would decrease in proportion to the acreage of land designated closed to vehicles.

2. Beneficial Impacts

a. Impacts from Cultural and Paleontological Management. The protection of these resources keep soils in which these resources occur free from disturbance and thereby protect water quality in adjacent surface waters.

b. Impacts from Fish and Wildlife and Special Status Species Management. Protection of vegetation and soil resources through restricted or controlled disturbance in important habitat areas results in reduced runoff to adjacent streams.

c. Impacts from Vegetation Management. Management for species diversity in vegetative communities indirectly protects soils from wind and water erosion and provides faster recovery for soils after disturbance resulting in better water quality in adjacent stream reaches. Protection of riparian vegetative communities provides protection against upslope erosion, preventing erosion of floodplain soils which store water and attenuate flood flows.

d. Impacts from Management of Lands with Wilderness Characteristics. Protection of soils by restricting surface disturbing activities within areas managed for wilderness characteristics would reduce or eliminate human caused impact to water quality.

e. Impacts from Livestock Grazing. Water quantity could be increased by surface catchments or wells where the BLM acquires permits.

f. Impacts from Withdrawals. Actions that remove land from mineral development would protect surface water quality by reducing soil loss through direct removal or wind and water erosion.

g. Impacts from Special Designations. It is expected that all special designations would result in decreased adverse impacts to water quality because of increased management oversight and restrictions on uses that damage soils or vegetation. Special designations may also allow the BLM to seek water rights that would protect water quantity in BLM-managed streams and lakes.

B. Differences Between Alternatives—Water

Under the no action and Alternative C, there would be no direct impact to water quality. Indirect impacts would be greatest for these alternatives as identified in section 4.5.5, Soils. Acquisition of water rights would increase water quantity under these alternatives.

Under Alternative A there would be no direct water quality impacts. Indirect and cumulative impacts to water quality would be lower for this alternative than the no action alternative and C for the same reasons as outlined section 4.5.5, Soils. Alternative B would have similar impacts as Alternative A, except that indirect impacts to water quality would be slightly reduced, as outlined section 4.5.5, Soils.

4.5.10 *Lands with Wilderness Characteristics*

The seven areas identified as having wilderness characteristics are proposed for protective management in at least one alternative. The main drivers of change in these areas would be surface-disturbing actions from programs such as mineral exploration and development, utility

development, recreational infrastructure, range improvements, and vehicular activity. Another driver of change would be an overall increase in human use or visitation.

Programs that would not affect wilderness characteristics are air and atmospheric values and soils.

A. Direct and Indirect Impacts

1. Adverse Impacts

Impacts to the opportunity for solitude are linked with decisions to limit, maintain, or increase uses within areas identified as having wilderness character.

a. Impacts from Fish and Wildlife. Projects to enhance habitat, such as development of waters/drinkers or fencing, would be a direct impact to an area's naturalness, but could be mitigated through project design and application of BMPs.

b. Impacts from Paleontology. Impacts would be related to permitted excavation of a paleontological specimen, often using heavy equipment and requiring vehicle access to the site. Large-scale excavation of an important find could temporarily change an area's natural character and reduce opportunity for solitude/primitive recreation. Longer-term impact could result from use of motorized equipment to access the site, and the need to rehabilitate vehicle tracks. These impacts could also be mitigated by controls on access and rehabilitation requirements. However, the chance of this type of activity occurring is very low and would not be permitted if an area were formally designated for management of wilderness character.

c. Impacts from Vegetation Management. Management actions designed to suppress noxious and invasive weeds by mechanical means would involve surface disturbance by vehicle and in some cases, heavy equipment. Mitigation could include measures to suppress these species by use of hand tools or other low-impact means to ensure impacts would only be temporary. Such actions are more likely to occur in areas not recommended for management of their wilderness character.

d. Impacts from Visual Resources. In some alternatives, the BLM is proposing a VRM class III or IV designation for some areas with wilderness character, potentially allowing for a project that would contrast with the characteristic landscape.

e. Impacts from Wildland Fire Management. Unconstrained suppression efforts such as road or fire line construction and retardant drops which could stain rocks, soils, or vegetation could impact the natural character of the areas.

f. Impacts from Forestry and Woodland Products. Short-term impacts would occur if an area were permitted for firewood gathering. Such activity would usually be accompanied by use of a vehicle for the gathering, along with the noise of power tools to cut wood. Slash piles or lines created by cutting to the boundary of an approved area could alter the appearance of an area in the long term. However, measures to mitigate ground-disturbing and visual impacts could be stipulated in authorizations for wood gathering to prevent the impairment of wilderness characteristics.

g. Impacts from Land Tenure. Impacts would indirectly result from the sale or exchange of public lands having wilderness character without covenants protecting the wilderness values.

Non-Federal lands in an area with wilderness character could be developed or altered in a manner that would change wilderness character on the adjacent BLM lands.

h. Impacts from Land Use Authorizations. Utility corridors, communication sites, and similar authorizations could change the wilderness character of an area by adding structures and access roads to the landscape.

i. Impacts from Livestock Grazing. Impacts would affect wilderness character if structures such as windmills, water tanks, fences or corrals were built in the identified area. This use has occurred in all the proposed areas for decades, if not centuries without eliminating wilderness character. Range improvement projects are approved on a case-by-case basis and could be mitigated by location or design to meet VRM class guidelines. In some areas, the BLM could also require use of horses to access sites for maintenance or construction. These effects and potential mitigations could be applied to all alternatives.

j. Impacts from Mineral Resource Management. Mineral exploration could result in small-scale disturbance and vehicle use. Mineral development could lead to road building, excavation, placement of structures for long periods of time, and creation of noise and dust from operations. Surface disturbance could cover from an acre or two to several hundred. These effects could not be mitigated in any significant way.

The lands adjacent to Rio Chama WSA have been leased in part for mineral development, but no development has occurred. The BLM's options are limited to mitigate any proposed use of these leases, which are considered moderate potential for future development. No leases have been issued for any of the other sites, nor would they be issued in alternatives where an area is formally designated for management of its wilderness character.

Any mining claims in areas managed for wilderness characteristics could be developed, possibly reducing or eliminating an area's naturalness and opportunity for solitude/primitive recreation. In all alternatives, the BLM would withdraw or close areas recommended for management of wilderness character. However, even without this safeguard, none of the areas being considered are likely to see development on a mining claim, since locatable mineral potential is rated as low (see section 3.3.5.2).

Salable mineral use would be closed in areas management of wilderness character. Under alternatives that do not manage for the protection of areas with wilderness characteristics, it remains unlikely that requests would be made for salable mineral development in these areas since most are remote. The land adjacent to the San Antonio WSA, with a boundary along US 285, is the only area that could potentially be permitted for material sales, and most likely this would be within a few hundred feet of the highway and could be mitigated by contouring and reseeding after any use.

k. Impacts from Recreation. Impacts would range from minimal (such as from hiking, bicycling, or horseback riding) to large scale if camping areas or other developed facilities were constructed.

l. Impacts from Renewable Energy. Visual contrast and the disruption of naturalness would occur from road construction and placement of wind towers or solar panels except in areas where management of wilderness character would exclude such development. Under alternatives where these areas would be open, decisions would be made on a case-by-case basis. Impacts to an area's natural character or opportunity for solitude could be significant, and fragmentation

from new roads could reduce the size of the areas to small, non-contiguous parcels. However, none of the areas being reviewed are in areas of high potential for wind energy development, and most would be very difficult to place solar panels because of topography, with the exception of the lands adjacent to San Antonio WSA, which are relatively flat.

m. Impacts from Transportation and Access. In areas designated open or limited, wilderness character would be altered by the use or maintenance of vehicle routes and noise from the vehicles. Wilderness character is in part defined by the absence of roads and mechanized tools or equipment. Most of the areas under consideration have at least a few routes that were developed by the passage of vehicles, with minimal or no maintenance. In alternatives where the area designation restricts vehicles to designated routes, some of these might be available for use. In alternatives where the areas would be managed for wilderness character, areas would be closed to vehicles, have minimal designated routes, or be limited to permitted users only (e.g., livestock grazing permittees). Some of the existing routes in an area could be modified to become primitive trails or be reclaimed.

2. Beneficial Impacts

a. Impacts from Cultural Resource Management. Actions to protect cultural sites through avoidance would have an indirect impact on the experience of someone seeking a primitive recreation experience in one of these areas.

b. Impacts from Fish and Wildlife Management. Actions to protect habitat would also help protect the landscape, and would indirectly provide more opportunity for wildlife viewing in a primitive setting.

c. Impacts from Paleontology Management. Actions to preserve these specimens in situ would potentially enhance the experience of a visitor to one of these areas.

d. Impacts from Special Status Species Management. Actions would be taken to comply with Federal and State laws to protect these habitat areas, indirectly benefiting the protection of an area's wilderness character. Management of these species would result in a positive impact on wilderness character, in part by preserving "charismatic" species, but also by implementing strict guidelines needed to preserve the relevant habitat conditions. These guidelines would apply to all alternatives.

e. Impacts from Vegetative Management. Efforts to protect communities or improve diversity could maintain or improve the natural character of an area. Positive effects would result over the long term due to a more naturally appearing mix of vegetation types.

f. Impacts from Visual Resource Management. Areas recommended for management of wilderness character would have an appropriate VRM class designation (I or II), which would require that any management action be substantially unnoticeable, or at least blend in with the natural landscape. Areas not specifically recommended for management of their wilderness character could see some decrease in natural character if recommended for a VRM class III or IV designation, since in this case the degree of visual change could be much greater.

g. Impacts from Wildland Fire Management. Prescribed burns or managing unplanned ignitions to meet resource objectives could help maintain or re-create a more naturally appearing mosaic of vegetation in the long term.

h. Impacts from Land Tenure. Actions would benefit these areas through the acquisition of private or State lands, particularly those that are proposed for some development. Acquisitions of land by purchase or exchange would be beneficial to this resource, since it would reduce the chance that these lands could be developed or leased in a manner that would diminish or eliminate wilderness character on the adjacent public lands. None of the lands identified as having wilderness character are located in "disposal" areas under any alternative.

i. Impacts from Recreation. Recreation could provide information and interpretation of this resource, as well as low-key facilities such as trailheads or primitive trails that would facilitate an area's use.

j. Impacts from Withdrawals. Actions to administratively withdraw land from mineral entry or other land uses could help retain an area's natural character by limiting the type of use(s) that could be permitted.

k. Impacts from Special Designations. Areas with wilderness character that are at least partly within an ACEC, WSR corridor, or overlaid by a national trail may receive additional protective management, more frequent monitoring, and safeguards from some surface-disturbing actions that are provided for the special designation. In these instances, the wilderness characteristics would be enhanced by management decisions which are intended to protect the relevant and important resource(s) that led to the special designation. All of the areas proposed for management of wilderness characteristics are included in a special designation in one or more alternative, with the exception of Mesa de la Cejita.

B. Differences between Alternatives

Table 4-3. Alternative comparison, areas managed for wilderness characteristics

Area	Acres Managed by Alternative			
	N/A	A	B	C
Adjacent to Rio Chama WSA	0	2,499	2,499	0
Adjacent to San Antonio WSA	0	9,210	9,210	0
Cerro Colorado	0	31,221	31,352	0
Cerro de la Olla	0	0	13,820	0
Mesa de la Cejita	0	0	12,430	0
Rincon del Cuervo	0	10,912	10, 912	0
Ute Mountain	13,190 acres protected in all alternatives			
Totals	13,190	67,032	93,413	13,190

Areas not managed for wilderness characteristics are most vulnerable to the potential impacts described above, since measures to protect their wilderness characteristics would not be directly applied. The no action alternative, for example, does not contain measures specifically designed to protect wilderness character. However, one of the areas—Ute Mountain—meets the criteria for having wilderness characteristics and would be protected from many potential adverse impacts due to measures in place to protect other resources. Concerning the other areas, the most likely changes would result from wood collecting, material sales, and in the case of the lands adjacent to Rio Chama WSA, some limited development on existing oil and gas leases. These actions could impair the naturalness of the areas and hinder opportunities for solitude. Mitigation measures could be developed for any of these uses that would substantially reduce

surface impacts, such as contouring disturbed areas, or allowing uses in areas that would not be as visible from key observation points.

Alternative A proposes to manage 67,032 acres for the protection of wilderness characteristics, including the lands adjacent to the Rio Chama and San Antonio WSAs, the Rincon del Cuervo and Cerro Colorado areas, and Ute Mountain. These areas would be closed to most surface disturbing actions. The remaining three areas, while not being formally protected, would likely retain much of the wilderness qualities identified in the inventory. The biggest change could occur from wood cutting and the ancillary use of vehicles for access to these sites, particularly in the Cerro de la Olla areas, leading to the potential impairment of naturalness and loss of opportunities for solitude. However, the inaccessible nature of the terrain makes it likely that all three would look much as they do now during the life of the RMP. Although in this alternative the lands adjacent to the Rio Chama WSA would be withdrawn from mineral leasing, there are pre-existing oil and gas leases on these lands that could see some limited development.

Alternative B would provide sufficient restrictions on use such that the wilderness character would be conserved in all nine areas (93,413 acres) over the life of the plan. Cerro Colorado would see vehicle use restricted to designated roads and exclusion of rights-of-ways, which should help retain its natural character and not constrain opportunities for solitude or primitive recreation. The other six areas would be excluded from surface-disturbing activities including mining, rights-of-way, renewable energy development, and off-highway vehicle use. Although in this alternative the lands adjacent to the Rio Chama WSA would be withdrawn from mineral leasing, there are pre-existing oil and gas leases on these lands that could see some limited development.

Alternative C would provide protection for Ute Mountain. In general, the remaining six areas would receive the least amount of protection in this alternative, being open to at least some mineral development, rights-of-way grants, and renewable energy development, potentially leading to the impairment of naturalness and loss of opportunities for solitude. They would also be accessible by vehicle, although limited to designated roads. Even though formally receiving little protection, their ruggedness, remoteness, and limited mineral development potential should continue to make them undesirable areas for development. As mentioned under the no action alternative, mitigation measures could be placed on permitted uses to minimize or reduce surface disturbance.

a. Visual Resources Management. Alternative C would allow the most visual change to the areas not proposed for wilderness character management. Alternatives A and B are very similar in their requirements, with class I and II designations. The no action alternative is similar to Alternative C. Change to the characteristic landscape could diminish the naturalness of the area.

b. Wildland Fire. In those alternatives where limited fire suppression strategies would be required, adverse effects to areas with wilderness character would be negligible. All of the proposed areas with wilderness character are habitats where wildland fire is a part of the natural system. Maintaining fire in these ecosystems would maintain a natural process, and could also restore some areas' natural appearance by eliminating signs of woodcutting or other human activities associated with vegetation use.

c. Forestry and Woodland Products. The three areas where permitted wood cutting or vegetation removal is most likely to occur are Mesa de la Cejita, Cerro de la Olla, and the lands adjacent to the Rio Chama WSA. Alternative B would continue to provide for this opportunity within all areas identified as having wilderness characteristics to the extent wood cutting would

not impair these characteristics. In areas permitted for wood gathering, short-term adverse impacts could occur from the vehicular access and related noise and dust. Permitted areas could be limited in size, and steps taken to assure that vehicles stay on any existing routes in the area. Some beneficial effects could result as well, by elimination of wood that could subject the area to a more catastrophic fire if one should occur. Fewer areas are recommended for management of wilderness character in the other alternatives. Even if some were permitted for wood gathering, their remoteness and difficulty of access would limit the use.

d. Land Use Authorizations. Land use authorizations are generally dealt with on a case-by-case basis. However, Ute Mountain would be excluded from land use authorizations under all alternatives. Three additional areas would be excluded in Alternatives A and B—adjacent to Rio Chama WSA, Cerro Colorado, and Rincon del Cuervo—and three would remain open to this use in all alternatives—Cerro de la Olla, adjacent to San Antonio WSA, and Mesa de la Cejita. If such development were allowed, it could rule out an entire area's ability to be managed for wilderness character by dividing up an area into blocks too small to manage these qualities or by allowing intrusions significant enough to eliminate a major portion of an area from meeting the criterion for naturalness. Mitigation could be done on small-scale projects, such as a cell tower near an area's boundary, but any utility lines inside one of these areas would likely lead to long-term loss of wilderness character.

4.5.11 *Wildland Fire*

In general, the majority of fire management issues deal with the management of terrestrial vegetation. Current terrestrial vegetation management practices under wildlife, range, and forest are conducive to the management goals for fire management.

Programs that have no decisions affecting wildland fire ecology are cultural resources, fish and wildlife, paleontological resources, soils, visual resource management, water resources, land use authorizations, livestock grazing, mineral resource management, recreation, renewable energy, and withdrawals.

A. Direct and Indirect Impacts

1. Adverse Impacts

a. Impacts from Air and Atmospheric Values. Air and Atmospheric values can adversely affect the management of both planned and unplanned fire ignitions by limiting the scope of productivity or availability of methods used for managing fire due to regulatory constraints that concentrate on limiting the amount of smoke (particulate matter) that would be released into the atmosphere from fire.

b. Impacts from Land Tenure. Land tenure actions where disposals are involved and result in increased development of infrastructure adjacent to public land could increase the exposure of private holdings to wildland fire, expanding urban interface management needs.

c. Impacts from Special Designations. Special designations may have effects on fire management activities. The fire management plan designates specific strategies that can and cannot be used in each fire management unit. Similarly, special designations may influence the strategies that can be used in these areas. Special designations designed to manage wildlife areas may impose seasonal restrictions on management activities or parameters in how much of a certain plant species may be affected. Designations to protect cultural resources may limit ground-disturbing activities. VRM concerns may need to be addressed when designing fire

program treatments in or adjacent to VRM class I areas. In addition, fire management actions within wilderness or WSAs are required to comply with the wilderness Interim Management Policy (USDI-BLM 1995b).

2. Beneficial Impacts

a. Impacts from Land Tenure. Disposals that eliminate small and isolated parcels (e.g., 40-acre tracts) would allow fire management to focus more efficiently on larger and more contiguous blocks of BLM land. Small and isolated parcels of BLM land complicate responsibilities for initial attack and fuels management.

b. Impacts from Transportation and Access. Transportation planning can effect wildland fire management. An increase in closures and/or areas limited to designated routes could potentially reduce the chance of human-caused wildfire ignition by reducing the frequency of human activity in these areas. However, lightning causes the large majority of wildfire ignitions on public lands within the planning area, making the effect from transportation management on ignition reduction relatively small.

B. Differences Between Alternatives

Alternative A puts an emphasis on acquisitions and land exchanges that would consolidate lands with important resources and resource uses. This would benefit the BLM's effort in fire management, for both suppression operations and fuels management. Increased enforcement of travel management plans and an increase in the number of roads closed under this alternative would reduce the chances of human-caused wildfire ignitions on public land.

Under Alternative B, additional closures of unauthorized routes for motorized vehicles would occur, further reducing the chances of human-caused wildfire ignitions.

Alternative C would allow for increased levels of public access and less regulation in off-road vehicle use. This could increase the potential for human-related wildland fire ignitions.

4.6 Resource Uses

4.6.1 *Forestry and Woodland Products*

Programs that have no decisions affecting forestry and woodland products are air and atmospheric values, cultural resources, fish and wildlife, paleontological resources, soils, vegetation management, visual resource management, water resources, land use authorizations, livestock grazing, mineral resource management, recreation, renewable energy, and withdrawals.

A. Direct and Indirect Impacts

1. Adverse Impacts—Forestry and Woodland Products

a. Impacts from Management of Lands with Wilderness Characteristics. The protective management of lands with wilderness characteristics could reduce areas available for fuelwood gathering, where this activity is determined to impair the wilderness characteristics, particularly the naturalness of the area. However, with exception to Cerro de la Olla, these areas generally do not coincide with traditional fuelwood gathering areas.

b. Impacts from Land Tenure. In general, land tenure actions involving parcels where forest products (e.g., firewood) are available would reduce harvesting opportunities. Depending on the

size of the parcel and its available woodland resources, disposal of lands could substantially decrease the availability of fuelwood as a common resource for public use. In addition to the reduction in available resources, these parcels would no longer be managed under the policies and guidance designed to benefit ecosystem health in the public domain.

c. Impacts from Special Designations. Certain forest restoration techniques (e.g., mechanical treatments and herbicides) may not be permitted in special designation areas, and fuelwood gathering by the public may be limited.

2. Beneficial Impacts—Forestry and Woodland Products

a. Impacts from Land Tenure. Land tenure actions could benefit forest management where BLM-managed lands are consolidated into larger contiguous blocks. Small and isolated parcels containing woodland resources prove difficult to manage under a permit system for fuelwood gathering.

b. Impacts from Special Designations. Special designations would assist in preserving many forests and woodlands throughout the planning area, especially those containing old-growth stands. In all cases of special designations, there exists some avenue for forest restoration actions. Special designations could also indirectly benefit terrestrial vegetation resources through limiting surface disturbance (e.g., oil and gas development limitations, cultural resource protection, and wildlife area stipulations) and the associated impacts to forest resources.

c. Impacts from Transportation and Access. Transportation management actions would likely have indirect effects on forests. More restrictive regulations (i.e., closed and limited to designated routes) would indirectly benefit woodlands by minimizing the amount of disturbance associated with vehicle travel, while more lenient regulations may result in an increase of these disturbances. These effects may be the greatest in the El Palacio and Ojo Caliente planning units, as these units show the greatest change in transportation planning between alternatives.

B. Differences between Alternatives—Forestry and Woodland Products

Under Alternative A, forest and woodland resources would be managed for ecosystem health, fuels mitigation in fire management, and fuelwood for local communities, targeting 2,000 acres per year. Where land tenure adjustments are made, contiguous administration of forests and woodlands enhances the ability of the BLM to manage these resources effectively. Increased enforcement of travel management plans would increase the BLM's ability to manage fuelwood harvest by the public, and correspondingly, mitigate damage to vegetation resources by the associated off-road vehicle use in fuelwood gathering. This alternative would allow an increase in the amount of protection from motorized vehicles when compared to the no action alternative. The management for wilderness characteristics under Alternative A could reduce areas used for fuelwood gathering in comparison to the no action alternative and Alternative C, unless it is determined that this activity would not impair the areas naturalness. However, with exception to Cerro de la Olla, these areas generally do not coincide with traditional fuelwood gathering areas.

Alternative B provides the greatest protection for these resources. Ponderosa stands would be provided enhancement and protection, while piñon-juniper woodlands would be available for harvesting in more limited areas (i.e., those areas outside of certain special designations, wildlife habitats, and recreation areas). This alternative would further limit vehicle access in the El Palacio planning area, increasing the BLM's ability to protect woodland resources and provide an indirect benefit to overall forest health. Under this alternative, however, opportunities for

fuelwood gathering would be further reduced, including the potential elimination of Cerro de la Olla as a resource for this use.

Alternative C would provide the greatest opportunity for harvesting forest and woodland resources (i.e., 2,000 to 5,000 acres annually). However, this emphasis on commodities would also require active management according to principles of ecology and BMPs to ensure the resources are sustainable. Land tenure actions where disposal of lands containing forests and woodlands are involved would remove these resources from the public domain. Under this alternative, fewer special designations would result in an increased potential for damage to vegetation resources through wood poaching and vehicle use.

4.6.2 *Land Tenure*

The lands and realty program is a support program rather than an environmental component. Impacts from land tenure decisions are discussed under applicable sections for resources, resource uses, special designations, and social and economic conditions.

The following impact analysis focuses on management actions that could change the acres of lands in Federal ownership (see Tables 4-4 and 4-5). Impacts on land tenure would not be anticipated as a result of implementing management actions for air and atmospheric values, fish and wildlife, paleontological resources, soils, vegetation management, visual resources, water, wilderness characteristics, wildland fire, forestry and woodland products, livestock grazing, mineral resource management, recreation, renewable energy, transportation and access, and withdrawals.

A. Direct and Indirect Impacts

1. Adverse Impacts

a. Impacts from Cultural Resource Management. Impacts from cultural resource management could affect or alter the areas available for land tenure adjustments. Prior to approval of a land exchange or sale, surveys would be conducted that would identify any additional cultural resources. However, parcels containing high-value cultural resources would likely be retained in Federal ownership and may not be available for disposal.

b. Impacts from Special Status Species Management. The presence of threatened, endangered, or other special status species or their habitats might restrict areas from land tenure adjustments. Prior to approval of a land exchange or sale, surveys would be conducted that would identify any additional special status species resources. However, parcels containing high-value resources would likely be retained in Federal ownership and may not be available for disposal.

c. Impacts from Special Designations. Impacts from the management of special designations could affect or alter the areas available for land tenure adjustments. Disposal of lands would not occur if resources of national, State, or regional significance are found on them, including special status species habitat, cultural resources, and/or riparian and wetland habitat, unless disposal accommodated comparable or greater protection to such resources than afforded under BLM management.

2. Beneficial Impacts

a. Impacts from Land Tenure. The acquisition of land and interests in land, including access easements, conservation easements, mineral rights, and water rights, allows the BLM to:

1. Acquire legal ownership of land to enhance the management of existing public land and resources;
2. Provide public access;
3. Preserve open space;
4. Improve management of natural resources through consolidation of Federal, State, and private lands; and
5. Secure key property necessary to protect endangered species and promote biological diversity.

The disposal of public lands allows the BLM to:

1. Dispose of areas that are isolated, unmanageable public land parcels near and within well-blocked areas of private and State Trust lands;
2. Dispose of areas that include scattered parcels of public land that have proven difficult to manage; and
3. Meet increased public demand for residential and business development in communities surrounded by public lands; this type of development may be limited if lands are not made available for disposal.

B. Differences between Alternatives

a. Impacts from Cultural Resource Management. Six ACECs, totaling 141,375 acres, would be designated to protect cultural resources in Alternatives A and B, while only two ACECs and seven SMAs totaling 21,684 acres were identified in the no action alternative and Alternative C. More acreage, a difference of 119,691 acres, would not be available for disposal in Alternatives A and B.

b. Impacts from Special Status Species Management. Alternatives A and C would not allow disposal of special status habitat, while the no action alternative and Alternative B would provide for disposals on a case-by-case basis. If a disposal were proposed under the no action alternative and Alternative B, additional NEPA analysis would evaluate the potential effects relevant to the specific parcel and circumstances.

c. Impacts from Special Designations. Eleven ACECs are proposed for designation under Alternatives A and B, totaling 407,855 and 410,105 acres respectively, while only eight ACECs, totaling 66,590 acres, are proposed under the no action alternative and six ACECs, totaling 115,770 acres, are proposed under Alternative C. These designations under Alternatives A and B would affect the lands and realty program by altering the number of acres that could be disposed of. There would be more opportunities in Alternatives A and B for acquisition of lands within or adjacent to special designation areas.

Table 4-4. Lands identified for disposal

Alternative	Acreage*
No Action	60,000
A	69,729
B	64,078
C	67,451

*Acreages are approximate

Table 4-5. Lands identified for acquisition

Alternative	Acreage
No Action	34,351
A	140,269
B	Same as Alternative A
C	Same as No Action

4.6.3 *Land Use Authorizations, Utility Corridors, Communication Sites*

Impacts to opportunities for land use authorizations, utility corridors, and communication sites would primarily occur from the implementation of management actions designed to protect natural, scenic, or cultural resources and limit impacts on those resources from surface-disturbing activities. Therefore, the type and degree of limitations and restrictions placed on rights-of-way proposals depend on the location of sensitive or high-value resources and the potential for environmental impacts on those resources.

Land use restrictions that result in the relocation or redesign of proposed rights-of-way would increase management efforts and costs related to proposals submitted by rights-of-way applicants. This impact would be further increased if relocation resulted in longer linear routes or placement of rights-of-ways in areas that are difficult to develop. If avoidance of sensitive resources is not possible, other mitigation measures would be required, such as application of height and color specifications that serve to redesign rights-of-way to meet the goals and objectives for other resources.

Impacts on land use authorizations would not be anticipated as a result of implementing management actions for air and atmospheric values, fish and wildlife, paleontological resources, soils, vegetation, water, wildland fire, forestry and woodland products, livestock grazing, mineral resource management, recreation, renewable energy, transportation and access, and withdrawals.

A. Direct and Indirect Impacts

1. Adverse Impacts

a. Impacts from Visual Resource Management. Managing to meet VRM class I and II objectives could alter or prevent the location, route, height, and color of proposed major utility corridors, transportation systems, rights-of-way, and associated facilities. Additional effort would be required to design projects to meet the objectives of the specific VRM class designation of an area in which a right-of-way is proposed. Because rights-of-way would generally be compatible with VRM class IV objectives, this classification would allow for increased opportunities for rights-of-way authorizations. This is also true for VRM class III objectives; however, some additional project planning may be necessary within VRM class III areas to ensure that the landscape character is partially retained. Any rights-of-way proposed in VRM class I or II areas would be subject to intensive mitigation at levels dictated by the class and, in some cases, could be precluded.

b. Impacts from Fish and Wildlife and Special Status Species Management. The presence of riparian/wetlands, special status species, or their habitats might restrict areas proposed for land use authorizations. Proposed lands and realty action locations could be precluded or could require mitigation if found to affect the habitats of listed species. Mitigation to protect special

status species and critical habitat could modify proposed land use authorization actions. Areas would be avoided if the proposed action would result in the loss of a habitat necessary to sustain the species.

c. Impacts from Cultural and Paleontological Resources Management. Implementing protective measures for cultural and paleontology resources could require avoidance and other mitigation measures for rights-of-way proposed near these resources. These measures could result in the relocation or redesign of proposed rights-of-way. Because known cultural and paleontological resources occur throughout the planning area, and because it is likely that additional cultural and paleontological resources would be discovered in the future, impacts could be substantial and occur in varying degrees.

d. Impacts from Management of Lands with Wilderness Characteristics. Protective management of lands with wilderness characteristics could exclude land use authorizations to ensure protection of the area's wilderness characteristics. At minimum, these areas would be avoided of this use.

e. Impacts from Land Use Authorization, Utility Corridor, and Communication Site Management. Impacts to opportunities for land use authorizations, utility corridors, and communication sites would be affected by the implementation of exclusion and avoidance areas. Exclusion areas, which coincide with special designations to protect sensitive resource values, would altogether preclude opportunities for new grant authorizations. Where existing grants are present in areas excluded, maintenance activities associated with authorized use would be limited to the current grant boundaries. In avoidance areas, the BLM would consider authorizations on a case-by-case basis, and permitted actions would require special measures to be undertaken by the grant holder to ensure potential impacts to resources are mitigated.

f. Impacts from Special Designations. Potential impacts from all special designations, whether existing or proposed, would usually be minimal and would vary by the management prescriptions associated with each special designation. Intensive management of these areas would potentially affect the lands and realty program by altering new right-of-way locations and prescriptions. However, rights-of-way would be excluded from Sabinoso Wilderness, Rio Chama and Rio Grande WSRs, and certain ACECs and recreation areas. The two WSAs would also be excluded in accordance with the 1995 Interim Management Policy for Lands Under Wilderness Review. These exclusions, however, would not curtail anticipated uses of the areas for rights-of-way.

2. Beneficial Impacts

a. Impacts from Land Use Authorizations. Land use authorizations support the public need for utilities, transportation, and telecommunications through various means such as right-of-ways, leases, or permits. Benefits are critical to communities throughout the region and include:

1. Providing infrastructure for the needs of the public (e.g., power, water, and sewer lines);
2. Designated right-of-way corridors and communication sites allow for the installation of additional facilities to provide services to communities as they grow. The utilities within these corridors are imperative for the safety and security of dependent communities within the region, as well as for improving reliability, relieving congestion, and enhancing the capability of the grid to deliver energy to those communities;
3. The creation of utility corridors reduces the need for additional NEPA analysis.

4. Grouping compatible land use authorizations within or adjacent to existing rights-of-way, leases, and permits would typically reduce effects to resources.

B. Differences between Alternatives

a. Impacts from Visual Resource Management. In VRM class I (59,877 acres under the no action alternative, 111,006 acres under Alternative A, 115,284 acres under Alternative B, and 56,402 acres under Alternative C) and VRM class II (151,821 acres under the no action alternative, 393,708 acres under Alternative A, 401,505 acres under Alternative B, and 203,006 acres under Alternative C) areas, right-of-way actions would be limited and would require mitigation to ensure that the project or surface disturbance did not attract the attention of the casual observer. This would increase the level of restrictions designed to protect visual resources and subsequently would limit opportunities for rights-of-way authorizations.

Most rights-of-ways and facilities would be compatible with VRM class III (281,097 acres under the no action alternative, 53,182 acres under Alternative A, 38,533 acres under Alternative B, and 224,562 acres under Alternative C) and IV (102,646 acres under the no action alternative, 37,546 acres under Alternative A, 40,119 acres under Alternative B, and 111,473 acres under Alternative C) areas. This management would not be expected to effectively prohibit particular land uses since mitigation for any future proposed projects would be applied on a site-specific basis to promote compliance with the visual resource management objectives.

b. Impacts from Fish and Wildlife and Special Status Species Management. More lands would be managed for fish populations and habitat in Alternatives A and B (230 miles of perennial streams) versus the no action alternative and Alternative C (5 miles). Site-specific mitigation on rights-of-way could include seasonal restrictions, avoidance, or co-locating with existing authorizations.

c. Impacts from Cultural and Paleontological Resources Management. Cultural resource management could preclude lands and realty actions involving significant resources. ACECs where cultural resources are identified as relevant and important values would exclude land use authorizations. The extent of these exclusions, however, varies by alternative (see Appendix A).

d. Impacts from Management of Lands with Wilderness Characteristics. Areas managed for wilderness characteristics—67,032 acres under Alternative A and 93,413 under Alternative B—would exclude land use authorizations to protect wilderness characteristics. However, much of these lands would be within ACECs which, regardless of any protective management of lands with wilderness characteristics, would exclude such use to ensure protection of the area's other values. The no action alternative and Alternative C would not apply protective management of wilderness characteristics such that opportunities for land use authorizations would be impacted.

e. Impacts from Land Use Authorization, Utility Corridor, and Communication Site Management. Exclusion and avoidance areas under Alternatives A and B could cause the greatest effect on the lands and realty program by limiting or precluding right-of-way actions. Table 4-6 illustrates the differences between alternatives regarding exclusion areas.

With regards to rights-of-way actions for utilities, however, corridors would be designated which provide for authorizations through or adjacent to special designations where these restrictions are applied (e.g., Ojo Caliente ACEC). Also, since in many cases special designations overlay areas where topographic features discourage placement of utilities or have simply rendered options infeasible or impractical, the actual impact that exclusions associated with these special

designations would have on future authorizations for utilities may largely be negligible. In short, excluded areas would not curtail any foreseeable need for new utility alignments.

Table 4-6. Right-of-way exclusion areas

Alternative	Acreage
No Action	47,830
A	126,645
B	127,920
C	44,705

f. Impacts from Special Designations. ACECs and other special designations under Alternatives A and B could cause the greatest effect on the lands and realty program by altering or limiting right-of-way locations. These differences are reflected under Table 4-6, above.

4.6.4 *Livestock Grazing*

Historically, livestock grazing was one of the major uses of public lands. Over time the shift away from an agrarian to a more urban society has placed pressures on livestock grazing on public lands. The environmental consequences analyzed below reflect this continuing trend.

Analytical Assumptions. Livestock grazing would be managed to meet New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (Standards and Guidelines) (USDI-BLM 2000).

Range improvements would continue to be used to achieve rangeland management and watershed goals.

Reclamation efforts would be designed in compliance with the standards and guidelines to provide sufficient livestock forage that maintains or exceeds current allocations.

Acreages and AUMs are estimates only, while actual numbers are to be determined and calculated at the activity level when specific actions are taken. The purpose of the information is to assist in determining the impacts of programmatic actions under consideration in this planning process on the various resources and resource uses.

Types of Effects to Be Addressed. The types of effects to be addressed by the livestock grazing program are the exclusion from or change in the time of use of an area by livestock, and the effects of other uses on the management and infrastructure associated with the grazing of livestock on public lands.

Programs that have no decisions affecting livestock grazing are air and atmospheric values, paleontological resources, soils, water resources, forestry and woodland products, and withdrawals.

A. Direct and Indirect Impacts

1. Adverse Impacts

a. Impacts from Cultural and Paleontological Resources. Management for cultural and paleontological resource protection may exclude livestock grazing from areas where it is

currently allowed. Excluded areas may include ACECs designated to protect significant resources such as prehistoric pueblo ruins. However, these are small localized areas and generally would not have a measurable effect on available livestock forage.

b. Impacts from Fisheries and Wildlife. A reduction in livestock grazing management flexibility would result from the 9-mile buffer zone around bighorn sheep habitat where sheep and goat grazing would be excluded (under Alternatives A and B only). This exclusion affects 61 grazing allotments (four of which are currently unavailable to any grazing) and would reduce the management flexibility of the allotments to achieve resource objectives. However, since none of the allotments are currently authorized for grazing domestic sheep—only cattle grazing is authorized—the buffer would not affect current or reasonably foreseeable operations. Also, allocating all additional forage achieved through vegetation manipulation or installation of improvements to wildlife reduces the incentive for permittees/lessees to participate in the program.

c. Impacts from Vegetation Management. Vegetation management in grazing allotments would require rest of an area treated for a minimum of 2 years or as determined otherwise by an interdisciplinary team. The permittee/lessee would need to find alternative forage for the livestock during the recommended rest periods.

d. Impacts from Visual Resource Management. Those areas that have been classified as VRM I and II may preclude the installation of certain projects such as fences, water tanks, and herbicide treatments or increase the cost of projects. These classifications may increase costs of construction.

e. Impacts from Land Tenure. The direct effect of disposal to livestock is the loss of the forage allocated to the parcel or the addition of the forage gained if new lands are acquired. Most land disposals would involve small isolated parcels, causing minimal impact on livestock operations aside from the loss of revenue generated from grazing fees.

Lands being acquired may contain noxious and invasive weeds which may affect the suitability for grazing. Weeds may be brought onto the parcel disposed of and spread to adjacent public lands. There could also be a removal of agricultural activities from disposed areas and conversion to a rural residential area or more urban area, changing the tax status of the parcels from agricultural to residential or commercial.

f. Impacts from Land Use Authorizations. The direct effects of land use authorizations on livestock grazing would be from the installation of infrastructure associated with an authorization. There could be an actual loss of grazing capacity depending on the area required. Facilities would have to be designed to prevent damage to the structures by livestock rubbing or fenced to prevent access by livestock. If wind developments are established in grazing areas, livestock could be disturbed by the structures until acclimated.

Impacts from the movement of the vehicles used for inspection and maintenance of facilities could also disturb livestock and alter grazing patterns. Gates could be left open and livestock trespass could occur.

g. Impacts from Mineral Resource Management. Surface disturbance associated with mineral development would reduce available forage. The level of impact would depend on the type and extent of mineral development.

h. Impacts from Transportation and Access. Currently, large areas of the planning area have issues with OHVs accessing portions of grazing allotments. Depending on the amount of OHV activity and extent routes are designated, OHV use could cause a loss of forage. Disturbance from OHVs could preclude livestock from grazing areas with heavier use. Problems with vandalism, cutting fence, and harassment of livestock are anticipated where urban areas interface with public lands.

i. Impacts from Special Designations. The environmental consequences of the special designations range from the total exclusion of grazing from the sites and allotments, to restrictions on the type of livestock animal, to time constraints on when livestock are allowed to graze an area. Fencing would be required to exclude portions of the allotments. If the sites are developed for visitor access the movement of people to the sites within the grazing areas may accelerate the introduction of weeds. The indirect effects of special designations over the long term may be the decline of the vegetation in the area due to lack of disturbance.

j. Impacts from Recreation. Recreationists could disturb livestock and damage range improvements such as fences, cattle guards, and water developments. The indirect effects of recreation are the possible introduction of weed species. Coordination may be necessary with permittees to ensure special recreation events would not conflict with livestock grazing operations.

k. Impacts from Renewable Energy. Surface disturbance associated with renewable energy projects could reduce the amount of forage available to livestock. Solar energy facilities effectively exclude any other use of the land such as grazing.

2. Beneficial

a. Impacts from Fisheries and Wildlife. By managing natural resources to meet the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management, impacts to wildlife and fisheries should be beneficial. Improved ground cover, addition of nutrients to the soil, control of weeds, and better water cycling can be achieved by complementary grazing of areas by livestock and wildlife.

b. Impacts from Vegetation Management. The beneficial effects of vegetation management would be the increase in forage associated with the treatment projects, during which livestock grazing could be used as a tool. However, livestock grazing after seed-set could have limited beneficial, short-term indirect impacts on upland vegetation by dispersing seeds and creating microhabitats for native species through localized soil disturbance (Burkhardt 1996). In addition, Holechek (1981), Daddy et al. (1988), and Klipple and Costello (1960) concluded that moderate grazing had a more positive effect on plant communities than no grazing. Blackburn (1984) also argues that the moderate, continuous grazing or specialized grazing systems would reduce sediment losses to a minimum. Grazing that is managed to meet public land health standards could increase infiltration and sediment yield (McGinty et al. 1979).

Management to reestablish the structural and functional components of degraded sites could increase the overall production of desirable forage on a site and its ability to resist less desirable invasive species (USDI-BLM 2000a; Finch et al. 1999; Young and Evans 1978). Similarly, rehabilitation or treatment projects that restore structural or functional components to sites could increase the resistance or resilience of vegetation to disturbances, such as grazing and fire (Peters and Bunting 1992; Laycock and Conrad 1981). If management increases the ability of a site to

resist disturbances or naturally reestablish after a disturbance, the amount of time that livestock grazing would be reduced (due to rest or deferment) could be decreased over the long term.

c. Impacts from Land Tenure. Forage would be gained if new lands are acquired. If public lands are disposed of there would be a decrease in administrative processes and costs of monitoring and managing these lands. Areas located in or adjacent to urban areas no longer suitable for grazing may be exchanged or purchased for lands more suitable for grazing.

d. Impacts from Land Use Authorizations. Land use authorizations can provide better access to allotments and maintenance of roads and facilities. Improvements such as cattle guards and the presence of individuals associated with the authorizations can assist in monitoring the areas for illegal activities such as vandalism of range improvements and harassing of livestock.

A withdrawal located within a grazing allotment would provide protection to forage.

e. Impacts from Livestock Grazing. Livestock grazing permittees/lessees often serve as excellent land stewards on their respective grazing allotment(s). They may provide a direct benefit to public lands by, for example, removing trash and repairing damage caused by vandalism.

f. Impacts from Mineral Resource Management. In the long term there may be increased forage available on the reclaimed sites. Companies seeking minerals may accept responsibility for range improvements, such as cattle guards and fence maintenance, for the duration of the projects. Water wells or water sources which may need to be developed as part of operations, could be used by livestock during and after the projects are completed.

g. Impacts from Recreation. User groups can assist the permittee/lessees with maintenance of improvements or provide information on illegal activities

h. Impacts from Transportation and Access. Control of access into areas would assist the grazing program by restricting the activities within an area while still granting access to the permittee/lessee to attend to maintenance of facilities or sick or lame animals. It would also reduce the interaction between the other users of public lands and livestock. Overall, transportation- and access-related designations would be beneficial to livestock by limiting OHV access in areas where livestock may be present and subject to disturbance or harassment.

i. Impacts from Special Designations. The beneficial impact of special designations on livestock grazing is primarily the protection of forage for livestock since other uses are generally limited in these areas.

B. Differences between Alternatives

a. Impacts from Cultural Resources. Under the no action alternative, over 250 acres are excluded from grazing in allotments to protect cultural resources. Under Alternative A, over 3,309 acres would be unavailable for grazing to protect cultural resources. Alternative B would be similar to Alternative A. Under Alternative C, the areas within allotments not directly associated with the cultural sites would be evaluated to determine if these areas could be grazed without impact to the cultural sites.

b. Impacts from Vegetation Management. Under all alternatives, grazing allotments would be managed to meet the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management. Under the no action alternative, reserve common allotments

would not be established, therefore reducing the flexibility to manage and improve the resources. Under Alternative A the establishment of reserve common allotments would provide the flexibility to rest or defer pastures or allotments. Reserve common allotments would provide an alternate location in times of drought and provide forage when vegetation manipulation projects are proposed on active allotments.

Under Alternative B, the impacts to vegetation would be much the same as the Alternative A. The allotments identified for open space or reserve common allotments would be managed for the benefit of the resource. Specific objectives for vegetative structure would be developed at an activity level and implemented. Under Alternative C, livestock grazing could be utilized as a vegetation treatment or as a compliment to a vegetation treatment. Revenues may be generated from prescribed grazing on public lands. The emphasis would be placed on obtaining the greatest number of AUMs for livestock.

c. Impacts from Land Tenure. Under all alternatives, the potential for disposal of the section 15 allotments is unlikely due to survey clearance and appraisal.

Table 4-7 presents the current AUMs associated with the acreage identified for disposal under the no action alternative.

Table 4-7. No action disposal acreage and AUMs

Planning unit	Acres	AUMs
East Side	30,371	4,782
Chama	4,982	541
Taos Plateau	4,285	657
El Palacio	150	8
Galisteo	11,218	1,735

Under Alternative A, allotments previously identified for disposal may be retained in public ownership for open space or for establishment of reserve common allotments. The direct impacts would be the same as the no action alternative with the exception that in the Eastside Unit the Sabinoso ACEC would be established and an additional 910 acres and 95 AUMs would be removed from disposal. The acreage for disposal would be 29,461 with 4,687 associated AUMs. Within the Galisteo planning unit all or parts of five grazing allotments would be removed from disposal. There are 3,309 acres and 611 AUMs associated with the allotments. This would leave 7,909 acres and 1,124 associated AUMs for disposal.

There would be little change in the actual use of the parcels if disposed of. Those parcels in the East Side planning area would likely be incorporated into existing ranches such that AUMs would not be lost. There would, however, be a reduction in the BLM costs of administration.

Alternative B would be the same as Alternative A with the exception that less land would be available for disposal.

Under Alternative C, disposals and acquisitions would consider the productivity of the land in AUMs when making decisions. Consideration would be given to the amount of AUMs that could be obtained from the acquired parcels that could be allocated to livestock and wildlife resources.

d. Impacts from Land Use Authorizations. The impact of land use authorizations is similar under all alternatives, with the following exceptions: Under Alternative B, there would be fewer opportunities for authorizations in grazing allotments, and under Alternative C, there would be an increase in the authorizations.

e. Impacts from Livestock Grazing. A comparison of AUMs estimated for each alternative is presented in Table 4-15.

Under Alternative A the ability to manage forage would increase due to the increased flexibility provided by reserve common allotments. Emphasis would be placed on both the watershed or landscape level and the grazing allotment level. The ability to use livestock as a tool to enhance the resource while meeting the needs of the users would increase.

Alternative B would place emphasis on the needs of the resource. Intensive monitoring would be required to determine the needs of the natural resources. Landscape prescriptions would be the priority over individual allotment needs. Livestock grazing could be used as a tool to provide a disturbance regime to improve the resource. Seasons of use and actual livestock number may be adjusted. The type of animal to be grazed may be changed to achieve the prescription required. Prescribed temporary free grazing use maybe used to achieve management goals or individuals may be paid to use domestic livestock to achieve goals.

Under Alternative C all areas where grazing has been allocated would be reviewed. If possible, and without damage to resources, all suspended and unused AUMs would be reactivated. There would be a possible increased use of 9,650 AUMs not currently utilized throughout the planning area.

f. Impacts from Recreation. Under the no action alternative, livestock would continue to be impacted by recreational OHV use.

Under Alternatives A and B, tighter restrictions on recreational activities would be beneficial to the livestock grazing by reducing surface disturbance.

Under Alternative C, due to the increase in all uses, there is potential for greater conflict between the recreational uses and competition for the resource.

g. Impacts from Transportation and Access. The no action alternative and Alternative C provide the greatest potential for user conflicts due to the ongoing and possible increase of users damaging improvements such as fences, cattle guards, and watering facilities. Under Alternative A, a total of 253 acres would be precluded from grazing in the El Palacio planning unit due to the designation of an open area for OHV use.

Under Alternative B, reduced access by recreationalists may reduce conflicts with livestock grazing.

Under Alternative C, conflicts may increase due to the increase in use of areas by OHV recreationists.

4.6.5 *Minerals*

Mineral resources include fluid and solid minerals leased for development under the Mineral Leasing Act of 1920 and amendments, locatable minerals that may be claimed and patented under the 1872 Mining Law, and common-variety mineral materials that may be purchased by

private parties or used for free by public agencies and nonprofit groups under the Materials Act of 1947. The preceding laws only apply to federally-owned minerals and are not intended to suggest that the BLM has jurisdiction over State or privately owned minerals. This section describes potential impacts on the management of mineral resources from management actions associated with other resource programs.

4.6.5.1 Leasable Minerals

Assumptions. The analysis is based on the following assumptions:

1. Oil and gas exploration and development would continue to occur in the planning area.
2. All BLM-administered mineral estate including split-estate lands would be managed in cooperation and collaboration with surface owners, lessees, and operators.
3. Leaseholders have the right to explore, develop, and produce mineral resources from any valid, existing lease, even if the area containing the lease were proposed to be closed to future leasing.
4. A valid, existing mineral lease is a legally issued lease secured by a leaseholder before the effective date of the record of decision for this RMP/EIS.
5. Surface use restrictions, including timing limitation stipulations (TL), no-surface-occupancy (NSO) stipulations, and controlled-surface-use (CSU) stipulations, as well as closed to leasing, cannot be retroactively applied to valid, existing oil and gas leases or to valid, existing use authorizations (e.g., application for permit to drill [APD]). Post-lease actions and authorizations (e.g., APDs, road and pipeline rights-of-way, etc.), however, could be encumbered by TL and CSU restrictions on a case-by-case basis, as required through project-specific NEPA analysis or other environmental review.
6. Leasable mineral resources would be considered unrecoverable in areas designated unavailable for leasing. They would also be considered unrecoverable in areas open to leasing, but where surface use constraints prohibit development operations on areas larger than can be technically and economically developed from offsite locations (e.g., large block NSO areas). Leasable mineral resources within leased inholdings would be considered recoverable.
7. The four categories of oil, gas, and carbon dioxide development potential are based on a reasonably foreseeable development (RFD) scenario with analysis presented in the leasable section of Chapter 3 and include:
    - High potential for hydrocarbon development indicates areas where all of the following characteristics are present: trapping mechanism, hydrocarbon sources, and reservoir quality rock in sufficient quantity to be economic.
    - Moderate potential for hydrocarbon development indicates areas where some but not all of the following characteristics are present: trapping mechanism, hydrocarbon sources, and reservoir quality rock.
    - Low potential for hydrocarbon development indicates areas where the geologic characteristics of trapping mechanism, hydrocarbon sources, and reservoir quality rock indicate low potential for accumulation of mineral resources.
    - No potential for hydrocarbon development indicates areas where there is no geologic environment or processes to form trapping mechanism, hydrocarbon

source, and reservoir quality rock and the lack of mineral occurrences indicate no potential for accumulation of mineral resources.

8. The primary impact on the leasable minerals program from the land use decisions in this plan would be a reduction in the availability of the hydrocarbon resources for extraction and consumer use. This would result in an increase in the cost to the producer and consumer.
9. Directional drilling could be used to access hydrocarbon resources under areas constrained by surface use restrictions (e.g., 25 percent slopes, within 500 feet of riparian areas, and NSO restrictions for cultural resource protection).
10. Directional drilling viability and offset distance varies with the target formation, the top depth of the target formation, and formation productivity.
11. Directional drilling would not be able to extract all hydrocarbon resources within large block NSO areas beyond viable offset distances. For the purposes of this document, resources more than 0.5-mile inside the boundary of an NSO area would be considered unavailable for hydrocarbon extraction.
12. Directional drilling has the potential to increase well development costs by as much as 100 percent (Society of Petroleum Engineers 1999).
13. No coal leasing or development as well as coal bed methane (CBM) is anticipated because of the low to moderate potential for CBM and lack of interest in leasing coal on Federal lands. The low to moderate CBM potential is discussed in Chapter 3 under Leasable Minerals and is identified on Map 3-13. There are no expected impacts from coal or CBM to the various resources or resource use opportunities.
14. There are no areas of high or moderate potential for carbon dioxide accumulations in areas closed to leasing or restricted by leasing stipulations. The high and moderate potential carbon dioxide areas are all in the East Side planning unit and are centered on the Bravo Dome and Tucumcari Basin area (see Map 3-12).

Methods of Analysis. As with other resources and resource uses, the impact analysis and conclusions are based on interdisciplinary team knowledge of resources within the planning area, reviews of existing literature, information provided by outside sources such as the internet and companies interested in resource development. Spatial analysis was conducted using ESRIs ArcGIS Desktop 9.2 computer software, and the results were quantified where possible. In the absence of quantitative data, best professional judgment was used. Impacts are sometimes described using ranges of potential impacts or are described in qualitative terms if appropriate.

A. Direct and Indirect Impacts—Leasable Minerals

Management actions implemented for the protection of other resources impact oil and gas development both directly and indirectly. A direct impact is one that either specifically prohibits or permits oil and gas exploration and development. An example of a direct impact would be to make an area administratively unavailable to oil and gas leasing for the life of the plan to protect another resource. Indirect impacts are the result of actions that may place or remove restrictions or additional requirements on oil and gas exploration and development. These actions do not explicitly permit or prohibit oil and gas exploration and development activity, but could influence how a lessee may proceed with a given project. Short-term impacts are considered for this analysis those impacts that occur for less than 5 years. Long-term impacts occur beyond 5 years and perhaps for the life of the resource management plan.

The following programs would have no decisions affecting leasable minerals: air and atmospheric values, soils, vegetation, water, and vegetation resource management.

1. Adverse Impacts

a. Impacts from Cultural Resource Management. Typical impacts from cultural resource management actions on oil and gas exploration and development would include increased well development costs associated with cultural resource inventories, relocation of facilities (i.e., well pads, roads, and pipelines) to avoid a cultural site, implementation of directional drilling techniques, and/or site excavation if avoidance is not possible. Discovery of previously undocumented cultural features during project construction would delay project implementation while the site is evaluated.

b. Impacts from Fish and Wildlife Management. Management actions to protect fish and wildlife and their habitats through timing constraints would have low impacts on the potential development and production of leasable minerals (see Table 4-8 and Table 4-9) because of limited overall acreage affected and its low oil and gas potential. However, seasonal restrictions could have more serious impacts in terms of acres affected. The restrictions could also delay fluid mineral product extraction and delivery to the consumer. In addition, activity during the seasons that are open to development and production is typically accelerated to compensate for the seasonal downtime, which creates a greater potential for interactions with any wildlife species using the area during this period. Drilling time in the planning area would vary depending on well depth and the rock types.

c. Impacts from Special Status Species. Special status species inventories would be required for surface-disturbing projects in known or suspected special status species habitat. The discovery of special status species would potentially lead to a delay in the development of, and/or the relocation of, well locations, access roads, pipelines, or ancillary facilities, as well as to the use of offsite development techniques.

All of the sensitive plant habitat in the planning area has not been mapped, and therefore cannot be compared to the potential mineral development areas. Leaseholders/operators would be required to control weeds and other undesirable vegetation on areas disturbed by their mineral development actions in part to protect sensitive plan habitat. Weed control would add to the overall development costs, but would not be expected to affect the overall economic viability of a development project.

Areas with existing, proposed, or candidate special status plant and animal species and their habitats would be managed to keep the proposed and candidate species from becoming listed as threatened or endangered and to keep existing species populations and habitat from declining. New mineral leases and post-lease actions on existing leases would be required to avoid degradation of the species and their habitat. Where species/habitat protection prohibits or restricts surface occupancy or disturbance, the development of leasable mineral resources in the restricted area would require the use of offsite development techniques such as directional drilling. Leasable mineral resources in areas beyond the technical or economic reach of offsite development methods would be considered unrecoverable.

d. Impacts from Visual Resource Management. VRM classifications which limit the extent and development can create contrast in line, form, color, or texture of a landscape could reduce opportunities to access resources and/or substantially increase the cost of operations.

e. Impacts from Management of Lands with Wilderness Characteristics. Impacts from the management of wilderness characteristics would be the same as those from special designations, described below.

f. Impacts from Wildland Fire Management. Wildland fire management actions would have a minimal impact on the development and production of oil and gas resources. Fire management within the planning area would concentrate fire suppression in areas with high resource or human values, and as such would reduce the potential for catastrophic wildland fires in oil and gas fields. Fuel reduction management would also reduce the potential for catastrophic fires. In spite of concentrated fire suppression and fuel reduction projects, there would still be a potential for a wildland fire or an out-of-control prescribed fire to reach a well pad. Should this happen, on-location facilities could be damaged or burned. Stored hydrocarbon resources such as condensate could be consumed.

g. Impacts from Land Tenure Adjustments. Any land with oil and gas potential which leave Federal ownership through disposal or R&PP lease may affect the adjacent land and any potential project located there, even if the Federal minerals are retained. Conversely, any land acquired by the BLM for management in an ACEC would probably have the mineral estate retained by the private surface owner. It is likely land acquired within special designations or with unique resource values would be managed with restrictions on mineral development and other surface-disturbing activities.

The Archuleta Mesa area, where lands are available for disposal, is rated as having moderate oil and gas potential with oil and gas leases in the area generally south of Lumberton, New Mexico. These leases are in their primary term and are not held by any production. This area is of interest for leasing as parcels in the area have been nominated and are suspended awaiting completion of the RMP. Even if the minerals are retained, the loss of this surface area would remove approximately 2,313 surface acres which would impact potential oil and gas operators overall ability to implement economic projects in the area.

If the BLM acquired land with low potential near or adjacent to moderate oil and gas potential lands, the combined acreage could be less economically suitable for oil and gas leasing because land acquired within special designations or with unique resource values would likely be managed with restrictions on mineral development and other surface disturbing activities.

h. Impacts from Land Use Authorizations. In general, establishing specific energy corridors encourages project applicants to place pipelines and powerlines in certain confined areas. Confining utilities to corridors could limit oil and gas transmission lines to specific alignments that, depending on their proximity to the producing leases, could require additional cost associated with transmission.

Rights-of-way exclusion areas are not anticipated to hinder the transmission of produced oil and gas since exclusion areas coincide with areas closed to mineral leasing or are predominately over areas with low potential for leasable mineral occurrence. Also, rights associated with existing leases within the planning area ensure opportunities for access for transmission.

i. Impacts from Livestock Grazing. Oil and gas exploration and development often occur within grazing allotments. Oil and gas operators would have to abide by mitigation that would be specified in lease stipulations or in the conditions of approval for those operations. Mitigation measures within grazing allotments would increase the cost of oil and gas exploration and development. These measures could include providing for the upkeep and repair of fences and

gates or installation of cattleguards; reclaiming surface disturbance areas with native grass and forbs to prevent erosion and replace lost forage; monitoring and treating weeds and other nonnative, invasive plant species that occupy areas disturbed by oil and gas development and production; and taking measures to prevent loss or injury to livestock. Livestock mitigation would not be expected to substantially affect the technical or economic viability of recovering hydrocarbon resources, so the overall impact on mineral resource development would be low.

j. Impacts from Recreation. Potential adverse impacts to leasable minerals may occur as a result of SRMA allocations and subsequent management for them. Increased visitation and recreational use would lead to competition for the use of the same surface resources, with the designation of a SRMA as potentially a precursor to more limiting CSU and NSO leasing stipulations for new leases. Areas with high recreational opportunity along with important visual resource qualities would impact the location and kind of oil and gas development allowed in those areas.

k. Impacts from Renewable Energy. Development of wind, solar, biomass, and geothermal energy sources would compete indirectly as economic energy alternatives and in some locations directly for the use of the same surface. These renewable energy sources could replace leasable minerals as they contribute less to atmospheric carbon loads and particulate matter.

l. Impacts from Transportation and Access. Since fluid mineral development is a permitted use subject to the contractual terms of a lease, a leaseholder has the right to reasonably access and develop their lease. OHV designations may guide access to leases, but development of a lease would not be subject to OHV restrictions.

m. Impacts from Special Designations. Of greatest impact to leasable minerals is the incorporation of large portions of the planning area's mineral estate within special designation areas, including SMAs, ACECs, WSAs, WSRs, wilderness and certain recreation areas, with some being closed to leasing and others restricted by NSO, CSU and TL stipulations. These leasing stipulations carry the most impact on development of leasable minerals.

Surface resource management restrictions applied to protect special designations would impact the rate of exploration, development, and extraction of leasable mineral resources. These restrictions would also increase the cost, both to the producer and the user of the end products, of exploring for, developing, and extracting those mineral resources. All of the alternatives have NSO restrictions on a portion of lands available for mineral leasing, which preclude surface occupancy. Development of the mineral resources in these areas would require offsite methods such as directional drilling. The equipment and personnel for directional drilling increase development costs by up to 100 percent. Directional drilling also increases the risks of drilling problems (such as stuck casings) and diminished well production, both of which leads to lower project economics through increased costs.

Restrictions that cause increased well development costs, or that render oil and gas resources unavailable or unrecoverable, can also impact geophysical exploration. The primary impact would be increased costs to the operator through the use of more expensive, but less surface disturbing techniques, such as small, portable foot- or helicopter-transported drills, in areas where vehicle-based geophysical operations are prohibited. If an operator is deprived of the opportunity to collect geophysical data, development location decisions would be based on old or nonexistent information, and the chance of drilling unsuccessful wells would increase. This results in both increased expense to the operator and in nonproductive disturbances to the land and surface resources.

2. Beneficial Impacts

There are minimal to no beneficial impacts to leasable minerals identified aside from the opportunities afforded by the management of leasable minerals to develop areas where recoverable resources have potential to occur. A discussion of these opportunities is presented in the section below.

C. Differences between Alternatives

a. Impacts from Land Tenure. Disposal of Archuleta Mesa, which has moderate potential for oil and gas occurrence, would not occur under Alternative B. Other areas where land tenure adjustments are proposed, which vary slightly by alternative, would occur in low potential areas. Therefore, other than in the Archuleta Mesa area, the effects from all alternatives are anticipated to be essentially the same.

b. Impacts from Land Use Authorizations. The establishment of utility corridors under Alternative A would promote the consolidation of new linear facilities along Buckman Road (0.25-mile wide) and US 285, US 84, NM 111, and NM 554 (a maximum 150 foot width). Locating rights-of-way in these corridors could beneficially impact leasable minerals by providing access. Although these areas have low potential for accumulations of oil, gas, and carbon dioxide, these corridors would only potentially benefit its interstate transportation.

Alternative A and B have more potential to impact oil and gas development with the addition of right-of-way exclusions, particularly in the Chama planning unit which has moderate potential for oil and gas occurrence, while the Ojo Caliente, Lower Gorge/Copper Hill, and West Santa Fe planning units, along with sites near Sabinoso Wilderness and ACEC, have low potential. This potential impact, however, is not likely to occur due to the fact that the excluded areas coincide with areas closed to mineral leasing, and any existing leases would be unaffected. Impacts would be least under Alternative C because it does not include these right-of-way exclusions.

c. Impacts from Mineral Resource Management.

Oil and Gas Potential: This section considers the impact restrictions would have on mineral development opportunities, especially the impacts from limitation applied to areas where oil and gas resources have potential to occur. Management of special designations is the largest factor in limiting opportunities for leasing and the constraints applied to those opportunities. Areas proposed to be closed to leasing typically coinciding with special designations. Areas open to leasing would have either standard terms, moderate constraints such as CSU and TL measures, or major constraints such as NSO attached to the lease as contractual terms and conditions.

Table 4-8. Oil and gas development potential

Potential	Acres	Percent of Total
High	140,300	0.9
Moderate	3,656,700	23.6
Low	9,674,100	62.3
No Potential	2,054,400	13.2
Total Federal Mineral Estate	15,525,500	100

Areas having potential oil and gas accumulations are listed in Table 4-8 and are shown on Map 3-15. The four categories are divided into high, moderate, low, and no potential. Only one

percent of the planning area has high potential, 24 percent has moderate potential, 62 percent has low potential, and 13 percent has no potential for oil and gas accumulations (as rounded to the nearest percent).

Table 4-9. Nondiscretionary closure to oil and gas leasing by alternative

Nondiscretionary Closure Areas	No Action	Alt. A	Alt. B	Alt. C	Oil and Gas Potential
Galisteo Basin Arch. Resource Protection Act	750	750	750	750	Mod to High
Rio Chama Wild and Scenic River	2,280	2,280	2,280	2,280	Moderate
Rio Grande Wild and Scenic River	16,530	16,530	16,530	16,530	Low
Sabinoso Wilderness	16,030	16,030	16,030	16,030	Low
Total (numbers in acres)	35,590	35,590	35,590	35,590	

Nondiscretionary Closures: Under all alternatives, about 35,590 acres of Federal mineral estate within the planning area would be closed nondiscretionarily to fluid mineral leasing in congressionally designated WSRs, Wilderness, and culturally protected areas (Tables 4-9). These closures directly affect the ability to develop the Galisteo Basin Archeological Resources Protection Act sites with 750 acres identified as having high oil and gas potential, the Rio Chama WSR with 2,280 acres having moderate potential, and the Rio Grande WSR with 16,530 acres and Sabinoso Wilderness with 16,030 acres having low potential. The impacts to leasable minerals from closures by law are unavoidable where high cultural and scenic resources require avoidance of surface-disturbing activity. The low potential of the Rio Grande WSR and Sabinoso Wilderness and the relatively small acreage involved in the Rio Chama WSR and Galisteo Basin Archeological Resources Protection Act sites negate most of the possible impact to leasable minerals.

However, as prices for these resources rise, the economic feasibility of exploration and development for oil and gas also increases. The inability to explore or develop resources on these acreages would reduce the ability to consolidate larger blocks of land on which it would be more cost-effective to pursue exploration and development activities, potentially resulting in lost economic opportunities that would otherwise be realized.

Discretionary Closures: There are nine areas with moderate potential for oil, gas, and carbon dioxide accumulations considered as discretionarily closed to leasing. Four of these are in the Chama planning unit and include Chama Canyon ACEC (with 3,510 acres of overlap under Alternatives A and B), the Rio Chama SMA (with 3,620 acres of overlap under the no action alternative), lands with wilderness characteristics (with 6,070 acres under the no action alternative, 11,150 acres under Alternative B, and 9,530 acres under Alternatives C), and the remainder of the Chama planning unit, having 68,480 acres under Alternative B. The closure of these areas would preclude the recovery of fluid mineral reserves under all alternatives.

The other five areas with moderate potential are located in the Galisteo planning unit. Taking into account the relative small Federal surface acreage of Cerrillos Hills and San Pedro Mountains areas along with their incompatible topography, there would be minimal impact from the closure of these areas. However, closure under Alternatives A and B of the remainder of the Galisteo planning unit and the community growth areas in Santa Fe County, both with moderate

to high potential and consist of 99,960 and 32,770 acres, respectively, would substantially impact the opportunities to develop oil and gas resources in this area (see Table 4-10).

If the oil and gas resource are drained from operations on adjacent non-Federal lands in the Galisteo planning unit, measures would be implemented to protect the Federal minerals. Currently, there are no existing Federal oil and gas leases in the planning unit and development on adjacent non-Federal lands would be subject to State and county regulations.

There are two WSAs closed to leasing. The Rio Chama WSA (11,150 mineral acres in Alternatives A and B) and the San Antonio WSA (8,020 acres in Alternatives A and B) would be unavailable for fluid mineral leasing and development (see Table 4-10). These WSA closures would render the underlying hydrocarbon resources unavailable for extraction. According to the RFD analysis, there is currently low potential for hydrocarbon development in the San Antonio WSA. Therefore, this closure is not expected to impact leasable mineral development.

All of the adjacent and overlapping special designation areas in the Chama planning unit, including the WSA, WSR, SMA and ACEC, have moderate potential for hydrocarbons. The Rio Chama SMA under the no action alternative contains 3,620 acres and the Chama Canyons ACEC under Alternatives A and B contains 3,510 acres (see Table 4-10). The Rio Chama SMA and Chama Canyons ACEC also contain existing leases or portions of leases held in their primary term with no producing wells. Geophysical exploration would not be allowed on unleased lands in either of the WSAs unless it meets the no impairment criteria. This could limit an operator's ability to collect sound geophysical data on areas adjacent to the WSA, WSR, SMA or ACEC.

The remainder of special designations throughout the planning area, which are open to leasing with constrains, are all of low potential for fluid mineral accumulations and, therefore, would have little potential to impact development opportunities.

Table 4-10. Discretionary closures to oil and gas leasing by alternative with potential

Discretionary Closures (BLM mineral acreages only)	No Action	Alt. A	Alt. B	Alt. C	Oil & Gas Potential
Lower Gorge/Copper Hill planning unit					
Copper Hill ACEC Agua Caliente Prot. Zone	3,420	3,420	3,420	3,420	Low
Copper Hill ACEC Lower Embudo Cul. Prot. Zone	500			500	Low
Copper Hill ACEC Rio Embudo Prot. Zone	2,610	2,610	2,610	2,610	Low
Lower Gorge ACEC	15,360	21,390	21,390	15,540	Low
Orilla Verde Recreation Area	5,850			5,850	Low
Ojo Caliente planning unit					
Ojo Caliente ACEC		66,580	66,580		Low
Eastside planning unit					
Sabinoso ACEC		22,630	22,630		Low
West Santa Fe planning unit					
Diablo Canyon Zone (Santa Fe Ranch ACEC)		710	710		Low
Taos Plateau planning unit					
San Antonio WSA/Zone	7,760	8,020	8,020	7,760	Low
Taos Plateau ACEC North Unit		204,200	204,200		Low
Taos Plateau ACEC Ute Mountain Zone	15,000	18,370	18,370	13,190	Low
Wild Rivers Zone; Guadalupe Mountain Zone of Rio Grande Gorge Rec.	5,000	10,620	10,620	5,000	Low
Winter Range ACEC Los Cerritos de la Cruz	520			520	Low
Chama planning unit					
Chama Canyon ACEC		3,510	3,510		Moderate

Rio Chama SMA includes entire WSR	3,620				Moderate
Rio Chama WSA	6,070	11,150	11,150	9,530	Moderate
Chama planning unit remainder			68,480		Moderate
sub total	9,690	14,660	8,140	9,530	
Galisteo planning unit					
Cerrillos Hills			1,870		Moderate to High
Community Growth Area of Galisteo Basin		32,770	32,770		Moderate to High
San Pedro (San Lazarus Gulch)		240	240		Moderate
San Pedro			2,250		Moderate
Galisteo Basin planning unit remainder.		99,960	95,840		Moderate to High
sub total		132,970	132,970		
Total (numbers in acres)	65,710	506,180	574,660	63,920	

In comparing alternatives, the closure or restrictions placed on areas with fluid mineral leasing are generally of such low potential for oil, gas, and carbon dioxide accumulations that their closure or leasing restriction would have minimal impact on the development potential. This low to moderate oil and gas potential in areas, as listed in Table 4-10, lessens the degree and extent of impact from other competing resources and resource uses. With generally low to moderate oil and gas potential, except in the Galisteo planning unit where moderate to high potential occurs, there would be minimal impact or differences when comparing alternatives.

Table 4-11. Oil and gas leasing constraints by planning unit and potential

Special Designated Areas Acreages	No Action	Alt. A	Alt. B	Alt. C	Oil & Gas Potential
Open to Leasing with Standard Stipulations	138,780	343,499	275,089	115,420	
Timing Limitation Constraint - TL					
Taos Plateau planning unit					
San Antonio Winter Range ACEC (12-1 to 6-15)	6,150			6,150	Low
Taos Plateau planning unit (not in ACEC)		109,429	109,429		Low
Controlled Surface Use Constraint - CSU					
Taos Plateau planning unit					
Taos Plateau planning unit (not in ACEC)		109,429	109,429		Low
San Antonio SMA (ACEC for Alt.C)	62,320			62,320	Low
Ojo Caliente planning unit					
Black Mesa portion of Lower Gorge ACEC	1,430				Low
Ojo Caliente ACEC	13,370			13,370	Low
El Palacio planning unit					
Fun Valley SMA	17,720				Low
Sombrillo ACEC	8,600			8,600	Low
El Palacio planning unit		61,740	61,740		Low
East Side planning unit					
Sabinoso SMA	3,320				Low
Lower Gorge Copper Hill planning unit					
Central Protection Zone ACEC	10,570	10,570	10,570	10,570	Low
West Santa Fe planning unit					

La Cienega ACEC (T16N, R8E, Sec 18)		470	470		Low
Santa Fe Ranch ACEC Ranch Zone		20,360	20,360		Low
West Santa Fe planning unit remainder		35,150	35,150		Low
Chama planning unit					
Chama planning unit remainder		68,480			Moderate
Riparian/Aquatic SMA (All riparian areas)	2,010			1,280	
Total (numbers in acres)	125,490	306,119	237,719	102,290	

Table 4-12. Specially designated areas with NSO by alternative and potential

Special Designated Areas Acreages	No Action	Alt. A	Alt. B	Alt. C	Oil & Gas Potential
No Surface Occupancy Constraint - NSO					
Ojo Caliente planning unit					
Ku Pueblo SMA	70			70	Low
El Palacio planning unit					
Ojo Del Zorro Pueblo SMA	30				Low
Pueblo Quemado SMA	120				Low
Pueblo Sarco SMA	10				Low
Sajiu Pueblo SMA	0				Low
Santa Cruz Lake Rec. Area SMA	590	3,340	3,340	590	Low
Sombrillo ACEC		18,870	18,870		Low
Galisteo planning unit					
San Lazaro SMA	0				Low
Taos Plateau planning unit					
Wild Rivers Rec. Area	8,470			8,470	Low
San Antonio Gorge ACEC	270			270	Low
West Santa Fe planning unit					
La Cienega ACEC	3,730	12,760	12,880	3,730	Low
Lower Gorge Copper Hill planning unit					
Lower Embudo Cultural Protection Zone		500	500		Low
Pueblo ACEC		490	490		Low
Riparian/Aquatic		1,970	1,970		
Total (numbers in acres)	13,290	37,250	37,370	13,130	

NSO, CSU and TL Lease Stipulations: As demonstrated in Table 4-11, the acreages open to leasing with NSO, CSU, and TL constraints are substantially higher under Alternatives A and B than under the no action alternative and Alternative C. Lease stipulations which control surface use, limit timing, or restrict surface occupancy could increase the cost and difficulty of exploration and development of fluid mineral resources to a point where these activities become economically infeasible. Constraints placed as leasing stipulations to protect resources could double drilling costs particularly when exploration has to be conducted from adjacent land using directional drilling methods due to a NSO stipulation (Society of Petroleum Engineers 1999).

Extensive application of a NSO and, to a lesser extent, CSU stipulations applied separately or adjacent to each other in one area could affect the ability to target a fluid mineral resource if directional drilling technology could not reach the target resources, effectively closing the area to fluid mineral extraction. Factors influencing when this situation might occur include depth and type of resource being extracted and rock types, as some rocks are more difficult to drill. As a general estimate, the application of a NSO stipulation over an area greater than 1 square mile could eliminate the possibility of accessing all reserves and constitute a de facto closure to those inaccessible minerals. Also, extended reach drilling can add significantly to drilling cost. However, a site-specific analysis would be necessary to determine the actual distance required to reach a particular target.

Two of the largest block acreages with NSO stipulations are La Cienega ACEC and Sombrillo ACEC (see Table 4-12). Under Alternatives A and B, the La Cienega ACEC would have 12,760 and 12,880 acres, respectively, of NSO and would be adjacent to the West Santa Fe planning unit where 35,150 acres of CSU would be applied. The Sombrillo ACEC would have 18,190 acres of NSO under Alternative A and B, which would be adjacent to the El Palacio planning unit where 61,740 acres of CSU would be applied under these alternatives. Since all of these areas have low potential for oil and gas accumulations these NSO and CSU stipulations adjacent to each other are not anticipated to impact opportunities to develop leasable minerals.

Under the no action alternative and Alternative C, there would be only one area with a large block of NSO, the Wild Rivers Recreation Area consisting of 8,470 acres (see Table 4-12). Again, because this area has low potential for oil and gas accumulations these stipulations are of little to no consequence to leasable minerals.

Also, there are large block acreages of CSU under Alternatives A and B which include the remainder of the Taos Plateau planning unit not included within the Taos Plateau ACEC, the Santa Fe Ranch ACEC, and the Central Protection Zone of the Copper Hill ACEC (see Table 4-12). These areas are also of low potential for oil and gas accumulations and so any stipulations are not expected to impact leasable mineral development.

The only area where leasable minerals may be potentially impacted by a CSU lease stipulation is the remaining 68,480 acres in the Chama planning unit (see Table 4-11). Because of the area's moderate potential and the interest in leasing its resources, the CSU stipulations could minimally to moderately constrain any development. Under Alternative B, closure of the area would preclude development of two areas with moderate occurrence potential, Archuleta Mesa and the area east of the Chama Canyons ACEC.

Under Alternative A, there would be one area with a TL stipulation applied to protect big game wildlife and their habitat: the remainder of the Taos Plateau planning unit outside of the proposed ACEC, where CSU stipulations would also apply. The San Antonio Winter Range which had a TL stipulation under the no action alternative and Alternative C is closed to leasing in Alternative A. This area has low potential for oil and gas accumulations and thus this TL stipulation would have little impact on the opportunities to recover leasable minerals. Also under Alternative A, the closure to leasing of Taos Plateau ACEC, totaling 241,210 acres would not likely impact oil and gas development because of its low potential for accumulation of oil and gas.

Though not an indication of moderate or high potential development opportunities precluded under the alternatives since many closed areas coincide with areas with low occurrence potential, the available areas for oil and gas leasing under the no action alternative and Alternative C would

be 93 percent as compared to 65 percent and 61 percent under Alternatives A and B, respectively. With only 1 percent of the planning area having high potential for accumulations of oil and gas and 24 percent having moderate potential, the impact to leasable minerals is reduced greatly by its low to moderate potential for development.

As prices for these resources rise, the economic feasibility of exploration and development for oil and gas also increases. Any constraints to explore for and develop resources on public lands would reduce the ability to consolidate larger blocks of land on which it would be more cost-effective to pursue exploration and development activities, potentially resulting in reduced opportunities to produce for public consumption energy resources that would otherwise be realized.

d. Impacts from Transportation and Access. Reasonable access to and development of a lease would be a permitted activity not subject to travel management restrictions. This would be common to all alternatives.

e. Impacts from Special Designations. As discussed at length above, the greatest impacts to opportunities for leasable mineral development are the closures and restrictive stipulations placed on lands to protect the values associated with special designations. Table 4-12 shows the limitations placed on fluid mineral development from the prescriptive management of special designations per alternative, relative to the occurrence potential.

4.6.5.2 Locatable Minerals

Locatable minerals are Federal minerals that can be explored for and mined under the General Mining Law of 1872, as amended. This includes most metallic minerals and some nonmetallic minerals, and involves the locating (staking) of a mining claim on lands with Federal minerals open to location. Operations on BLM-managed lands are regulated under the Surface Management Regulations at 43 CFR 3809 and 3802 and other Federal and State regulations.

Entry under the Mining Law can be prohibited only by a formal withdrawal, such as a Public Law or Public Land Order. There is no discretion on the part of the BLM manager to close an area without a formal withdrawal.

Map 3-16 shows areas within the Taos Field Office jurisdiction that have a high, medium, or low potential for locatable mineral occurrence or development and serves as a basis for the following analysis.

Management decisions related to the following programs would not affect locatable minerals: air, soils, vegetation, visual, water, forestry and woodland products, land tenure, recreation, and renewable energy.

A. Direct and Indirect Impacts—Locatable Minerals

1. Adverse Impacts

a. Impacts from Cultural Management, Wildlife Management, and Special Status Species. The BLM and other Federal regulations may require the operator to incur additional costs to inventory and protect cultural resources. This could render exploration and mining prohibitive, especially for small mining operations.

b. Impacts from Livestock Grazing. Any exploration or mining would likely have to accommodate livestock grazing during and after operations. Such accommodations (e.g.,

fencing, reclaiming, and seeding) would probably not burden most mineral operations, except the most marginal ones.

c. Impacts from Land Use Authorizations and Transportation and Access. Decisions restricting access or rights-of-way could have a negative impact on locatable mineral development. Access to a mining claim across open public land is guaranteed under the Mining Law. However, if travel management is restricted by a special designation or closed by a withdrawal, an alternate, more expensive access route may have to be developed.

d. Impacts from Special Designations. The greatest impact to locatable mineral exploration and mining are due to certain special designations withdrawn from entry under the Mining Law. A withdrawal from the Mining Law would preclude new mining claim locations, prospecting, and mining. A mining claim within a withdrawn area located prior to the withdrawal may be maintained, but is subject to a determination of prior existing rights (i.e., a discovery of a valuable mineral prior to the withdrawal). A pre-existing claim found not to have prior existing rights would be declared null and void and could not be relocated. Also, pre-existing claims that fail to submit the required annual fees or waiver would be declared forfeited by operation of law and could not be relocated.

Restrictions imposed by a special designation could have a negative effect on locatable mineral development of valid Federal or private mineral rights within the special designation or adjacent to it. Restrictions could limit or preclude certain components of a mining operation or cause an operation to not be economically viable. In certain areas, such as around the San Pedro Mountains, where population is growing and land values are increasing, the reduction in value of patented land for mining purposes could cause the owners of such land to subdivide and develop the lands for residential purposes.

2. Beneficial Impacts

a. Impacts from Land Tenure and Land Use Authorizations. Various realty actions could positively impact locatable mineral development by providing rights-of-way and authorization for ancillary facilities even though access to operations under the Mining Law is allowed across public land without a right-of-way, provided it is authorized under 43 CFR 3809.

B. Differences Between Alternatives

Under the no action alternative, 100,800 acres within special designations (7 percent of the Federal mineral estate in the planning area), identified in section 2.5.3.5, are withdrawn from the Mining Law. Two of the withdrawn areas have potential for locatable mineral occurrence or development. A copper deposit with a potential for development is located on private land (patented mining claims) in the Picuris Mining District within the Copper Hill ACEC. Pre-existing claims exist within the withdrawal. Any possible development of this copper deposit could be precluded or severely hampered by the withdrawal and the restrictions that may be imposed on access within the ACEC. The withdrawn Ojo Caliente pueblo sites are within an area of low potential for the occurrence of placer gold. Mining claims exist in the Ojo Caliente area. However, because of the small acreage of the pueblo sites and the low mineral potential, any locatable mineral activity would likely not be affected by the withdrawal. All other withdrawals under this alternative have no potential or an unknown potential for locatable mineral occurrence.

Under Alternative A, the special designations identified in section 2.6.3.5, totaling 268,100 acres (18 percent of the Federal mineral estate in the planning area), would be withdrawn from the

Mining Law. This includes the expanded Ojo Caliente ACEC which has a low potential for locatable mineral occurrence and includes mining claims. Because of the low potential, the impact of the withdrawal on future locatable mineral activities is considered nominal. All other withdrawals under this alternative have no potential or an unknown potential for locatable mineral occurrence.

Under Alternative B, special designations and other areas identified in section 2.7.3.5, totaling 340,700 acres (22 percent of the Federal mineral estate in the planning area), would be withdrawn from the Mining Law. Two of the withdrawn areas, Cerrillos Hills and San Pedro Mountains, have the potential for continued locatable mineral activities. Both areas are historic mining districts with extensive patented mining claims (private land). Today, BLM-administered land in the Cerrillos Hills is an area of recreational gold prospecting and limited turquoise mining, and BLM-administered land in the San Pedro Mountains is recreationally prospected for gold and has had recent commercial scale mining of silica sand. Both areas include mining claims. Under this alternative, existing mining claims could be maintained within the withdrawals, but are subject to a determination of valid existing rights. New claims could not be located. However, recreational "rock hounding" could continue without a mining claim provided activities are casual use, involving no mechanical equipment, and in compliance with the Rules of Conduct at 43 CFR 8365.1-5. The allowance of the use of equipment, such as pump operated sluices or leaf blower powered dry washers, would be considered during the preparation of the specific recreation area management plans for each area.

These withdrawals would preclude future exploration or mining ventures by major mining companies on BLM-administered land because entities would be prohibited from staking new mining claims. Access to patented mining claims (private land) for prospecting or mining could be inhibited by restrictions imposed by special designations.

All other withdrawals under this alternative have no potential or an unknown potential for locatable mineral occurrence.

Alternative C is the same as the no action alternative.

4.6.5.3 Saleable Minerals

A. Direct and Indirect Impacts

The primary impact on the saleable minerals program from the land use decisions in this plan would be any reduction in the availability of land for mineral material extraction and use by closure of areas to development. Most of the demand for mineral materials is near populated places and along roads and highways, while most of the land use decisions restricting mineral material development are in rural areas and away from major roads and highways. The BLM would take these factors into consideration and would provide opportunities to develop materials near communities and along major roads and highways. Because of this, the impact of the restrictions, in most cases, is expected to be low.

There are a few instances where materials on Federal lands are the most convenient or cheapest source. Any restrictions on development of these deposits could cause development to be shifted to nearby private or State lands, or necessitate haulage from more distant sources. This could result in higher development and transportation costs for the products, which would ultimately be passed to the consumer. A related impact would result from the need to transport material for longer distances, including more traffic and more wear and tear on existing roads.

The shift of development from Federal to non-Federal lands would shift the collection of royalties and other payments from the Federal treasury to State or private entities. It is arguable whether this would be an adverse or beneficial change. In addition, development on private and State lands may or may not be subject to as stringent environmental controls as Federal lands.

1. Adverse Impacts

a. Impacts from Air and Atmospheric Values, Fish and Wildlife, Paleontological Resources, Soils, Vegetation, Noxious Weeds/Invasive Species, Visual Resources, Water, Wildland Fire Ecology, Forestry and Woodland Products, Land Use Authorizations, Utility Corridors, Communication Sites, Livestock Grazing, Recreation, Renewable Energy, and Transportation and Access. The impacts to mineral materials development due to the above resources and resource uses would be considered low. The main impact would be that most of these resources compete for use of the surface. In general, conflicts between mineral material development and these resources is manageable using standard operating or best management practices. In situations where the conflicts cannot be mitigated or mitigation is economically prohibitive, mineral material development would likely not be considered by the proponent if not denied by the BLM.

During the development of a mineral material site, topsoil would need to be stockpiled for later reclamation, useable timber or firewood may need to be removed and utilized. During operations, painting or screening may be required to minimize impacts to visual resources. Silt fences would be used to limit offsite sedimentation, and sites may need to be fenced to exclude cattle. Once the materials are exhausted, improvements and equipment would be removed, the land recontoured, topsoil replaced, and suitable plant materials would be used for revegetation. Aggressive dust abatement measures on haul roads and stock piles may be required to ensure dust is controlled and air quality is not degraded. The main impact to mineral material development could be the cost of implementing these and other measures. Although such measures increase the cost of doing business, they are considered routine and industry standard.

b. Impacts from Cultural Resources and Special Status Species. Impacts to any particular mineral material development project would be strongly affected by management actions related to these resources. If there prove to be conflicts between mineral material development and cultural resources or special status species, any proposed mineral material development proposal would likely be withdrawn or denied. Because of the low unit value nature of most mineral material commodities, and the relative abundance of alternative sources, it may be unlikely that a proponent for development would be willing to make the expenditures necessary to mitigate anticipated negative affects to these resources. It is more likely that a developer would find alternative sites that would completely avoid these resources, even when an alternative could require a greater hauling expense.

c. Impacts from Withdrawals, Special Designations, and Management of Lands with Wilderness Characteristics. Withdrawals, special designations, and management of lands with wilderness characteristics that close certain areas to mineral material development would have the most profound effect on a particular development project proposed in such an area. The proposed project, except in the most limited circumstance, would not or could not be considered by the BLM. If a developer wanted to pursue development of mineral materials, an alternative area outside of the boundaries of the protected area would have to be selected.

As indicated above, there could be negative consequences from the opportunities curtailed. Limiting sources could reduce the availability of higher grade minerals. Haul distances from

alternative sources to where the material is in demand would be increased, which would indirectly cause increased haul traffic on highways, road wear, associated costs to suppliers and/or consumers, energy consumption, and, as indicated under section 4.5.1, an increase in GHG emissions. The loss of the revenue opportunity from mineral royalties would be adverse to the Federal government (although this opportunity for revenues would likely be passed on for the benefit of the State or private landowners). Also, though curtailing this opportunity would not affect the current economic condition in terms of business income and employment regionally, certain local prospective opportunities could be displaced.

2. Beneficial Impacts

No potential, beneficial impacts to mineral material development due to management of other resources have been identified.

B. Differences between Alternatives

Table 4-13. Summary of mineral material disposal decisions by alternative

Specially Designated Areas	No Action	Alt. A	Alt. B	Alt. C
Closed to Disposals	133,100	511,100	579,600	129,810
Open to Disposals	1,384,813	1,006,772	938,292	1,388,040
Total BLM Administered Minerals	1,517,850	1,517,850	1,517,850	1,517,850
Percent open to Disposals	91%	66%	62%	91%

Differences between alternatives in impacts to mineral material resources are primarily in acreages available for such development. As explained above, the impacts to actual mineral production may be smaller than the acreage figures alone might imply. On the other hand, while the majority of the planning area may be open to material disposal, the closed areas in some cases could coincide with where higher grade resources occur or where resources are more prospective. In general, most of the lands that are proposed to have more restrictions to development are in areas where there is little or no demand for materials. In areas where there is demand for mineral material, the BLM has attempted to leave suitable sites available for use. Exceptions to these generalities are discussed in more detail below.

In comparing all of the alternatives, the no action alternative and Alternative C would be the least restrictive to mineral material development activities because a larger percentage of the planning area would be available for disposals. There would be about 91 percent of the BLM-administered mineral estate open to development in both of these alternatives (see Table 4-13).

The effects on the availability of land for mineral material disposals are similar under Alternatives A and B. The decisions that affect mineral materials in the Taos Plateau, Lower Gorge/Copper Hill, Ojo Caliente, El Palacio, West Santa Fe, Galisteo Basin, and East Side planning units are the same in both Alternatives A and B. In the Chama planning unit, the restrictions on mineral material development would be more severe under Alternative B in that the whole planning unit would be closed to disposals. Under Alternative A, only lands within the Rio Chama ACEC and Rio Chama WSA would be closed to disposals.

Under both Alternatives A and B, availability of mineral materials could be constrained by the decision to limit disposals to San Lazarus Gulch in the San Pedro area of the Galisteo Basin planning unit. This area is growing rapidly and is being subdivided and developed for bedroom communities for Albuquerque and Santa Fe. Hence, demand for materials has increased. The

BLM has received proposals to develop limestone deposits in the San Pedro Mountains for crushed stone to be used in construction aggregates, and the opportunity to develop these deposits would be curtailed under these alternatives. Attempts to develop gravel deposits along other drainages on private lands in the area have met with failure, due to the poor quality of the produced aggregates. Other operators in southern Santa Fe County have turned to crushed stone as a source of construction aggregates. Closure of the greater San Pedro area to material disposal may cause the effects described above to occur locally.

The enlargement of the La Cienega ACEC in the Santa Fe planning unit could constrain the local availability of cinders at some point in the future. The existing cinder mining operations have been excluded from the ACEC, but at some point the existing resources would be depleted. When that occurs, closure of the ACEC to mineral material development would prevent the operations from moving onto other cinder cones in the area.

Alternative A would be the second most restrictive to mineral development activities since a large percentage of the planning area would be unavailable for disposals (Table 4-13). There would be about 66 percent open to development under Alternative A, which is between the 62 percent under Alternative B and 91 percent under both the no action alternative and Alternative C. Alternative B would be the most restrictive to the development of mineral materials, primarily because a larger amount of the planning area would be unavailable for disposals.

4.6.6 *Recreation*

This assessment of impacts includes the positive or negative change to the physical, social, and administrative setting (see Appendix E for a description of recreational settings). An evaluation is also made on whether actions meet demand for settings, experiences, or recreation opportunities. Available data used for the analysis includes 5 years of annual estimates of visitation in the planning area from 2001 through 2005, public scoping comments, BLM customer service surveys from 2004 through 2007, the New Mexico State Comprehensive Outdoor Recreation Plan 2004–2009, and the 2004 Forest Service National Visitor Use survey results. The following programs would not adversely or beneficially affect recreation: air and atmospheric values, cultural resources, fish and wildlife, paleontological resources, soils, special status species, vegetation, water, wildland fire ecology, forestry and woodland products, rangeland resources management, and withdrawals.

A. Direct and Indirect Impacts

1. Adverse impacts

a. Impacts from Fish and Wildlife and Special Status Species. Potential impacts from management of fish and wildlife species could include closure of areas making them unavailable for public use or recreation activities. Closures or other management of wildlife or wildlife habitat may affect the design or creation of new recreation projects such as trails and campground facilities as well as projects or maintenance in existing recreation developments or areas with established patterns of use.

b. Impacts from Land Tenure. The proximity of some disposals, if directly adjacent to major access routes, could impact recreation activities resulting in conflicts between users.

c. Impacts from Land Use Authorizations. Impacts would include fragmentation from roads and intrusions from facilities such as water tanks, structures, and powerlines. These intrusions

could alter the recreation setting affecting descriptors such as access, remoteness, and naturalness.

d. Impacts from Mineral Resource Management. Large-scale development could alter the recreation setting affecting descriptors such as access, remoteness, and naturalness.

e. Impacts from Renewable Energy. Impacts would include fragmentation from roads, structures spread across open space, and associated traffic and noise. These intrusions could alter the recreation setting affecting descriptors such as access, remoteness, and naturalness.

f. Impacts from Transportation and Access. Reducing or eliminating cross-country travel or changing the type of access in each area alters the opportunities for certain types of activities and experiences which may be customary to some users. However, substitutes for the similar activities may be available nearby.

2. Beneficial Impacts

a. Impacts from Visual Resources. Restrictive VRM class I and II objectives would retain primitive and back country settings, thereby enhancing opportunities for solitude and undeveloped recreation experiences.

b. Impacts from Management of Lands with Wilderness Characteristics. Impacts would be similar to impacts from visual resources. In addition, areas managed to protect wilderness characteristics would provide nonmotorized opportunities for primitive and unconfined recreation.

c. Impacts from Land Tenure. Land acquisitions may open lands for recreational use by the public which could complement and/or increase recreational opportunities on public lands adjacent to the acquired lands.

d. Impacts from Land Use Authorizations. Land use authorizations could provide access to public land when otherwise unavailable and provide a demand for facilities and activities that the BLM is unable to meet.

e. Impacts from Recreation. Increased recreation management could provide additional opportunities for activities and experiences and strives to meet demand for an increase in information services. Evidence of a management presence would provide a safe setting for users and fosters appropriate behavior that protects natural resources and the recreation setting. Minimizing facilities would maintain undeveloped settings and opportunities for experiences such as adventure, exploration, solitude, and escape from noise and crowds.

f. Impacts from Transportation and Access. Designation of routes provides additional trail opportunities and helps reduce conflict among users.

B. Differences between Alternatives

a. Impacts from Fish and Wildlife. Alternative B would maintain a 0.5-mile buffer around unoccupied raptor nests to avoid and minimize affects which would preclude the development of recreational infrastructure.

b. Impacts from Special Status Species. Under each alternative there could be seasonal closures in Southwestern willow flycatcher habitat which would temporarily preclude the development of recreational infrastructure.

c. Impacts from Management of Lands with Wilderness Characteristics. Alternative B would provide the most opportunities for primitive and unconfined recreations through management of wilderness characteristics with seven areas totaling 93,413 acres. Alternative A would provide management for five areas, totaling 67,032 acres, to protect these characteristics, while Alternative C would provide management of only one area 13,190 acres in size and the no action alternative would not provide management of any such areas.

d. Impacts from Visual Resources. Alternative A would preserve and retain over twice as much land at the higher scenic quality objective of class II (393,708 acres) as that identified in the VRM inventory and under the no action alternative. It would also substantially reduce lands that would be managed for less restrictive class III (53,182 acres) and IV (37,546 acres) objectives. There would be substantial increases in land managed within ACECs for scenic quality, particularly in Ojo Caliente, Cienega, and Taos Plateau ACEC. There would be about 200,800 acres managed for class II in the Taos Plateau planning unit alone.

Alternative B is somewhat more protective of scenic quality than Alternative A, managing additional lands for protection under class I objectives.

Visual objectives in Alternative C are similar to the no action alternative which would allow more potential for development of recreational sites and facilities.

e. Impacts from Land Tenure. Pursuing acquisition of State and private lands from willing sellers adjacent to developed and undeveloped recreation areas under Alternative A would improve access to public land for recreation. Similarly, disposing of lands for trail access along the Santa Fe River helps meet objectives of the Santa Fe County Open Space and Trails Plan. Excluding popular recreation areas from rights-of-way helps maintain the setting and opportunities for which they are managed. However, disposal of land near Palacio Staging Area and adjacent to the primary access road into El Palacio planning unit are likely to have impacts to scenic resources and result in conflicts between potential development and recreation use.

Effects of Alternative B would be similar to Alternative A, except there would be no negative impacts as a result of the disposal of public land adjacent to the primary access road into El Palacio and the staging area adjacent to NM Highway 68.

f. Impacts from Land Use Authorizations. Under Alternative A, lease or conveyance of lands through the R&PP Act for a shooting range or similar recreation development adjacent to communities would be an appropriate means of resolving access challenges and demand for target shooting, motorized and nonmotorized recreation, and other opportunities.

g. Impacts from Mineral Resource Management. Alternative B has the least potential of impacting recreation settings because it has the most acreage closed to oil and gas leasing (approximately 659,000 acres of mineral estate), withdrawals from locatable minerals (approximately 341,000 acres of mineral estate), and closures to mineral material sales (approximately 578,000 acres of mineral estate). Alternative A and the no action alternative could affect more recreation settings with fewer closures. However, Alternative C has the greatest potential to impact settings because it has the least amount of these types of closures or other limitations.

h. Impacts from Renewable Energy. In the no action and Alternative C, most of the Taos Plateau except special designated areas would be open to the development of wind and solar

energy. Depending on the scale of development, renewable energy projects in the planning area could dramatically change the recreation setting over large expanses.

Alternatives A and B could result in changes to the recreation setting on public lands in the Cerrillos Hills, Burnt Corn, and Chimayo areas due to potential development of solar and wind energy. Likewise, development of solar energy could have similar impacts around La Cienega, La Bajada Mesa, Buckman, and El Palacio.

i. Impacts from Recreation. Under the no action alternative, management of recreation would be carried out according to prescriptions under three developed recreation areas: Wild Rivers, Orilla Verde, and Santa Cruz Lake, and four related SMAs: Chama, Sabinoso, Fun Valley, and the Racecourse, which is part of the Lower Gorge ACEC. The remainder of the planning area would be managed as an ERMA, primarily involving resource protection with less focus on recreation development.

The no action alternative provides relatively the same diversity of settings as the other alternatives, but does not ensure that undeveloped middle country and back country in the dispersed extensive areas would be managed to maintain those settings (see Appendix E). The no action alternative does not take into account the demand for these types of settings adjacent to communities with expanding populations, residential developments, and infrastructure. There would be far less emphasis on providing information and interpretive services, demonstrating a management presence, and management of motorized use. The current level of attention to these values has not been successful in providing a quality motorized experience, in meeting visitor demand for information, or managing behavior to protect natural resources. The expected future outcome of this would be an increase in unauthorized routes. Visitors would be left with limited information in the field. There would be much less opportunity to learn about and develop appreciation for the resources.

Under Alternatives A, B, and C, 11 areas would be managed as SRMAs with a total of eight separate niches of visitor use and management, and there would be eight distinct ERMAs. Much of the settings throughout the planning area would remain the same middle and back country, except localized new developments such as trailheads, staging areas, and interpretive signs would be front country and middle country. Slight changes to the opportunity for an unconfined recreation experience in those small areas would occur due to the addition of simple facilities and management controls.

A small acreage proportion of the setting would be rural (3,777 acres) and front country (7,638 acres) relative to vast areas (within both ERMAs and SRMAs) characterized as middle country (109,683 acres) and back country (19,473 acres) throughout the planning area. Acres managed for a primitive setting would be 44,854. Recreation users would enjoy positive changes such as improved access to public land, increased information services, and retention of highly valued undeveloped back country and middle country settings.

Benefits of increased management of recreation and motorized travel include enhanced knowledge and appreciation of resources in addition to reduced vandalism, illegal activity, and unauthorized routes. It is expected that there would be some change in the type of recreation use or clientele caused by proposed changes in management. It is difficult to precisely estimate the quantitative levels, but there are certain qualitative judgments that can be made. For example, an increase in signs and other information services could create additional awareness of recreation opportunities to potential users. Likewise, an increase in management presence may encourage some potential users to visit if they have a greater sense of personal safety. Furthermore, the

addition of facilities such as toilets and vehicle ramps could attract a category of users who may not otherwise visit.

Alternative B differs from other alternatives in that the north shore at Santa Cruz Lake would be closed to camping which would reduce vandalism and increase the safety of visitors. Camping is only 8 percent of use compared to 95 percent fishing and boating and 30 percent picnicking.

Developing overnight facilities at Diablo Canyon under Alternative C would change the area from middle country to front country and result in higher encounter levels and additional improvements, facilities, and management controls.

j. Impacts from Transportation and Access. Alternative A eliminates over 64,000 acres open for cross-country travel under the no action alternative and Alternative C by applying the limited to designated category. The increase to 75,425 acres closed to routes is also notable. Furthermore, the remainder of routes would be limited to designated rather than limited to existing, including an area where trials riding events would be provided for by special recreation permit. This means each route would be signed and located on a map versus large areas managed for travel on existing routes.

These decreases in open areas and substantial closure of routes would help maintain more primitive and back country settings, as well as promote the quality of nonmotorized recreation. However, this could diminish the opportunities for motorized recreation and potentially displace users from open areas and particular routes. On the other hand, the overall quality of motorized use would improve with well-defined open and closed areas and clearly designated routes. Motorized and nonmotorized recreation users would benefit from staging areas with simple, rustic facilities, signed routes, and maps. Over time, both single- and double-track trail opportunities would be enhanced and maintained. By and large, route designations with increased management presence and information services would give the user a clear picture of the resources available to them as well as appropriate use and behavior.

As with Alternative A, Alternative B leaves no acreage open to cross-country travel.

Alternative C provides additional motorized opportunities with more routes in the Ojo Caliente planning unit, an additional staging area near Chimayo, and the retention of Fun Valley which is designated open. Open acreage under Alternative C would be 53,165.

Allowing motorized use on designated routes in Alternative C in the Sabinoso ACEC outside of the wilderness could result in conflict with nonmotorized users and opportunities for solitude.

4.6.7 *Renewable Energy*

The following analysis generally discusses likely reductions in land area available for wind and solar renewable energy as a result of land use allocations. Restrictions for geothermal development would be the same as those described for oil and gas development in section 4.6.5.1. Programs with no decisions affecting renewable energy are air and atmospheric values, soils, water resources, wildland fire, and invasive species and noxious weeds.

The future development and use of solar and wind resources in the planning area would be driven primarily by the cost-benefit ratio of development. Potential for solar and wind development is discussed under section 3.3.7. Where development potential is economically viable, impacts to development on public lands are largely related to right-of-way avoidance and exclusion areas.

Exclusion areas directly remove acreage available for development while avoidance areas may result in loss of acreage if the development cannot be economically moved to an alternative location.

A. Direct and Indirect Impacts—Renewable Energy

1. Adverse Impacts

a. Impacts from Wildlife and Special Status Species. Solar and wind development would be limited by wildlife concerns. Wind development is precluded in some areas due to migratory bird and bat flyways through exclusion zones, while solar development may be limited in size as a result of habitat concerns.

b. Impacts from Cultural and Paleontological resources. Both wind and solar development can be limited in areas with important cultural and paleontological resources as development would disturb ground that contains the resources and disrupt their landscape context.

c. Impacts from Visual Resource Management. Areas without restrictions on solar and wind developments may be indirectly impacted by VRM classification criteria. Solar and wind developments may need to be relocated or otherwise mitigated, if not precluded, to meet VRM objectives, especially in class I and II areas.

d. Impacts from Land Tenure. Disposal of land could reduce the area available to wind and solar development while acquisition could increase the available area. Impact depends on the reasons for these actions. Acquisition of land for cultural resources or other types of resource protection would not increase land available.

e. Impacts from Vegetation Management. Areas may be excluded from solar and wind development to protect unique vegetative communities and rare plant species (e.g., riparian and wetland communities).

f. Impacts from Special Designations and Management of Lands with Wilderness Characteristics. Special designations and management for wilderness characteristics largely include rights-of-way exclusion and avoidance areas to protect resources for which the area was designated.

2. Beneficial Impacts

a. Impacts from Land Tenure. Lands identified for disposal may be available to wind and solar development interests.

B. Differences Between Alternatives—Renewable Energy

For this analysis, plan alternatives that reduce land available to solar and wind development would be considered to negatively impact renewable energy more than alternatives with fewer exclusion areas. Impacts from cultural resources, paleontological resources, vegetative management and land tenure are expected to be equal for all alternatives.

a. Impacts from Wildlife and Special Status Species. Solar and wind energy development would be most limited under Alternatives A and B due to restrictions for wildlife, especially birds and bats. Acreage in mapped flyways and other habitat is excluded from renewable development. Under the no action alternative and Alternative C, more acres are available to consider development through project specific analysis.

b. Impacts from Visual Resource Management. Area restrictions due to visual resource management are greatest under Alternatives A and B, which include over 500,000 acres (approximately 85 and 87 percent of BLM-managed surface, respectively) classified as class I or II. VRM would have little impact on solar and wind exclusions under the no action alternative and Alternative C. Alternative C identifies close to 260,000 acres (43 percent of BLM-managed surface) as class I or II, which impacts renewable development less than Alternatives A and B, but more than the no action alternative, which identifies a little over 200,000 acres (34 percent of BLM-managed surface) as class I and II.

c. Impacts from Special Designations. Under the no action alternative and Alternative C, a total of 23 percent of BLM-administered lands in the planning area would be excluded from solar and wind rights-of-way, primarily to protect special designations. The remaining 77 percent of BLM-administered land would be avoided for such rights-of-way or open on a case-by-case basis that allows for BLM discretion to accept or reject projects depending on their impacts. Under Alternatives A and B, an additional 36 percent would be restricted due to designation of ACECs.

4.6.8 *Transportation and Access*

Travel management affects a variety of travel modes and opportunities for access to public lands. The alternatives vary in providing motorized as well as nonmotorized access and how each would address conflicts identified during scoping. Motorized access would be managed under four possible categories based on BLM land use planning decisions considering natural resource protection, route utility, and public safety. The OHV categories are (1) *open*, which allows for unlimited travel, including cross-county, (2) *limited to designated* routes, and (3) *closed* to motorized use. The fourth category, *limited to existing* routes, serves as an interim category applied to areas where inventories and subsequent designations could take longer than five years to complete.

The indicators for analyzing impacts to travel are:

1) Efficacy of road and trail densities to support goals related to conservation of scenic quality or sensitive habitat management, or to accommodate certain uses. In habitat conservation areas, roads and trails would be limited to an average of .5 mile of road per square mile. In areas identified for motorized recreation use, a high density might exceed 2 miles of road per square mile.

2) Whether or not the road provides access to an important destination, to private, State or other Federal lands, or is critical for recreation and resource use activities.

3) The number of acres designated as open, closed, or limited to designated routes for recreation opportunities and access.

The following programs would not adversely or beneficially affect the management of transportation and access: air and atmospheric values, soils, vegetation, water, wildland fire, forestry and woodland products, invasive species/noxious weeds, livestock grazing, mineral resources, renewable energy, and withdrawals.

A. Direct and Indirect Impacts—Transportation

1. Adverse Impacts

a. Impacts from Cultural and Paleontological Resources. Transportation and access could be limited or denied in areas where recorded sites are located and with the discovery of new cultural or paleontological sites are made through surveys. The restoration or rerouting of routes would be necessary in limited to designated areas to avoid impacts to these resources.

b. Impacts from Fish and Wildlife and Special Status Species. Transportation and access would be limited where seasonal closures are applied, and the designation of routes would require careful consideration of the natural systems which support affected species.

c. Impacts from Management of Lands with Wilderness Characteristics. Protective management would greatly limit or preclude motorized use in these areas. Identification of existing routes would be evaluated for impacts to resources and either added to the transportation plan for the area or closed for use, limiting or precluding motorized use on particular routes. Management of these areas may provide for a very low density of route systems. Motorized travel opportunities could remain available but could decrease in these areas from their current use patterns.

d. Impacts from Land Tenure. The impacts to transportation and access could be greatly affected by land disposals. Future release of lands that interface with local communities and are presently appreciated for their open space and used for recreation would impact those communities trying to maintain desirable landscapes. Opportunities for managed OHV use (as well as recreation, the protection of open space, and other qualities valued by local communities) may be lost.

e. Impacts from Land Use Authorizations. Land use authorizations could limit access and opportunities for recreation use when incompatible use within an area is permitted as part of such authorizations.

f. Impacts from Recreation. The user conflict between motorized and nonmotorized use is increasing the displacement of nonmotorized travelers from areas shared by all users. Without recreation management, the availability of maps, and proper facilities such as trailhead signs, designated route identification, and information kiosks to meet needs of users, these conflicts would continue to increase.

g. Impacts from Transportation and Access. Decisions to limit or preclude motorized travel in certain areas would cause a reduction in these opportunities and access.

h. Impacts from Special Designations. Special designations to protect cultural, paleontological, natural, and aesthetic values are a primary reason limitations or closures are applied to OHV use. Opportunities for OHV travel could be lost in certain areas, and be substantially limited in others. Limited areas would be carefully monitored and managed to ensure resource values are protected.

2. Beneficial Impacts

a. Impacts from Cultural Resources. As new sites are identified and recorded, better developed and more concise plans could be adapted for transportation. The survey and identification of cultural sites would aid in the development of transportation planning by providing information use to locate lower impact routes.

b. Impacts from Fish and Wildlife and Special Status Species. Consideration of wildlife species, habitat, and other natural systems would provide for better planned travel networks and access opportunities. This provides the BLM with opportunities to manage for conservation and resource protection.

c. Impacts from Management of Lands with Wilderness Characteristics. Beneficial impacts to transportation could include better managed and signed route systems that provide trail access into areas with wilderness and scenic quality. The delineation of routes and opportunities to educate the public could increase understanding of proper use and appreciation for public lands.

d. Impacts from Land Tenure. Opportunities exist for the public to take part in the R&PP Act. This act would allow the BLM to sell or lease public lands for recreation and public purposes to qualified State and local government agencies and nonprofits. The beneficial impact could result in cooperative management strategies for BLM-administered lands along the urban interface for OHV use and access. Acquiring adjacent lands could allow more opportunities for public access, especially when travel routes on adjacent lands could be added to the transportation system.

e. Impacts from Land Use Authorizations. If the BLM were to acquire new public road easements, access for motorized public travel could increase. Newly acquired routes would be open for administrative use and public travel if designated.

f. Impacts from Recreation. Route management categories (open, limited to designated, and closed) are applied to BLM-administered lands in the planning area to provide a wide variety of trail-based recreation opportunities such as hiking, equestrian, mountain biking, and OHV trails. Travel routes provide safe and legal access for visitors to recreate on public lands. Open and designated OHV management areas would provide the public with recreational opportunities where concentrated OHV use exists. The designation of such areas is part of the National Management Strategy for Motorized OHV Use on Public Lands (USDI-BLM 2001). To meet the recreational demands of the OHV community, the BLM would provide managed areas for OHV activity.

g. Impacts from Transportation and Access. Opportunities for OHV use would be enhanced by a definitive network of routes and information available through detailed maps, signage, and access point kiosks.

B. Differences Between Alternatives—Transportation

Table 4-14. Travel management designations per alternative

Designation	No Action	Alt. A	Alt. B	Alt. C
Closed	21,180	75,425	75,425	64,065
Open	64,605	0	0	53,165
Limited to designated	316,525	519,675	519,675	477,870
Limited to existing	192,790	0	0	0

For public land users, the no action alternative would allow the most options for access to the public lands in the planning area since more areas would allow use of all existing roads and more acreage would remain in the open category (see Table 4-14). Many of the user conflicts and resource issues identified in Chapter 3 would likely continue. In particular, since many areas would still be limited to existing routes, the BLM's ability to control route proliferation would be

more limited than under Alternatives A and B. There would still be some confusion in many of these areas (primarily in West Santa Fe, Sombrillo, and El Palacio transportation areas) concerning what is available for use by a vehicle. No community riding areas would be established, so there would continue to be potential for conflict between riders and residents over noise, trespass, and dust.

Under Alternative A, options for open and cross country access by the public would be eliminated, thereby restricting opportunities for full access to non-roaded areas by OHVs, particularly motocross and ATV travel. This would reduce some identified conflicts, such as those between livestock grazing use and motorized access. Conflicts between landowners and ATV/motorcycle users would be somewhat reduced by providing nonconflicting routes. An established community-based route system would support the demand for displaced riders within the local community. There would still be conflicts, however, in areas with limited opportunities such as in the Ojo Caliente area. Upon implementation, this alternative would take an aggressive approach toward resolving some resource concerns, particularly wildlife habitat fragmentation in big game winter range areas and effects on cultural resources. Closure of some areas or a strict limit on the number of signed and accessible roads in important wildlife habitat should decrease habitat fragmentation.

Under Alternative B, opportunities for vehicle access are somewhat more limited than under Alternative A. Since nonmotorized access would also be developed, there would be fewer conflicts between nonmotorized and motorized users. Communities on lands adjacent to BLM land may experience more conflicts with motorized recreation, since fewer areas would be made available for OHV riding. This alternative provides for less impact to resources, while still providing for all types of access needs. User groups would become more segregated in transportation areas according to resource protection, values, and issues.

Under Alternative C, transportation access and opportunity would be similar to the no action alternative in terms of more routes designated in limited to designated areas. There would be more community-based riding areas located beyond the urban interface, which could reduce user conflict, noise, and dust issues with residents adjacent to public land used for ATV or motorcycle play.

4.6.9 *Special Designations*

Each special designation contains key resources that require additional, special management. For ACECs, these are the resources that met the relevance and importance criteria, based on an inventory (see section 3.3.10.1). For SMAs under the no action alternative, these include programs and resources identified in the previous RMP. For WSRs, these are the outstandingly remarkable values identified during the eligibility study, or when designated by Congress (see section 3.3.10.6). For national historic trails, management plans identify the trail segments in the planning area that have high potential for protection, interpretation, or other management actions. For WSAs, the criteria include an area's size (roadless area), naturalness, and outstanding opportunity for solitude and primitive outdoor recreation. The tables in Appendix A identify the key resources for each area proposed for a special designation.

In this section, the potential impacts to the resource values driving a special designation are summarized. A more in-depth analysis can be found elsewhere in Chapter 4 where adverse and beneficial impacts to those resource values are described in more detail.

A. Direct and Indirect Impacts

1. Adverse Impacts

a. Impacts from Fish and Wildlife. Projects to enhance habitat, such as development of waters/drinkers or fencing would be a direct impact to visual resources and other valued resources associated with special designations.

b. Impacts from Paleontology. Impacts would be related to the permitted excavation of a paleontological specimen, often using heavy equipment and requiring vehicle access to the site. This work would uncover and help preserve paleontological resources, but may impair visual quality and other values at a work site.

c. Impacts from Vegetative Communities. Management actions designed to suppress noxious and invasive weeds by mechanical means would involve surface disturbance by vehicle and in some cases, heavy equipment. These impacts would be mitigated by applying BMPs and selection of less impacting methods.

d. Impacts from Visual Resources. In some alternatives, the BLM is proposing a less restrictive VRM class to support resource use objectives, such as allowing for a utility line corridor, which would potentially allow a project that would not blend in with the characteristic landscape and diminish an area's scenic value.

e. Impacts from Wildland Fire. Suppression efforts that are not constrained to limit surface disturbance could affect these areas by road or fire line construction. ACECs that have relevant and important cultural resource values would be especially susceptible to adverse impacts from prescribed fire, including damage to petroglyphs, organic materials found in situ, and materials used to date a site. Natural resources would also be affected, such as short- to moderate-term habitat loss. Mitigation can be achieved by site clearance and data recovery or decisions to strictly limit fire suppression in the most susceptible areas.

f. Impacts from Forestry and Woodland Products. Impact would occur if an area were permitted for firewood gathering. Such activity would usually be accompanied by use of a vehicle for the gathering, along with the noise of power tools to cut wood. Slash piles or lines created by cutting to the boundary of an approved area could alter the appearance of an area for years.

g. Impacts from Land Use Authorizations, Utility Corridors, Communication Sites. Many areas proposed for special designation would remain available for various land-use authorizations. Authorizations could change the natural character of an area by adding structures and access roads to the landscape. This could impact visual quality, habitat quality, or other factors that led to the designation. Mitigation is possible through careful site location and application of BMPs.

h. Impacts from Minerals. Mineral exploration could result in small-scale surface disturbance and vehicle use. Mineral development (mining, leasing, or material sales) could lead to road building, placement of several structures for long periods of time, and noise and dust from operations. Surface disturbance could cover from an acre or two to several hundred. These effects could be limited to some extent by application of BMPs.

i. Impacts from Recreation. Impacts would range from minimal (such as from hiking, bicycling, or horseback riding) to large scale if camping areas or other developed facilities are constructed within the special designation.

j. Impacts from Renewable Energy. Renewable energy projects could result in visual change from road construction and placement of wind towers or solar panels, and could also result in habitat loss for large areas approved for solar development.

k. Impacts from Transportation and Access. Short- and long-term impacts from route use in special designation areas would include some erosion, loss of vegetation, potential wildlife mortality and increased visitation to areas with fragile or sensitive resources. The ability to park or camp within an area from 50 to 300 feet from a route could lead to route proliferation and more intensive use of areas that are currently not disturbed. Impacts from recreational trail use would be similar, but could be mitigated by careful selection of a trail route and steps taken to limit use, such as limited marketing of the opportunity.

l. Impacts from Special Designations If an area identified as having relevant and important resources is not designated, there could be direct and indirect impacts on those resources as a consequence. However, some protection would continue even without designation due to legal mandates (i.e., the protection of critical habitat of an endangered species).

2. Beneficial Impacts

a. Impacts from Cultural Management. Management of cultural resources would continue to provide sites for scientific inquiry, maintain the Native American cultural traditions and heritage, and provide opportunities for public education where these resources contribute to the special designation.

b. Impacts from Fish and Wildlife. Actions to protect habitat would also indirectly help protect the landscape, and would provide more opportunity for wildlife viewing or hunting.

c. Impacts from Paleontology. Actions to preserve these specimens in situ would potentially enhance the experience of a visitor to one of the areas being managed for this resource.

d. Impacts from Special Status Species. Actions would be taken to comply with Federal and State laws to protect these habitat areas, indirectly benefitting the protection of an area's natural character.

e. Impacts from Vegetative Communities. Efforts to protect plant communities, improve diversity, or suppress noxious or invasive species could maintain or improve habitat and the natural character of an area.

f. Impacts from Visual Resources. Designation of areas for management to VRM class I or II standards would help assure that any permitted actions be substantially unnoticeable or at least blend in with the characteristic landscape of the area, thereby preserving an area's scenic quality.

g. Impacts from Wildland Fire. Controlled burns or a "let burn" strategy could help maintain or re-create a more naturally appearing mosaic of vegetation in areas where wood cutting or other human manipulation of vegetation has occurred.

h. Impacts from Land Tenure. Land tenure decisions could benefit special designation areas through the acquisition of private or State lands, particularly those that are proposed for some

development. Acquired lands could be added to an adjacent special designation if they support the associated values, thereby increasing and complementing the manageability of those values.

i. Impacts from Livestock Grazing. Livestock grazing management would help maintain diverse forage, and would indirectly provide wildlife with additional, more reliable water sources.

j. Impacts from Recreation. Recreation management could provide information and interpretation of an area's key resources, as well as low-key facilities such as trails or interpretive signing.

k. Impacts from Withdrawals. Actions to administratively withdraw land from mineral entry or other land uses could help retain an area's natural character by limiting the type of use(s) that could be permitted.

l. Impacts from Special Designations. Special designation would be beneficial to the resources that drove the designation.

B. Differences between Alternatives

a. Areas of Critical Environmental Concern/Special Management Areas. These two designations apply significant constraints on surface uses to protect the resources identified as relevant and important. If designated, management would be very similar no matter what the alternative—differences are primarily in the acres designated. In the no action alternative, 197,940 acres would be managed as an ACEC (66,590 acres) or SMA (131,350 acres), representing about 33 percent of the planning area. Under Alternative A, there would be 407,855 acres of designated ACECs, or 68 percent of the planning area. This increases slightly under Alternative B to 410,105 acres. Alternative C has the fewest acres designated as an ACEC with 115,770 or 19 percent of the planning area.

Designation of areas as an ACEC would benefit resources such as fish and wildlife, cultural sites, paleontological sites, soils, special status species, vegetative communities, visual resources, water, and wilderness characteristics by establishing strict limits on surface uses that could fracture habitat, create visual change, or impair proper functioning condition of watersheds. Some resource uses would also see benefits, such as livestock grazing where controls would maintain vegetative cover for both wildlife and livestock, and recreation, where a natural setting for a wide variety of activities (both motorized and nonmotorized) would be maintained.

ACEC designation would have a negative impact on some uses such as mineral development, since most acreage in an ACEC is closed to mineral entry, closed to material sales, or where leasing is constrained by controlled surface use, no surface occupancy, or closed completely. The Chama Canyons ACEC (or Rio Chama SMA under the no action alternative) is the only special designation where moderate-potential leasable minerals occur. Land uses such as rights-of-way are not necessarily eliminated upon designation of an ACEC, and in fact one—the Santa Fe Ranch ACEC proposed under Alternatives A and B—would have a right-of-way corridor designated along Buckman Road. Rights-of-ways may be considered on a case-by-case basis in about 75 percent of the acreage proposed as ACECs, but could be mitigated to ensure the relevant and important values are not diminished.

b. Byways. No new byways are proposed in any alternative. The existing byways, described in section 3.3.10.2, would not be directly impacted by any proposed alternative or plan decision. Some possible indirect impacts would occur, primarily under the no action alternative and

Alternative C, by more allowance of surface disturbing activity, primarily mineral material sales, renewable energy, or land use authorizations within a byway's viewshed. These actions could also indirectly lead to more traffic on a byway.

c. National Historic or Scenic Trails. Only limited direct impact to identified trail resources would be permitted in any alternative, such as carefully designed road or utility crossings that would minimize visual change. Indirect impacts could occur from land use authorizations such as overhead utility lines, or new structures within the viewshed of a national trail segment related to renewable energy or mineral development, but mitigation would be required to maintain the assigned VRM class. These effects would be reduced because of the VRM class I and II restrictions for El Camino Real segments. The Old Spanish Trail segments are proposed for VRM II management, except for the Chimayo segment, which would be managed for VRM class III in Alternative C.

d. Wild and Scenic Rivers. Once a river segment has been designated by Congress, or after the BLM has determined it to be eligible or suitable for designation as a WSR, the BLM would manage the segment to assure that it remains free-flowing and the outstandingly remarkable values identified along the segment are protected. A river segment's tentative classification would also be preserved, assuring that the natural character or level of development within the river corridor remains consistent with the current condition. Indirect impacts could occur from changes authorized in a stream segment's watershed, such as mining activity, prescribed fire, or other vegetation treatments. Under Alternative C, the Rio Nutrias and Rio Pueblo de Taos segments would not be determined suitable and would remain open to mining, renewable energy development, or other land use authorizations.

e. Wilderness. Due to the protective nature of the Sabinoso Wilderness designation, the management of resources and limited resource uses would ensure the area would remain unimpaired under all alternatives. The wilderness management plan will evaluate potential effects to Sabinoso Wilderness from site-specific management decisions implemented by the BLM.

f. Wilderness Study Areas. The BLM is required to manage all WSAs to prevent impairment of their wilderness qualities. This would be true for all alternatives until Congress designates them wilderness or releases them from further consideration. If designated wilderness, they would continue to be managed to protect wilderness values. If released, this plan provides alternatives for their management.

Under Alternatives A and B, both WSAs would be managed as primitive area zones within larger ACECs, protecting their wilderness values.

Under the no action alternative, the suitable portion of the Rio Chama WSA (5,190 acres) would continue to be managed as a primitive area if released, but the remaining 5,960 acres would be managed under general RMP management prescriptions. San Antonio WSA, under no action, would be managed as part of the SMAs. Potential changes to their wilderness character could result from mining activity, but these areas are low potential for this use. Changes in their wildness value could also result from approval for a variety of land uses that would be allowed, such as utilities or cell towers.

Under Alternative C, the portion of the Rio Chama WSA that overlaps the WSR designation would still be managed for wilderness values, but the rest of the WSA would fall under general guidelines for this alternative. Additional livestock grazing improvements could over time

somewhat reduce the wilderness character of the former WSA lands that are not in the Chama Canyon. Some routes could be designated for vehicle use, further reducing the area's wilderness character. Other land use authorizations could also change an area's natural character or opportunity for solitude. The San Antonio WSA would remain a part of the San Antonio ACEC, but would be reopened to mineral use and vehicle use would be allowed on designated routes.

g. Other Designations. Galisteo Basin cultural sites would be protected from all activities that could harm their cultural, historic, or interpretive values, per the Galisteo Basin Archaeological Sites Protection Act. Activity plan guidance would be developed in a management plan, mandated by the Act, for all sites (public and private). Once completed, this would direct management actions by the BLM at these sites. There would be no difference in impacts between alternatives.

Northern Rio Grande National Heritage Area does not directly affect BLM-administered lands. Potential indirect impacts, such as land uses on public lands adjacent to sites that are important to the region's cultural heritage, could be mitigated during the project development and approval process.

4.7 Social and Economic Conditions

This section presents an analysis of social and economic impacts of the management alternatives and summarizes the detailed analysis presented in Appendix H. The economic analysis focuses on changes in labor income and employment associated with BLM planning actions and estimated outputs from BLM under the alternatives (Table 4-15). These changes in employment and labor income are assessed for the nine county area economy that encompasses the Taos Field Office planning area.

The social analysis focuses on the interests and concerns of communities in the area and communities interested in BLM management in the planning area. The analysis addresses the potential impacts of the alternatives on issues and concerns raised by these groups during the public involvement effort. Additionally, economic impacts such as higher employment, subject to some qualifications, can be seen as a benefit to the local community. Other benefits are also present, although some are not easily measured or tied to economic activity. An example of where effects are difficult to quantify are equity effects, impacts to social values and nonmarket values. Regardless, these benefits are discussed despite our inability to measure them quantitatively. The social and economic evaluation presented here should not be viewed as a complete answer, but only alongside other social and ecological impacts discussed throughout the DEIS under other resource sections. In this manner, many of the values associated with natural resource management are best handled apart from, but in conjunction with, this analysis.

Potential economic impacts are assessed using the Forest Economic Analysis Spreadsheet Tool (FEAST) developed by the USDA Forest Service Inventory and Monitoring Institute in Fort Collins, Colorado. This tool uses a Microsoft Excel workbook as an interface between user inputs and data generated using the IMPLAN input-output modeling system (FEAST 2007). The FEAST analysis assesses the economic impacts of the resource outputs projected under each alternative. Resource outputs in this context are the amount of a resource (e.g., fuelwood, AUMs, recreation visits, etc.) that would be available for use under each alternative (Table 4-15).

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires Federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs,

policies, and activities on minority and low income populations. The Executive order further stipulates that agencies conduct their programs and activities in a manner that does not have the effect of excluding persons from participation in, denying persons the benefits of, or subjecting persons to discrimination because of their race, color, or national origin.

Table 4-15. Estimated outputs by alternative

Output	Current [1]	No Action	Alt. A	Alt. B	Alt. C
General Recreation (visits) [2]	218,841	244,418	229,413	229,324	241,128
Fish and Wildlife Recreation (visits)	25,647	28,674	26,914	26,904	28,289
Cattle (AUMs) [3]	57,862	57,862	55,256	54,656	64,150
Sheep (AUMs)	544	544	544	544	3,906
Estimated Fuelwood Output (cords)	1,100	600	600	600	600-1,500
Carbon Dioxide (MCF)	7,824,500	7,824,500	7,824,500	7,824,500	7,824,500
Silica Sand (short tons)	8,864	8,864	8,864	8,864	8,864
Construction Sand and Gravel (short tons)	66,824	66,824	66,824	66,824	66,824
Crushed Stone (short tons)	377,697	377,697	377,697	377,697	377,697
Mechanical Treatment of Fuels (acres)	200	200	200	200	200
Weed Treatments (acres)	5	10	10	10	10
Payments to Counties (thousands)	$811.6	$817.1	$816.45	$816.45	$816.6
BLM Expenditures (thousands)	$4,926	$4,926	$4,926	$4,926	$4,926

[1] Estimates include actual use levels (average annual use).
[2] Recreation visits are expected to increase by 2 percent each year in addition to anticipated impacts associated with changes motorized use designations and access. These visitation estimates do not include visits from local use since their expenditures do not represent new money into the economy.
[3] Data are based on AUMs available for activation under maximum permitted use. Although, currently the share of actual use from what is available has decreased from 50 percent in 1998 to 30 percent in 2007 (see Table 3-49, Annual AUM Authorizations in the Planning Area).

A. Direct and Indirect Impacts

1. Adverse Impacts

a. Impacts from Forestry and Woodland Products. If nonpermitted collection of fuelwood ceases, the alternatives would supply approximately 600 cords of fuelwood on an average annual basis (Table 4-15) to area communities. Less fuelwood would be provided for household consumption and sales of wood would account for slightly less employment and labor income than currently contributed from BLM forest product removal (Tables 3-47 and 3-48).

2. Beneficial Impacts

a. Impacts from Fire and Fuels Management. Current fuel treatment levels would continue under all the alternatives. Wood products would be available from the slash and mechanical treatment of fuels. This would provide fuelwood for household, traditional, and cultural uses, and, to the extent practical, would allow for the future entry of new business that might offer value added products (such as log homes or furniture) or biomass energy. For example, 2,000

acres of biomass would be targeted under all alternatives for biomass utilization projects. Given favorable market conditions, some of these nontraditional materials might be utilized efficiently within new industries.

b. Impacts from Forestry and Woodland Products. If nonpermitted collection of fuelwood continues, the current levels of fuelwood removed from BLM lands (1,100 cords on an average annual basis) would be the same across all alternatives. In this case, sales of fuelwood would continue to support approximately two jobs and $44,000 in labor income, and fuelwood for household consumption would continue to be an important subsistence product for household, traditional, and cultural uses.

c. Impacts from Livestock Grazing. While dependency on BLM forage would remain low for the entire planning area, it can be reasonably assumed BLM forage would continue to provide a low cost and important complement to some livestock producers' grazing, forage, and hay production. Under all the alternatives, current levels of grazing could be supported with cooperation of favorable market conditions. For smaller communities within the analysis area, dependency on BLM forage might be greater than in other areas and could be maintained or fostered with reserve common allotments or other implementation level actions supported by the alternatives. Reserve common allotments could also be used to enrich subsistence and supplemental uses discussed under section 3.4.

Regardless of differences in employment and income from grazing management under the alternatives, the value to area operators should be considered. This value can be estimated as the difference between the competitive market price of an AUM and the BLM lease fee. This value is experienced above the price ranchers pay for AUM leases and can be considered a benefit. The benefit to operators from the potential permitted BLM grazing varies among the alternatives, but would not fall below $333,000 (2008 dollars).

d. Impacts from Recreation. While different levels of recreation are supported by the alternatives, recreation management would continue to sustain opportunities important to the area economy and well-being under all the alternatives. Increases in average annual visits to BLM lands (REMIS 2008) and population projections for counties in the planning area suggest an annual average increase of 2 percent is reasonable and conservative (UNM 2004).

e. Impacts from Mineral Resource Management. While current mining activities are not subject to the current land use plan revision process, management under a new plan would allow and determine the nature of these activities in the future. Current levels of employment and labor income associated with mineral uses on BLM lands (approximately 70 jobs and $4.05 million in labor income) would be supported under all the alternatives.

f. Management of Nonmarket Values. The economic analysis assesses the economic effects of the direct use of resources in terms of jobs and income. This type of analysis does not include other types of economic value often referred to as nonmarket values, which are discussed in section 3.4.10. Nonmarket values are important to the welfare of visitors, area residents, and other communities inside and outside the planning area. These values include natural amenities, quality of life factors, recreational opportunities, ecosystem services, and nonuse values such as existence, option, and bequest values.

While there is a general consensus that nonuse values exist, the methodologies for measuring these values are controversial and difficult to apply. Wilderness has been the subject of numerous non-use studies, usually conducted for specific natural areas, however to date no attempt has

been made to directly elicit potential non-use values associated with areas within the planning area due to other priorities. The action alternatives establish areas to be managed for wilderness character, changes to ACECs, and other special designations. These designations would further maintain and perhaps enhance nonmarket values associated with natural amenities protected on these lands.

Specific natural amenities mentioned during the public involvement process include cultural resource protection, water quality, soil condition, habitat, landscape and riparian health. Current levels of cultural resource protection would be supported under all the alternatives by BLM's continued efforts to mitigate and improve the integrity of this world renowned area resource. Proper functioning condition assessments would continue to be a part of riparian and water quality management within the planning area under all the alternatives. Additionally, standards and guidelines would continue to be a part of the soil and range condition assessments which analyze changes in management activities on BLM lands. The continued use of special area designations was also advocated as a means to protect area resources and as noted above would continue to protect habitat and landscape health.

g. Environmental Justice. All alternatives are expected to result in increases in employment and labor income relative to current conditions over the next decade, from which minority and low income populations may benefit. These contributions would likely remain a small share of total employment and labor income within the planning area but may be more important for the area's smaller communities.

Access to subsistence uses, traditional materials, and cultural sites would be accommodated under all the alternatives. Current levels of permitted subsistence uses of fuelwood and grazing could continue under all the alternatives as well. Access to these sites and materials would continue to provide valuable resources to communities within the planning area, sustaining lifestyles, traditions, ceremonies, and the heritage that support area community resiliency and wellbeing.

While subsistence uses would continue in the planning area, actions under the alternatives make certain current livestock grazing allotments unavailable. While high concentrations of farm operators within the impact area identify themselves as being of Spanish, Hispanic, or Latino decent (Table 3-45), none of the operators where grazing would be excluded are minority or low income. Reserve Common Allotments could also be used to enrich subsistence and supplemental uses discussed under section 3.4.

Additionally, public involvement efforts for this project have been inclusive and the agency has considered input from persons or groups regardless of race, color, national origin, income, or other social and economic characteristics.

h. Tribal Treaty Rights. Under all alternatives, the BLM would manage vegetation to continue to support healthy populations of a variety of native species. Provision for wildlife habitat and plant communities provide opportunities to exercise tribal treaty rights such as hunting, fishing, and gathering on public lands. Continued access to these materials and sites of cultural importance would also continue under all the alternatives.

B. Differences between Alternatives

Table 4-16 and 4-17 display the differences between alternatives in terms of employment and income.

Table 4-16. Average annual employment by program by alternative (full and part-time jobs)

Resource	Current	No Action	Alt. A	Alt. B	Alt. C
Recreation	267	298	280	280	294
Wildlife and Fish Rec	32	36	34	34	35
Grazing	7	15.5	15.1	15.1	15.3
Forest Products	1.2	0.7	0.7	0.7	1.7
Minerals	69	69	69	69	69
Ecosystem Restoration	5	5.2	5.2	5.2	5.2
Payments to Counties	16.7	16.9	16.9	16.9	16.9
BLM Expenditures	128	128	128	128	128
Total BLM Management	526	569	548	548	565
Percent Change from Current		8.2%	4.2%	4.2%	7.4%

Table 4-17. Average annual labor income by program by alternative (thousands of 2008 dollars)

Resource	Current	No Action	Alt. A	Alt. B	Alt. C
Recreation	$7,688	$8,586	$8,059	$8,056	$8,471
Wildlife and Fish Rec	$917	$1,024	$961	$961	$1,010
Grazing	$102	$210	$204	$204	$206
Forest Products	$28	$15	$15	$15	$38
Minerals	$4,055	$4,055	$4,055	$4,055	$4,055
Ecosystem Restoration	$120	$126	$126	$126	$126
Payments to Counties	$644	$648	$648	$648	$648
BLM Expenditures	$4,430	$4,430	$4,430	$4,430	$4,430
Total BLM Management	$17,983	$19,094	$18,499	$18,495	$18,984
Percent Change from Current		6.2%	2.9%	2.9%	5.6%

a. Forestry and Woodland Products. Under Alternatives A and B, 2,000 acres per year would be targeted for biomass utilization projects, which include fuelwood collection. Estimated jobs and income provided by permitted fuelwood sales would amount to about one job and $15,000 in labor income under this alternative. From 2,000 to 5,000 acres per year would be offered for personal and commercial wood permits under Alternative C. Current levels of jobs and income supported by permitted fuelwood sales would likely continue (approximately one job and $28,000 in labor income). With full implementation, 1.7 jobs and $38,300 in labor income could be supported under this alternative. With favorable market conditions biomass utilization projects could provide additional jobs and income. Under all the action alternatives, management would focus on improved forest health to yield the highest combination of products including commercial forest species and ecosystem values.

b. Rangeland Resources Management. The no action alternative would authorize average annual grazing of approximately 35,442 cattle animal unit months (AUMs) and 3,089 sheep AUMs (Table 4-15) and could support approximately 15 jobs and $210,000 in labor income (Tables 4-16 and 4-17). Annual revenues received by the BLM from grazing permits would amount to approximately $52,016. While these contributions are higher than current contributions from grazing, it must be noted that these are impacts from the established

preference limit for AUMs in the planning area. This is the maximum number of AUMs that could be offered under ideal forage conditions which may not be an accurate portrayal of actual impacts. Factors such as drought, financial limitations on operators, market conditions, and implementation of grazing practices to improve range conditions are important to consider.

Special area designations under the action alternatives would result in a slight decrease in AUMs resulting in less average annual employment and labor income supported by grazing than the no action alternative (see Tables 4-16 and 4-17). However, relative to the established preference limit, analyzed under the no action alternative, authorized AUMs would still exceed current levels of use. Thus, despite closure of some allotments, the action alternatives could accommodate an increase in average annual employment and labor income over the current situation. This may be less likely given historic trends in actual use of AUMs; however, if demand for AUMs existed and market conditions were favorable, the contribution from BLM grazing could increase under the action alternatives. Alternative C could authorize a maximum average annual AUM contribution slightly less than the no action alternative, but more than the other action alternatives (Table 4-15). This would support a smaller amount of area employment and labor income than the no action alternative, but possibly more than the other action alternatives (Tables 4-16 and 4-17).

Those interested in maintaining the status quo of grazing in the planning area are less likely to prefer the action alternatives since some allotments could be closed due to ACEC designation, other resource concerns, and possible disposal. Other permittees might be relocated with reserve common allotment designation; however, some might prefer the opportunities for change. At first glance slightly higher levels of grazing under Alternative C might be preferred over the other action alternatives; however, the decreased flexibility without reserve common allotments would not be favored. Slightly more AUMs would be available (284 AUMs) since disposal in the East Side planning unit and ACEC designation in the West Santa Fe planning unit would not occur.

c. Recreation. Under all the action alternatives, recreation provides less jobs and labor income than the no action alternative. These estimates portray possible decreases in use levels associated with limits on motorized uses anticipated under all the alternatives. While motorized use restrictions under all the action alternatives would limit motorized uses, it is reasonable to assume access for some nonmotorized uses, which depend upon motorized vehicles for access on BLM-managed lands, would also be limited. Regardless of changes in management, recreation use on BLM-managed lands is anticipated to increase on an average annual basis (see assumptions discussed in Appendix H).

The overall effect of limiting motorized use to designated roads and trails, under the action alternatives, would be less favored by individuals and groups interested in motorized uses and access but possibly more favored by others interested in nonmotorized uses. Desired recreation experiences could be enhanced with these motorized use designations and designation of recreation management areas. Other desired recreation experiences would be enhanced under the action alternatives with areas for competitive events and trails that enhance technical mountain biking opportunities. The SRMA and motorized use designations under the action alternatives would also continue to provide and potentially enhance other opportunities on BLM lands such as horseback riding, camping, boating, climbing, wildlife viewing, hunting, recreational mining, rock hounding, and scenic driving opportunities. Area designations would reduce dust and noise from OHV use of concern to other recreation users and area residents. While slightly less employment and labor income than the no action alternative could result from

these changes in recreation management, the conflicts resolved and improved quality of experience could enhance community well-being. The employment and labor income contributions under the action alternatives would be more than current contributions from recreation management. Thus, it is likely that BLM recreation management would continue to support employment and income levels important for area well-being.

Under Alternative C, use within the basin can be expected to increase by approximately 22,300 visits per year on an average annual basis (see Table 4-15) with closure of approximately 60,000 acres and the effect of increasing open areas and areas defined as limited to designated trails. This increase in use would not only be due to expected annual recreation visit increases outside the scope of BLM management under this plan, but also due to less closure of land to motorized uses and more areas open and limited to existing routes than either Alternatives A and B. These differences in motorized use would allow for greater recreation access for both motorized and nonmotorized users. Thus, jobs and income associated with Alternative C (294 and $8.5 million, respectively) account for more than the other action alternatives, but slightly less than the no action alternative (Tables 4-16 and 4-17).

While jobs and income associated with Alternative C would be less than the no action alternative, but more than the other action alternatives, it should be noted that the value of the recreation experience may have changed. As a result of SRMA and motorized use designations, recreation management would likely better match the desired recreational experiences of visitors. For example, under this alternative certain motorized user segments would benefit from areas designated for competitive events and hill climbing which previously did not exist. However, increases in noise and dust might degrade nonmotorized experiences. Alternative C emphasizes mixed recreation use with a slight emphasis towards motorized uses. This would likely be favored over other action alternatives by motorized users since the fewest acres are closed and limited to designated routes, leaving a larger area of BLM land designated as open and areas designated as limited to existing routes.

d. Payments to Counties. Under all the action alternatives, payments to counties could be slightly less than the no action alternative with the possible decrease in BLM grazing. However, payments from grazing leases would provide for a small amount of area employment and income since county payments are highly dependent on PILT and mineral leasing revenues (see discussion in Social and Economic effects section under Effects Common to All Alternatives in Appendix H). Thus, contributions to counties under the action alternatives are similar to the no action alternative.

This RMP proposes increasing the number of acres zoned as Z-3 (identified for disposal) by 10.8, 5.6, and 10.3 percent in Alternatives A, B, and C, respectively. While identifying this land as Z-3 makes disposal possible, it is far from guaranteed. [Despite the large amount of land currently classified as Z-3 in the planning area, entitlement acreage within the planning area actually increased between 1999 and 2007 as a result of acquisition in the Ute Mountain area in Taos County (see discussion in section 3.4).] If this land is disposed, it would no longer count towards the entitlement acreage used in PILT calculations which could slightly decrease the contribution to county payments from BLM land in the area.

e. Role of Amenities, Migration and Nonmarket Values. As discussed above, ACECs and land to be managed for wilderness character may attract new residents and tourists to the area, which would then contribute to area economic activity. In addition, these designations would further maintain and perhaps enhance nonmarket values associated with natural amenities protected on these lands. Under Alternative C, a few more acres would be recommended for ACEC

designation within the Galisteo Basin ACEC in order protect the 24 existing Galisteo Basin Protection Act sites and any new congressionally designated sites, as defined in the Act. However, fewer ACEC acres and less VRM class I acres would be designated than under Alternatives A or B. Therefore, it is likely that Alternative C would ensure more protection of nonmarket values and natural amenities than the no action alternative, but less than the other action alternatives.

C. Unavoidable Adverse Impacts

Possible unavoidable and adverse impacts could result from decreases in resource outputs from BLM land as a result of planning actions; however, these changes may be accompanied by changes in demand outside the scope of BLM management. Decreases in resource outputs may also accompany increases in social or ecological values associated with resource protection, recreation experience, or other social and nonmarket values held by communities interested in the area. Decreases in employment and income or adverse impacts presented here should not be viewed as a complete answer, but only alongside other social and ecological impacts discussed throughout the DEIS under other resource sections. In this manner, many of the values associated with natural resource management are best handled apart from, but in conjunction with, the social and economic analysis.

4.8 Irreversible and Irretrievable Commitment of Resources

Section 102(2) (C) of NEPA requires a discussion of any irreversible or irretrievable commitments of resources that would be involved in the proposal if it were implemented. Irreversible commitments of resources are those that generally cannot be reversed (e.g., the extraction of mineral resources). Irretrievable commitments are those that are lost or that might not be recovered for a period of time (e.g., the loss of wildlife habitat to surface disturbing activities).

Given the definitive nature of irreversible commitments of resources, their consideration is imperative in land use planning. Soil erosion, loss of productivity, and soil structure might be considered irreversible commitments to resources. These effects are caused by surface disturbing activities, such as construction of utility corridors and mineral resource development. Although they might be mitigated, loss of soil and soil productivity is still anticipated.

Disturbances to cultural resources of any kind, whether associated with OHV use, cultural- and heritage-oriented recreation, mineral resource development, renewable energy, or other uses of public lands, typically are irreversible. Any activity managed by the BLM that disturbs the surface and subsurface or causes wear could destroy the cultural material and their special relationships. This would also apply to paleontological resources, for which any damage, including loss of opportunity to collect scientific data, would be irreversible.

Development of mineral resources, whether leasable, locatable, or salable, is irreversible. If these nonrenewable resources were extracted for consumption or use, they would be irreversibly removed. *BLM Handbook H-1624-1, Planning for Fluid Minerals*, acknowledges leasing of oil and gas resources as an irreversible commitment.

Irretrievable commitments are perhaps the predominant type of commitment that the BLM makes for the resources it manages, given that over time, whether during the life of the plan or beyond, most current resources and opportunities can be restored. Air quality is expected to be affected by increased emissions but not to the degree that emissions would exceed State or Federal ambient air quality standards. Any such increases in air pollutants could be reversed in

the future, depending on improved technologies or a change in activities that contribute to these projections. Similarly, diminished water quality from sedimentation, salinity, and non-point source pollution caused largely by anticipated surface disturbing activities associated with mineral resource development and recreational use could be restored. Decisions under the action alternatives to limit disturbance to soils and riparian areas would decrease the potential for this impact.

Although effects on cultural resources are often irreversible, changes to the cultural landscapes and opportunities for traditional uses could be irretrievable losses because of disruptions to the visual and auditory context of the prehistoric or historic landscape, until it is restored through reclamation. None of the alternatives would result in substantial variance in this type of disturbance.

Surface disturbing activities such as construction of roads, utility corridors, various mining operations, and fuels treatment projects, as well as construction of facilities, whether associated with developed recreation, livestock grazing, mineral development, or other activities, generally contribute to increased visual obtrusions on the landscape. Although the BLM gives greater emphasis to visual resources through management of the VRM classification system, these types of activities constitute a commitment for the given use for the duration the infrastructure and facilities exist. When these various uses cease, reclamation efforts could generally restore visual resources to at least their current quality.

As previously mentioned, special status species, big game, and other wildlife habitats could be impaired or lost in areas used for activities requiring surface disturbance or where various human activities occur. Such activities affecting wildlife habitat could include persistent primitive or motorized recreation, developed recreational facilities, mineral resource development and extraction, transportation and utility corridor construction, livestock grazing, and fuels treatment programs. As noted, wildlife habits impaired or lost as a result of these activities might be restored through appropriate reclamation or reallocation of use priorities.

Lands with wilderness characteristics are also often irretrievably committed to other uses. Generational uses of public lands have demonstrated that opportunities for solitude, primitive recreation, and, over time, the naturalness of these lands might be restored. For example, the enjoyment of wilderness characteristics is now available in places where mining operations were once established. Reclamation, the cessation of surface activities, and time serve to restore these attributes.

4.9 Cumulative Impacts Analysis

As discussed in section 4.3, cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of the Federal or State agency or other party that undertakes these other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.

The scope of the cumulative effects addressed in this section focus primarily on those which would impact resources on BLM-managed lands in the planning area. Potential activities on adjacent Federal and non-Federal lands are considered in the analysis, though they are usually beyond the BLM's authority to manage. The past, present, and reasonably foreseeable future actions presented below are identified through an interdisciplinary team of resource specialist as relevant contributors to the cumulative effects anticipated within the planning area. The

timeframe for this analysis includes the cumulative impacts anticipated to occur within the next 20 years.

Basic assumptions used in projecting cumulative impacts are:

1. Population growth and community expansion within the planning area will continue at current rates.
2. The national need for energy resources will continue to grow, resulting in continued increased interest in both conventional nonrenewable sources as well as renewable energy sources (wind, solar, biomass, geothermal) from public lands.
3. Traditional public land uses such as livestock grazing and forestry (other than biomass sources) will continue, but demand will not grow.
4. Demand for nonconsumptive uses of the public lands including recreation, sightseeing, and bird watching will continue to grow, reflecting State and national population growth.

4.9.1 *Past, Present, and Reasonably Foreseeable Actions*

Past Actions

Past actions are development, projects, events, or other actions that have occurred and accumulated to create the existing conditions in the planning area, as described in detail in Chapter 3.

Forestry and Woodland Products. Forests and woodlands in the planning area have historically served to supply fuel wood and timber for local residents.

Wildland Fire Management. Active wildland fire suppression beginning in the mid-20th century in both forest and shrubland communities has affected natural succession and contributed to altered plant community structure which, in turn, has affected wildlife habitats and watershed conditions.

Livestock Grazing. Livestock grazing by both domestic sheep and cattle has occurred on public lands in the planning area for several hundred years. Past impacts from grazing has resulted in long-term changes to vegetation and impacts to soils and watersheds. Increased regulation and changes in livestock management beginning in the mid-20th century have reduced impacts, but recovery is still ongoing.

Leasable Mineral Development. Key past actions within the planning area include the following:

1. There has been substantial carbon dioxide exploration and production in the planning area since 1984 with the development of the Bravo Dome and West Bravo Dome Units.
2. There has been sporadic oil and gas exploration in the planning area since the 1920s, with the drilling of hundreds of dry-hole wells, some with shows of oil and gas.
3. The establishment of oil production in Santa Fe County, but only from one well, has generated leasing and exploration plans. The well has had intermittent production from 1985 to 2005 with other exploratory wells in the area reporting shows.
4. Leasing activity has been most active in the carbon dioxide producing areas of southern Harding and eastern Union counties with interest in adjacent portions of eastern San Miguel County. There has been an active exploration lease play in the Tucumcari Basin

portion of southeastern San Miguel and Harding counties with wildcat wells targeting Pennsylvanian rocks for oil and carbon dioxide.

5. Historic coal mining in the planning area was from four coalfields, the last of which closed in 2002 in the Raton Mesa area.

Present Actions

Leasable Mineral Development. Currently, Oxy USA Inc. is selling 280 mscf (million standard cubic feet) of CO_2 daily from 468 producing wells in the Bravo Dome Unit, with development projects adding 42 producing wells in 2007. Current cumulative unit sales are approximately 2.75 TCF (trillion cubic feet). In addition, Hess Corporation operates the West Bravo Dome Unit where 27 shut-in wells remain capable of CO_2 production. Hess developed 20 wells in 2008, but the lack of available electrical power and pipeline infrastructure to gather CO_2 along with a sustainable, viable market has resulted in no production from the West Bravo Dome Unit.

Leasing activity is most active in Harding, Union, and San Miguel counties. In southeastern Harding and southern Union counties, there is leasing activity adjacent to the southern boundary of Bravo Dome targeting carbon dioxide exploration. There is also exploration occurring for oil and gas in Pennsylvanian and Permian rocks. In southeastern San Miguel County, speculative leasing and wildcat exploration is also targeting the same Pennsylvanian and Permian rocks in the Tucumcari Basin.

There is interest in leasing Federal land as evident in the nominations for parcels in northern Rio Arriba County, specifically the Archuleta Mesa area which currently has leases but no production. These nominations are currently pending. In Santa Fe County, there is interest in leasing Federal and split estate minerals in the Santa Fe Embayment which is temporarily withdrawn from leasing awaiting State and county action.

On private minerals, the only producing well in the Santa Fe Embayment, the Black Ferrill No.1 was re-worked in the summer of 2007 and now has an operator reported production of six barrels of oil per day. The operator, Tecton Energy, is pursuing plans submitted to Santa Fe County to drill six new wells and re-enter two previously drilled wells in a 65,000-acre area under lease.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions are projections of the uses and activities that are likely to occur in the planning area in the foreseeable future based on current and historic trends and information on other actions actively being pursued.

Leasable Mineral Development. Planned and projected oil, gas, carbon dioxide, and geothermal development activities in the planning area include:

1. The assessment for oil, gas, and carbon dioxide development estimates that on average one dry hole and two producing wells (numbers rounded) would be drilled per year based on the number of wells drilled since the early 1920s in the eight counties.
2. Oil and gas accumulation potential is 140,343 acres of high, 3,656,727 acres of moderate, 9,674,120 acres of low, and 2,045,826 acres with no potential. The Santa Fe Embayment is the only high potential area in the planning area. The following specific sedimentary basins or uplifts contain moderate potential: portions of Chama, Raton, Dalhart, Las Vegas, and Tucumcari Basins, Archuleta Mesa, and portions of Sierra Grande Uplift (see Map 3-15).

3. Oxy USA Inc. plans to construct a booster compression project to increase CO_2 production to 392 mmscfd (million standard cubic feet daily) from the 910,196-acre Bravo Dome Carbon Dioxide Unit. Oxy also plans to drill 90 new wells including infill wells in the current producing area, some in a western expansion area and some exploratory. In addition to the drilling and completion of new wells, Oxy plans to construct approximately 18 miles of 24-inch fiberglass pipeline and approximately 56 miles of various sized fiberglass collection lines to gather gas and transport CO_2 to the compression facility. Their long-range strategy is to drill approximately 20 to 30 wells per year to offset unit decline (Oxy USA Inc. 2008 Plan of Development).
4. Plans submitted by Hess Corporation indicate the 34,655-acre West Bravo Dome Carbon Dioxide Unit would be developed by drilling 18 new wells with approximately 50 miles of new gathering lines, a new gas plant, and a 12-mile sales line to interconnect with the Sheep Mountain Pipeline. Three of the new wells are planned on Federal leases. Hess also plans to bring in electrical power to its wells and facilities and develop a water disposal well (Hess Corporation 2008 Plan of Development).
5. The lack of interest in developing the four coalfields on BLM-managed lands indicates there are other coal mining districts with advantageous mining characteristics and favorable economics.
6. Development of low temperature geothermal resources would be limited to just a few widely scattered but geologically controlled locations.

Renewable Energy. In March 2004, New Mexico Senate Bill 43 established a renewable energy portfolio requiring that public utilities in New Mexico provide 10 percent of their energy from renewable sources by 2011. Since that time the governor has called for increasing the percentage of renewable energy use to 20 percent by 2020. The State of New Mexico is actively seeking to export renewable energy. Demand for transmission rights-of-way to accommodate transport of renewable energy will likely increase. In 2007, New Mexico created a Renewable Energy Transmission Authority with the mandate to plan, finance, build, and operate new electricity transmission lines for power that draws at least 30 percent of its energy from renewable sources.

The recent increase in petroleum prices, as well as public resistance to the construction of new coal-fired power plants in New Mexico, make it highly likely that there will be an increase in demand for renewable energy projects in the planning area. If public lands are not available for such development, renewable energy companies will likely seek project opportunities on private lands adjacent or near public lands. Likewise, private land development may lead to increased application for powerline rights-of-ways as developers seek to transport power to the national distribution grid.

Transportation and Access. Carson and Santa Fe National Forests are currently developing transportation plans by which they would manage motorized travel. The Forest Service Travel Management Rule published in the *Federal Register* on November 9, 2005, followed by Travel Management Directives published December 9, 2008, mandate the development of travel plans for each forest and provide guidelines for their implementation. The plans would include eliminating cross-country travel, closing roads that are unnecessary, redundant, pose maintenance problems, or compromise sensitive resources. Some currently unauthorized routes are under consideration for designating, however, to provide access to points of interest or loop riding opportunities. Overall, the system of roads is anticipated to be reduced. Carson National Forest, which initiated its travel planning process in January 2009, is considering reducing its

road system by approximately 21 percent (USFS 2009), while Santa Fe National Forest, which initiated its planning process in July 2008, may reduce its system by 53 percent (USDA-FS 2008).

Population Growth. According to the US Census Bureau, population growth in Santa Fe and Taos counties outpaced the State of New Mexico between 1980 and 2006 (see section 3.4.4). It is reasonable to expect that the human population will continue to grow in the areas surrounding major urban centers in the planning area (see section 3.4.4). The University of New Mexico Bureau of Business and Economic Research projects that the population of New Mexico will increase by 25 percent between the years 2010 and 2025. Increased population would result in increased demand for energy, recreational opportunities, improved infrastructure, and increased demands on public resources such as sand and gravel and firewood.

4.9.2 *Cumulative Impacts*

4.9.2.1 Air and Atmospheric Values

Growth of leasable minerals development in the planning area, including Federal, State and private estate, would impact air resources in two ways. First, there would be emissions from operations that may contribute to greenhouse gases, nitrogen oxides, sulphur oxides and particulate matter. Second, associated development of infrastructure would increase exposed soils resulting in greater fugitive dust that would further increase particulate matter concentrations. It is anticipated that Alternative C would result in the greatest cumulative impacts, based on the anticipated contributions presented under section 4.5.1, while Alternatives A and B would be least.

Increased development of renewable energy may result in a decrease in emissions, but these decreases would not be located in the planning area. Decreases would occur where regional power plants reduce output as a result of increased renewable capability. Also, increased population may result in static emissions if renewable development was unable to keep pace with population demand. However, improvements in technology may reduce emissions if the improvements were to increase vehicle miles per gallon or home heating efficiency. The no action and Alternative C would provide the greatest availability of renewable rights-of-way within the planning area.

Population growth in the planning area is likely to continue into the foreseeable future. With the continued use and development of BLM-neighboring lands, dust is likely to persist as a problem in the planning area into the foreseeable future. Air resources on public lands may be affected by offsite use, agricultural activities, and development regardless of the RMP alternative selected.

It is assumed that because offsite sources are the major contributors to dust within the planning area, there would be negligible differences in cumulative impacts to air resources from the BLM activities proposed under each RMP alternative. Alternative C would contribute the greatest cumulative impact to air resources given equal population growth under all alternatives.

Climate change is recognized as a likely consequence of the emissions of GHGs from anthropogenic activities (IPCC 2007a; IPCC 2007b; National Academy of Sciences 2006; USGAO 2007). Within the planning area, these emissions may result from existing commercial and industrial activities and the use of motorized vehicles. The BLM's proposed management actions in this RMP would not contribute directly to these emissions. The plan would redirect some motorized activities to particular areas, but this is not expected to affect this global

phenomenon. Any proposed development on public land that would have carbon dioxide or other GHG emissions would be subject to additional analysis and compliance with NEPA and other applicable laws. Projects that are proposed on non-Federal land may be subject to air quality regulations, although carbon dioxide is not federally regulated at this time.

4.9.2.2 Climate Change

Greenhouse gases (GHGs) in the atmosphere have the potential to impact climate, and, in turn, changes in climate have the potential to influence resource management. The GHGs that enter the atmosphere due to human activities include carbon dioxide (CO_2), primarily emitted through the burning of fossil fuels; methane (CH_4), emitted during the production and transport of coal, natural gas, and oil, as well as by livestock, deforestation, and agricultural practices; nitrous oxide (N_2O), emitted during agricultural and industrial activities and during the combustion of fossil fuels and solid waste; and fluorinated gases that are emitted from a variety of industrial processes. According to the EPA Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2009 (February 15, 2011), the total GHG emissions in the United States were estimated at 6,639.7 teragrams of CO_2 equivalent in 2009. According to that report, total U.S. emissions have risen by 7.4 percent from 1990 to 2009, though they decreased 6.0 percent from 2008 to 2009 as a result of decline in economic activity and changes to fuel sources with lower GHG emissions. The report also states that CO_2 comprises approximately 83 percent of total GHG emissions by human activities in the United States, with the largest source being fossil fuel combustion. GHG emissions in the U.S. are partly offset by carbon sequestration in forests, trees, in urban areas, and agricultural soils, which in aggregate, offset 15 percent of total emissions in 2009 (EPA 2011). CO_2 sequestration increased 17.8 percent between 1990 and 2009 due to increased rate of carbon accumulation in tree biomass. This is particularly important to the Taos Field Office, which ranked 8th among all BLM offices for biomass potential (see sections 3.3.1 and 3.3.7), indicating that proper management and conservation of vegetation resources will maintain or increase sequestration capacity in the region, though prescribed burning increases CO_2 emission.

Through complex interactions on a regional and global scale, GHG emissions cause a net warming effect of the atmosphere, primarily by absorbing heat energy that would otherwise be radiated by the earth back into space. Although GHG levels and corresponding climate conditions have varied for millennia, industrialization and burning of fossil fuels have caused GHG concentrations to increase measurably. The concept that increased atmospheric CO_2 related to the burning of fossil fuels could result in changes to global temperature was first proposed by Svante Arrhenius, a Swedish Scientist, in 1896. Most contemporary Scientists agree, based on the evidence, that atmospheric warming caused by GHGs is contributing to climate changes (IPCC, 2007). Increasing CO_2 concentrations may also lead to fertilization and growth of specific plant species.

In New Mexico, a recent study indicated that the mean annual temperature increases have exceeded the global average with mean annual temperatures averaged across the state rising 1.8^{o}F since 1976 (Enquist and Gori 2008). When compared to baseline information, periods between 1991 and 2005 show temperature increases in over 95 percent of the geographical area of New Mexico. Although Global Change Models (GCMs) consistently predict decreases in precipitation for New Mexico, these models are not yet able to resolve important factors such as El Nino and the Southwest Monsoon. Precipitation variations due to topographic differences are also not well represented in GCMs. Scientists have much higher confidence in GCM predictions of temperature than those for precipitation (IPCC 2007a).

Ongoing scientific research has identified the potential impacts of GHG emissions on global climate. The U.S. Global Change Research Program report on Climate Change Impacts in the U.S. provides a summary of the current understanding of the science of climate change and potential impacts in the United States (Karl, et.al., 2009). Notable impacts for the Southwest relate to water resources, drought, flood, wildfire, and biodiversity.

A 2007 U.S. Government Accountability Office (GAO) Report on Climate Change stated that "federal land and water resources are vulnerable to a wide range of effects from climate change, some of which are already occurring. These effects include, among others: (1) physical effects such as droughts, floods, glacial melting, and sea level rise; (2) biological effects, such as increases in insect and disease infestations, shifts in species distribution, and changes in the timing of natural events; and (3) economic and social effects, such as adverse impacts on tourism, infrastructure, fishing, and other resource uses." However, it is not yet possible to predict with any certainty local or regional effects of this RMPs proposed actions on climate (see section 4.2, Analytical Assumptions).

As climate changes, the abundance and distribution of wildlife and fish could also change. Mid- to high-elevation forests in the planning area are most likely to be affected (Enquist and Gori 2008). Climate change effects can include alteration in species distribution, increased spread of invasive species, and changes in habitat such as shrub expansion into grasslands.

The potential impacts to natural resources and plant and animal species due to climate change are likely to be varied, including those in the southwestern United States (Enquist and Gori 2008). For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened and endangered plants may be accelerated. Due to loss of habitat or competition from other species whose ranges may shift northward, the population of some animal species may be reduced or increased. Less snow at lower elevations would likely impact the timing and quantity of snowmelt, which, in turn, could impact water resources and species dependent on historic water conditions. Forests at higher elevations in New Mexico, for example, have been exposed to warmer and drier conditions over a 10-year period. Should the trend continue, these forest habitats and the drought-sensitive species within them may be affected by climate change. Additionally, as disturbances (such as fire and insect outbreaks) increase, the character of vegetation resources that provide wildlife habitat could change (IPCC 2007a). In the future, if tools for predicting climate change improve, and/or if it is determined that climate change has measurably impacted resources, the BLM may need to reevaluate decisions made as part of the planning process and adjust management accordingly.

4.9.2.3 Cultural Resources

Negative effects on cultural resources resulting from development on adjacent nonpublic land, such as subdivisions, has occurred in the past and can be expected as more areas are developed. This is especially the case with cross-country OHV use entering the public lands from adjacent subdivisions. Public education and awareness efforts and limiting OHV use to designated routes would serve to alleviate much of this problem.

4.9.2.4 Fish and Wildlife

Fish

Cumulative impacts to fish and aquatic wildlife are directly related to cumulative water quality and quantity impacts. Given anticipated energy development, population growth, and global climate change scenarios, it is likely that species that rely on water resources would experience decreases in habitat availability and quality. Habitat would be lost as a result of declining surface water flows while habitat quality would be impaired by increased sedimentation, chemical pollution and temperature, and impacts described in the previous Water Resources subsection. Reduced habitat would limit native species ability to find refuge from competition with introduced species leading to local and regional extinctions throughout the planning area. Impacts to water quality that reduce habitat quality would result in a loss of species diversity and a change in species composition.

Given global climate scenarios, it is expected that cold water reaches of rivers in the planning area would become marginal for cold water species and warm water species would occupy habitat abandoned by the other species. In addition, habitat in some reaches may become so degraded that only very few aquatic species can survive, reducing species diversity.

Wildlife

Historic grazing practices have changed the character of many western landscapes, including those lands in the planning area, to the detriment of some species (e.g., mule deer and prairie dogs) and the benefit of others (e.g., sage thrasher and sage sparrow). Lack of historic fire regimes due to fire suppression efforts and the public's past concerns regarding environmental conservation, have contributed to the encroachment of tree species in what was once shrublands and grasslands, and has also changed the species composition of wildlife that inhabit these areas (e.g., gray vireo versus mountain plover).

Direct impacts of OHV use and cross-country travel have been well documented, and include destruction of soil stabilizers, soil compaction, reduced rates of water infiltration, increased wind and water erosion, noise, decreased abundance of wildlife populations due to fragmentation, and destruction of vegetation.

OHV traffic impacts ground nesting birds, such as the mountain plover, and special status species of plants, including the Santa Fe cholla, and affects the amount and quality of nesting habitat to migratory birds. Roads and highways pose several direct and indirect threats to big-game and nongame populations. Roads and highways are considered the greatest cumulative threat to wildlife populations. As barriers, roads inhibit dispersal and subsequent gene flow between subpopulations and meta populations. In providing access to wildlife populations, roads and highways foster such threats as development, vandalism, and collecting. The presence of humans, their activities, and noise reduce the value of aquatic vegetation to shorebirds, waterfowl, and wildlife. Increased dispersed camping and/or day use may cause loss of such vegetation, which could affect big game, migratory birds, shorebirds, and raptors.

Biological resources on public lands may be affected by use and development on private, State or other Federal lands that result in loss of habitat, regardless of the RMP alternative selected. With the continued use and development of adjacent lands, cumulative impacts to wildlife habitat are likely to persist in the planning area into the foreseeable future.

4.9.2.5 Special Status Species

Cumulative effects on special status species are essentially the same as those described for wildlife above. If climate change, habitat fragmentation, or other factors significantly reduce habitat for species presently listed as species of concern, it is possible some species could become sufficiently at risk that they might be listed as threatened or endangered. If this occurred, the BLM would follow existing procedures to ensure that BLM management activities do not increase the risks to these populations.

Several species that occur in the planning area, including the peregrine falcon, bald eagle, and mountain plover, have been delisted, or are proposed but not listed, due to changes in public and private management and conservation measures. The BLM has consistently managed to conserve, protect, and enhance special status species habitat while preventing the further listing of species and endeavoring to remove species from listed status. While all alternatives provide for the protection of special status species, Alternative B would likely have the lowest level of cumulative impacts, while Alternative C would have the highest, as these alternatives represent the range in allowable surface disturbing activities and development.

4.9.2.6 Soils

Degradation and loss of soils due to the cumulative effects of renewable and nonrenewable energy development, transmission and storage are likely to increase throughout the life of the plan. Increased energy development would result in increased infrastructure and maintenance of roads, which would likely increase the proliferation of OHV travel. The cumulative effect of energy development is significant for the fact that it impacts large areas of land for long durations of time. These projects cumulatively degrade soil quality as a result of increased erosion where surface vegetation is removed. Although the plan would not impact the demand for energy development, differences among alternatives in special designations and restrictive prescriptions would result in greatest cumulative impacts under Alternative C and least impact under Alternative B.

Growth in the planning area would likely contribute to the modification of soil characteristics. An increased portion of soil resources would likely be compacted, paved, or otherwise disturbed by various activities throughout the area, regardless of public or private ownership. Public lands may sustain cumulative impacts through increased soil erosion rates throughout the watershed and consequent increased sediment deposition in waterways. Landscape-level erosion cannot be predicted due to lack of soil survey data. Alternative C would result in the greatest cumulative impact to soil, while Alternative B would have the least impact assuming equal population growth for all alternatives.

Global climate change is expected to increase the frequency and severity of drought conditions within the planning area. Increased drought can effect soil resources by altering vegetative cover (species and density), which in turn could result in greater soils exposure to wind and water erosion. Alternative C would contribute the greatest cumulative impact on soil resources given equal global climate change under all alternatives.

4.9.2.7 Vegetation

Riparian Vegetation

Riparian resources on public lands may be affected by use and development on private, State or other Federal lands, regardless of the RMP alternative selected. Direct impacts of OHV use or

cross-country travel have been well documented and include destruction of riparian areas. Livestock grazing continues to present management challenges due to trespass and lack of monitoring. Recreational activities continue to increase, and riparian areas are focal points for many activities, having cumulative impacts to vegetation, soils, and ecosystem function. Continued management for nonnative invasive vegetation would slowly improve riparian ecosystem health.

Climate change may result in reduced water yields, affecting presently perennial water courses. Increased recreational use of riparian areas as well as microclimatic changes linked to climate change could result in the spread of additional invasive species which could affect aquatic animal and riparian plant communities.

With the continued use and development of adjacent lands, cumulative impacts to riparian resources are likely to persist in the planning area into the foreseeable future. Continued management of invasive riparian vegetation should benefit overall ecosystem health in the long term.

Terrestrial Vegetation

Cumulative impacts to terrestrial vegetation from causes outside BLM jurisdiction may include a variety of issues. Primarily, the availability of woodland and range resources (fuelwood and livestock forage) in the planning area could affect the demand on resources found on BLM-administered lands. If vegetation resources on adjacent lands (private, tribal, State, etc.) are limited due to overuse or other restrictions, then demands on public lands would increase. Conversely, if the availability of terrestrial vegetation resources on public lands were to decrease (e.g., a reduction in available firewood permits due to limited woodland resources), then demand would increase on adjacent lands. This effect has been observed in periods of drought when the BLM has reduced grazing in certain allotments and permittees have had to shift use to private pastures.

Potential changes in vegetation associated with the projected effects of climate change may alter terrestrial vegetation. Though change in vegetation communities is inevitable, whether it is a negative or positive effect depends largely on what really happens (i.e., different models of global warming suggest different trends in weather patterns for the southwestern U.S), and what vegetation resource is being analyzed. Any action in the planning area that results in a net increase of photosynthetic material would contribute to a decrease in CO_2 and its associated effects on global climate.

4.9.2.8 Visual Resources

Population growth and development in the planning area has resulted in land use and utility development that have altered views of the characteristic landscape by their intrusions.

Impacts to scenic quality on non-Federal land would act to increase the value of and the pressure to maintain those characteristic landscapes. Although management activities by other Federal agencies likely would maintain or enhance scenic resources through management objectives or mitigation measures, surface-disturbing activities on non-Federal land adjacent to Federal land could impact sensitive viewers or may be incompatible with VRM objectives within those viewsheds. This could include expansion of communities in terms of residential development, utilities, roads, and minerals. As a result, there may be a demand for access by road across Federal land. There could be a slight increase in the amount of roads. However, Alternatives A and B propose a significant amount of land with class II objectives, designate right-of-way

corridors and exclusion areas, and determine areas where co-location and burial of utilities would be emphasized.

With most of New Mexico experiencing mean temperature increases, vegetation in forests and woodlands could be susceptible to losses (Enquist and Gori 2008). If potential widespread vegetation loss occurs over the next 20 years, there could be impacts to scenic quality in the planning area.

4.9.2.9 Water Resources

Surface and ground water quantity within the planning area is likely to be reduced as a result of energy development, population growth, and global warming. Energy development and population growth would reduce water quantity through diversion from surface streams and wells. This would have a secondary impact on aquatic and terrestrial animals that rely on surface water flow. Global climate change, which is anticipated to result in increased temperature throughout the planning area, would increase the amount of direct surface water evaporation and plant transpiration resulting in reduced stream flow and ground water recharge, although shift in vegetative cover may mitigate transpiration impacts. Alternative C would result in the greatest cumulative impact to water quantity given potential energy and mineral resource development.

Cumulative impacts to water quality in the planning area are closely linked to soil impacts. Changes in land use pattern in river watersheds resulting in higher erosion rates would result in greater cumulative impacts to water through sedimentation. Increased population would also impact water quality through impairment from septage. It is likely that increased energy development and population would result in increased water quality impairments for all alternatives.

4.9.2.10 Livestock Grazing

Rangeland resources would be impacted by disposals and other programs, the increased use of public lands near the urban areas, and exclusion of areas for protection of cultural sites which would reduce in the number of AUMs available for public lands. Recreational visitor use would disturb livestock where activities occur within grazing allotments. Minerals development would increase the number of roads in an area. With the exception of the no action alternative, the recommendations in the transportation and access programs would benefit rangeland resources by reducing access to many areas within the planning area. As the urban areas of Santa Fe, Espanola, and Taos expand, there may be elimination of annually allocated grazing from selected parcels or areas, if not the total exclusion of grazing.

Climate change could result in plant community changes which could affect grazing operations. The range and extent of any such changes cannot be predicted at present. Changes in vegetative species composition may lead to changes in the type of animals grazed (e.g., from cattle to sheep and goats). Watering sources that are dependent on annual precipitation (i.e., dirt tanks) may no longer receive the necessary water and reduce the capabilities of the resource to support livestock.

4.9.2.11 Mineral Resources

Since the 1988 RMP was completed, interest in fluid mineral resources has continued with the increase in oil prices. Because the value of carbon dioxide is directly related to its use for enhanced oil recovery, demand for this useful gas has increased proportionally. Over 103 mmcf of carbon dioxide gas is being produced annually from the Bravo Dome Unit (Go-Tech Well

Production Data 2008). Operators of this unit would continue to drill infill developmental and exploratory wells, and develop associated infrastructure to maximize the resource and to offset natural unit decline.

Closure or restrictions on fluid mineral leasing on public lands would occur in the planning area to some extent under all alternatives because of the identified high scenic, cultural, and recreational values present. The low potential for oil, gas, and carbon dioxide accumulations in these same areas reduce the collective impact on those valued resource uses now and into the future.

In comparing Alternatives A and B with the no action alternative, leasing constraints would cover larger areas of primarily low potential accumulations of oil, gas, and carbon dioxide, thus generally having minimal impact on potential development. Closing or applying stricter leasing constraints to low potential lands would have negligible effect and may reduce impacts as the resource are classified as noncompetitive.

Low potential for oil, gas, and carbon dioxide accumulation occurs in areas discretionarily and nondiscretionarily closed as well as areas open with leasing stipulations (see Carbon Dioxide and Oil and Gas Potential Maps 3-12 and 3-15, respectively). This low rating reduces the possible competing impacts with scenic, cultural, and recreational resource values. Although leasing activity would be restricted on BLM-managed land, the same low potential exists for the adjacent State and private minerals which further reduces indirect impacts.

Regardless of the mineral potential, the large amount of closed land combined with no surface occupancy and controlled surface use constraints, especially under Alternatives A and B, would affectively limit the ability to extract minerals from these areas. Also, it may be more difficult to find suitable sites for fluid mineral leasing due to the combination of constraints on BLM-managed land under Alternative A or B and the management of other Federal lands within the planning area.

There is interest in fluid mineral leasing for carbon dioxide resources in specific portions of the planning area, particularly in eastern San Miguel, eastern Harding, and southern Union counties (see Carbon Dioxide Potential Map 3-12). Oil and gas leasing interest would continue in the Galisteo Basin portion of Santa Fe County, parts of Mora and Colfax counties, as well as the portion of Rio Arriba County which contains Chama Basin and Archuleta Mesa (see Oil and Gas Potential Map 3-15).

4.9.2.12 Recreation

Population growth in New Mexico and outside the region could lead to increased demand for recreation opportunities. Undeveloped, open, and unconfined settings could continue to decrease over time as development proliferates. These settings may be difficult to replace or substitute elsewhere. Change could occur if access is developed around communities and use increases to the point that natural appearing settings, where sights and sounds of human activity are more distant, become substantially modified by roads and developments. There could be a decrease in the opportunity for solitude closer to home. As use and demand increases above prescribed setting objectives, the BLM would begin exploring additional management controls on visitor use.

If current trends persist, use of OHVs would continue to increase as population and the popularity of motorized sports increases. It is possible that some unanticipated outdoor sport or new recreational technology could lead to impacts not considered as part of this analysis.

Through monitoring the BLM would adapt management actions to deal with any resource or user conflicts as a result of unforeseen change. Over the life of this plan, it is anticipated that the BLM would complete administrative actions to improve recreation access and experiences in the planning area. This would include additional recreation and interpretive signs, trails and trailhead areas with toilets, vehicle barriers, fencing, and other infrastructure.

4.9.2.13 Renewable Energy

BLM-managed land with potential for solar energy production is widely available in the planning area. Solar development projects on public lands or private land adjacent to public lands could impact wildlife by fragmenting the landscape where these installations are authorized. However, development of renewable energy projects on public land would reduce the amount of nonrenewable fossil fuels (oil, natural gas, coal) used to generate electrical power. Long-term reduced use of fossil fuels would help maintain or improve air quality.

4.9.2.14 Transportation and Access

Area-wide transportation management planning for Federal lands managed by both the BLM and Forest Service could enhance overall travel opportunities through delineation of designated routes with maps, signage, and other quality information; the promotion of public safety, education, and involvement; improved public compliance; and maintenance of the route systems. Coordination between the managing agencies would ensure the travel systems complement each other in terms of opportunities provided for and management consistency.

Overall miles of designated routes, however, would be reduced from the current transportation systems, while opportunities of cross-country travel throughout the public lands would be almost entirely precluded. Much of the reduction would be due to the elimination of redundant or unnecessary routes, as well as the limitation or preclusion of routes in some areas in order to protect important, sensitive values. The overall reduction in miles of routes is not anticipated to displace travel to other public lands outside the planning area, particularly given the national travel management strategies being implemented by the BLM and Forest Service.

Chapter 5 Consultation and Coordination

5.1 Introduction

Consultation and coordination with Federal and other governmental agencies, Native American tribes, organizations, special interest groups, and individuals is important to (1) ensure that the most appropriate data have been gathered and employed for the analyses and (2) ensure that agency and public concerns are considered and incorporated into the planning process. During the planning process for this RMP and EIS, formal and informal efforts were made by the BLM to involve tribes, other Federal agencies, State and local governments, and the public.

The Taos Field Office determined that one of the more effective means of sharing information and collecting ideas about the RMP revision was through personal one-on-one or small group discussions with interested parties. Therefore, BLM staff engaged in a number of informal scoping discussions with local groups and individuals (e.g., the community of Dixon, the New Mexico Wilderness Alliance, the Wilderness Society, the Taos and Rio Arriba County Managers, Vecinos del Rio, Santa Fe County commissioners, and others) from late April through early June 2006.

The formal scoping period for this planning effort began on May 26, 2006, with the ending period extended from July 31, 2006, to August 31, 2006. A scoping notice was sent to governmental agencies, interested organizations, and individuals included on a mailing list for this planning process in addition to paid notices in local newspapers. To facilitate continuous communication with interested parties, the BLM established a webpage for the Taos RMP revision process at http://www.blm.gov/nm/st/en/fo/Taos_Field_Office/taos_rmpr.html.

Numerous agency coordination meetings, public meetings, and other collaborative efforts occurred during the scoping period and have continued as necessary, appropriate, or requested since the formal scoping period closed. Table 5-1 lists the formal scoping meetings held.

Table 5-1. Formal scoping meetings held

Location	Date
Taos, NM	June 13, 2006
Las Vegas, NM	June 15, 2006
Espanola, NM	June 27, 2006
Santa Fe, NM	June 29, 2006

In addition to scoping meetings, two economic profile system (EPS) workshops were held to both inform local citizens and community leaders about the RMP revision process and to develop a common basis of understanding about local economics and the role of public lands and resources in the economies of the counties discussed. The first EPS workshop was held in Espanola on July 29, 2006 and centered on the economy of Taos and Rio Arriba Counties. The second workshop was held in Santa Fe on July 20, 2006 and centered on Santa Fe County. In Espanola, 23 citizens, county officials, and BLM and other agency representatives participated. In Santa Fe, participants numbered 29, and included a number of local organization representatives, county citizens, county planners, a tribal representative, and BLM and other agency representatives.

5.2 Description of Consultation and Collaborative Efforts

This section describes consultation and collaborative efforts with Native American tribes, Federal, State, and local agencies and organizations, and other interest groups. Potential cooperating agencies were identified and invited to enter formal agreements early in the planning process. The criteria used to identify potential cooperators were that they be governmental entities which (1) have jurisdiction by law or (2) have special expertise with respect to potential impacts (40 CFR 1506.1). Federal agencies which manage lands adjacent to BLM lands within the planning area were also invited to cooperate.

5.2.1 *Tribes*

Eleven tribes have lands located within the planning area. These include the northern Tiwa Pueblos of Taos and Picuris; the Tewa Pueblos of Nambe, Pojoaque, San Ildefonso, Ohkay Owingeh, Santa Clara and Tesuque; the Keresan Pueblos of Cochiti and Santo Domingo; and the Jicarilla Apache Nation. As part of the scoping process, Taos Field Office contacted these tribes to initiate consultations in accordance with the NHPA and to extend the opportunity to participate in the planning process. A scoping presentation was made at an Eight Northern Pueblos Council meeting to update the Governors of the eight pueblos on potential RMP issues and the planning schedule.

Other New Mexico tribes with lands located outside the planning area boundaries were contacted with information on the planning process, because of their possible interest in resources within the area. These contacts included the following tribes: The Navajo Nation, Acoma Pueblo, Isleta Pueblo, Jemez Pueblo, Laguna Pueblo, San Felipe Pueblo, Sandia Pueblo, Santa Ana Pueblo, Zia Pueblo, Zuni Pueblo, Hopi Pueblo, and the Southern Ute Tribe.

Of the tribes, Ohkay Owingeh has been particularly interested in participating in the RMP process. The BLM has made on-site visits to ancestral lands with representatives of the Tribe to coordinate on issues regarding transportation and access and land tenure. Subsequent to the publication of the Draft RMP/EIS, Ohkay Owingeh became a formal cooperating agency to better facilitate more active participation in the remainder of the planning process. They are the only Tribe to have provided comment on the Draft RMP/EIS

The Taos Field Office intends to continue consultation with Native American tribes on a government-to-government basis throughout the planning process. Native American tribal governments have been encouraged to identify issues, express concerns, and provide information they would like the BLM to consider in its decision-making process. The BLM provided the tribes with information about the plan for developing the cultural resource component of the RMPR/EIS, and requested that they identify any traditional cultural places and resources that should be considered. The Taos Field Office continues to seek opportunities to develop cooperative management partnerships with tribes where appropriate.

5.2.2 *Intergovernmental Cooperation and Collaboration (State and Local Levels)*

Of the Federal, State, tribal, county, and local agencies or governments invited to participate in the planning process as formal cooperating agencies per 40 CFR 1501.6, Santa Fe County, State of New Mexico Department of Game and Fish, and Ohkay Owingeh Pueblo responded by becoming formal cooperating agencies with the BLM under a memorandum of understanding.

In addition, the BLM made every effort to contact other interested agencies or governments to ensure that they are aware of the BLM's RMP revision process. Agencies contacted include the following:

Federal

Army Corps of Engineers, Albuquerque District
Bureau of Indian Affairs, Albuquerque
Bureau of Reclamation, Albuquerque
National Park Service, Long Distance Trails, Santa Fe
U.S. Fish and Wildlife Service
- Regional Director, Southwest Region 2
- Chief, Division of Endangered Species
- Chief, Division of Habitat Conservation
- Special Status Species

United States Geological Survey, Albuquerque
- Water Resources Division

Department of Agriculture
- Southwest Region, Forest Service
- Carson National Forest
- Santa Fe National Forest

Natural Resource Conservation Service

State of New Mexico

Department of Game and Fish
Department of Transportation
Economic Development Department
Energy, Minerals, and Natural Resources Department
Environmental Department
Office of Cultural Affairs, State Historic Preservation Division
State Land Office
Bureau of Geology and Mineral Resources
New Mexico Office of the State Engineer

County

Rio Arriba
Santa Fe
Taos
Colfax
Harding
Los Alamos
Mora
San Miguel
Union

Local Government

Town of Taos
City of Santa Fe
City of Espanola

Tribal

Tribes within the planning area:

Northern Tiwa Pueblo of Taos
Northern Tiwa Pueblo of Picuris
Tewa Pueblos of Nambe
Tewa Pueblos of Pojoaque
Tewa Pueblos of San Ildefonso
Ohkay Owingeh
Santa Clara
Tesuque
Keresan Pueblo of Cochiti
Keresan Pueblo of Santo Domingo
Jicarilla Apache Nation

Tribes outside of the planning area:

The Navajo Nation
Acoma Pueblo
Isleta Pueblo
Jemez Pueblo
Laguna Pueblo
San Felipe Pueblo
Sandia Pueblo
Santa Ana Pueblo
Zia Pueblo
Zuni Pueblo
Hopi Pueblo
The Southern Ute Tribe

The BLM has consulted with several State agencies at various times throughout the planning process to address specific resources. Consistent with legislation protecting State-listed species, the New Mexico Department of Game and Fish and the New Mexico Energy, Mineral, and Natural Resources Department have been contacted regarding the presence (or potential presence) of State-listed threatened and endangered plant and animal species in the planning area.

In accordance with the New Mexico Protocol Agreement and the BLM National Programmatic Agreement, the BLM notified the New Mexico State Historic Preservation Office (SHPO) in May 2006 that an EIS was being prepared for management of public lands in Taos, Rio Arriba, Santa Fe, Union, Colfax, Harding, San Miguel, Mora, and Los Alamos counties. In 2006, the BLM conferred with SHPO regarding the extent of the area of potential effect, data sources, and appropriate tribal consultation. The BLM is solicited comments from the SHPO on the Draft RMPR and EIS and, in accordance with the BLM National Programmatic Agreement and New

Mexico Protocol, would continue to consult about undertakings pursued in accordance with an approved RMP.

5.2.3 *Federal Agencies*

The BLM continues to coordinate with Carson and Santa Fe National Forests regarding transportation and access, WSRs, recreation (Diablo Canyon/Buckman), wildland fire, and vegetation treatments.

The Fish and Wildlife Coordination Act of 1934 (Title 16, United States Code, Sec. 661 et seq. [16 U.S.C. 661 et. seq.]), as amended, and the Endangered Species Act of 1973 (16 U.S.C. Sec 1531 et seq.) require consultation with the U.S. Fish and Wildlife Services (USFWS) prior to initiation of any BLM project that has potential to affect any federally listed special status species or its habitat. Since the Taos RMP is considered a major Federal action, consultation with USFWS has been initiated by the Taos Field Office. While informal consultation has been occurring since 2005, official consultation did not begin until the submission of a Biological Assessment (BA) to USFWS with the DEIS. The BLM submitted the BA, a stand-alone document containing an assessment of potential impacts to special status species, to the USFWS at the time this DEIS was published, asking for concurrence on BLM's findings. The BA and associated correspondence is on file at the Taos Field Office.

The list of species and critical habitat addressed in the BA is as follows:

Threatened, Endangered, Proposed or Candidate Species:

Southwestern willow flycatcher (*Empidonax traillii extimus*) (Endangered)
Mexican spotted owl (*Strix occidentalis lucida*) (Threatened)

Critical Habitat:

The action area addressed within this BA falls within designated critical habitat designated for the Southwestern willow flycatcher. Final ruling on the critical habitat for the Southwestern willow flycatcher was established by the USFWS on October 2005 (FR Vol. 70, No. 201).

5.2.4 *Interest Groups*

The BLM has met with a variety of special interest groups during the planning process in an effort to coordinate on their interests and needs pertaining to the resources and uses of public lands in the planning area. Meetings were held with the New Mexico Wilderness Alliance, Turquoise Trail Preservation Trust, San Pedro Neighborhood Association, New Mexico Gold Miners Association, New Mexico Trials Association, and other groups. Several meetings were held in the La Puebla and Dixon areas regarding OHV and other issues.

5.3 Comments on the Draft RMP/EIS

On June 10, 2010, concurrent with the distribution of the Draft RMP/EIS, a notice of availability was published in the *Federal Register* announcing the availability of the draft document for a 90-day public review and comment period. During the review period for the Draft RMP/EIS, the BLM held public open-house meetings for the purpose of assisting the public in their review of the draft document and soliciting their comments (see Table 5-2). The Draft RMP/EIS was sent to the agencies listed above, additional agencies with potential interest, and as requested by the public. It was also available to members of the public at http:\\www.nm.blm.gov.

Table 5-2. Draft RMP/EIS open-house meetings held

Location	Date
Santa Fe, NM	July 28, 2010
Espanola, NM	July 29, 2010
Taos, NM	July 30, 2010

All comments received by the BLM during the 90-day period have been compiled, analyzed, and summarized. Appendix J presents all substantive comments received and provides a response to each comment indicating how the document was modified or why the comment did not warrant a change to document.

5.4 List of Preparers

Preparers of the Proposed RMP/Final EIS and members of the interdisciplinary team are:

Name	Title	RMPR/EIS Responsibility
Sam DesGeorges	Field Manager	Management Oversight
Brad Higdon	Planning/Environmental Coordinator	Team Leader, NEPA Compliance
Paul Williams	Archaeologist	Archaeology
Tami Torres	Recreation Planner	Recreation, Visual Resources
John Bailey	Assistant Field Manager, Recreation	Management Oversight
Lora Yonemoto	Realty Specialist	Lands and Realty
Mark Sundin	River Manager	Wild and Scenic Rivers
Patricio Martinez	GIS/Remote Sensing, Mapping	GIS Specialist
Greg Gustina	Fisheries, Watershed, and Soils	Fisheries, Renewable Energy, Soil, Air, and Water
Suann Havener	Transportation Coordinator	Transportation Management
Justin Dean	Biological Technician/Park Technician	Wildland Fire, Terrestrial Vegetation
Henry Eichman	Economist, USFS Enterprise Team	Socioeconomics
Jacob Young	Range Management Specialist	Range Management
Dave Borland (NMSO)	Forester	Forestry
Linus Meyer	Rangeland Management Specialist	Range Management, Invasive Species
Valerie Williams	Wildlife Biologist	Wildlife, Special Status Species, Riparian
Mark Lujan	Public Education Specialist	Public Affairs, Public Education
Joe Hewitt	Geologist	Leasable Minerals
Powell King (NMSO)	Mining Engineer	Saleable Minerals
Bill Dalness	Geologist	Locatable Minerals
Terry Humphrey	Assistant Field Manager, Resources	Management Oversight
Joe Mirabal	Geologist	Minerals
Pat Hester	Regional Paleontologist	Paleontology

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