

# **FORSYTHE WILDLIFE UPLANDS ECOLOGY ASSESSMENT**

August 14, 2005

Prepared by

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## **Introduction**

The Forsythe Watershed covers an area of 48 square miles comprised of grasslands, oak woodlands, redwood forest, Douglas fir forest, mixed conifer hardwoods and chaparral. It also includes the largest natural lake in Mendocino County, some patches of old growth forest, as well as a few vernal pools, a tiny freshwater marsh and two mineral springs.

The primary purpose of this wildlife assessment is to demonstrate the value of the Forsythe Watershed as part of a potential wildlife linkage between Jackson Demonstration State Forest (JDSF) on the west side of Mendocino County and the Mendocino National Forest (MNF) on the east side. In order to do that, a series of fifteen GIS maps have been created by the non-profit conservation organization LEGACY – The Landscape Connection to begin an analysis of the watershed. It should be emphasized here that this is just a preliminary assessment and no specific area is depicted across the watershed as a linkage corridor in any of these 16 maps. The location of any such conservation project lies completely under the control of the landowners and it would be presumptuous to suggest otherwise.

Another secondary purpose for this wildlife assessment is to create a repository for all currently available biological data. This creates a “snapshot” of the current (2004-2005) biological conditions that can be referred back to from future points in time. Depending on funding availability, new biological information about the watershed may also be added as it becomes available.

Of course, no biological assessment of any watershed in this region would be accurate without mentioning the regrettable loss of the human part of the ecological relationships within the landscape. The cultures of the Yuki and Pomo persisted in the Forsythe Watershed for at least 7000 years and played an important role in keeping this part of the world in balance. There is no question that the current ecological problems that are plaguing this area, as well as all other parts of the globe, are a direct result of our modern culture. Hopefully, we will recognize this fact and work to design wildlife linkage networks along with our ongoing development plans so that future generations will also have healthy wild ecosystems to inspire them.

It is often said that a picture is worth a thousand words. There are many pictures in this report, including the 15 maps, and in many ways they tell the “story” of the Forsythe Watershed.

### **The Case for a Wildlife Linkage through the Forsythe Watershed**

*Map 1 - Central Mendocino County Linkage Potential* – gives an overview of the watershed within the context of surrounding public land and existing development. Although JDSF is not set-aside specifically as wildlife habitat, its use as a working state forest insures that it will continue to be intact as a 50,000 acre area that is compatible, to a large degree, with wildlife conservation. Further increasing its effectiveness in this regard are several State parks with a combined acreage of more than 11,000 acres that are contiguous with JDSF. By contrast, high intensity farming and housing subdivisions do

not provide adequate habitat for most species of wildlife, nor do they allow for connectivity of vegetation types for the genetic health of native plant species.

As time passes, areas of conserved habitat become more and more surrounded by human development, and eventually, in effect, become “islands” of habitat, where the native plants and animals are cut off from others of their kind. As any farmer knows, the genetic health of his/her crops and livestock depend upon “out-breeding”. In terms of landscape level genetics for native species, the least expensive and most natural and efficient way to insure out-breeding over time, is to provide linkage networks between conserved areas. In this way, native plants and animals are able to naturally migrate over vast areas. Many wildlife species are “shy”, and therefore depend upon well-canopied riparian forest for migration paths that allow them to travel under cover from one area of use to another (see Figure 1 for the dramatic loss of Forsythe Creek’s riparian canopy over a 40 year period). Some wide-ranging species migrate frequently over vast areas within one generation. Other less mobile species may require many generations to migrate across the same area. In any case, the ability to migrate is of critical importance to each species’ genetic health.

Mendocino County is still relatively undeveloped. Therefore, establishing wildlife linkages here would be much easier and less expensive than in many other areas of California. Since the majority of land in this county is privately owned, creating linkages requires the cooperation of landowners, either through the process of establishing conservation easements, or by land acquisition from willing sellers.

Notice the pink areas on Map 1. These areas represent subdivisions of land that have resulted in parcels that are smaller than 35 acres. Parcels of this small size may still contain habitat for many species of wildlife, but the practicalities of working toward long-term conservation planning with a large number of landowners is extremely difficult at best. As shown on Map 1, these subdivisions have not yet completely filled in the area between Willits and Ukiah so there still exists the opportunity to establish a linkage to the southeast from JDSF, through the Forsythe Watershed, and then northeast to the Sanhedrin Potential Wilderness Area (PWA) of the Mendocino National Forest.

Within the Forsythe Watershed are 1770 acres of private land that are held in a conservation easement. Landowners of another property are currently in the process of establishing conservation easements on 4600 acres (this project is well underway and partially funded). The Bureau of Land Management (BLM) owns and manages 1270 acres. Combined, these three ownerships, which are already in some form of protection, comprise nearly 25% of the 30,741 acre Forsythe Watershed. Adjacent, on the west side of the watershed, is another 2200 acre swath of conserved land linking to the 1300 acre Montgomery Woods State Park and 690 contiguous acres of BLM land. Adjacent on the east side of the watershed is the 4000 acre Willits Watershed, public land owned by the city of Willits. All totaled, these parcels in and around the watershed encompass 15,800 acres, which greatly contribute toward the possibility of a continuous linkage somewhere through this watershed (see Map 15). Existing and pending conservation easements are not shown on any of the maps in this report in order to protect landowner privacy.

## Description of Maps and Photos of the Forsythe Watershed

**Map 2 - Forsythe Watershed Elevations** - gives an overview of the topography and stream system of the watershed.

**Map 3 – Soils** - shows soil types. The only existing gravel mine in the watershed (on the west side of Hwy. 101 at the Ridgewood Summit) is located on one of the few areas of Squawrock-Witherell Complex soil type. If this soil type is indicative of areas that can be mined for gravel then particular attention should be paid to conserving the areas in red on this map.

### **Maps of Human Impacts**

The next six maps, three aerial photo comparisons, and one ordinary landscape photo comparison give some indication of how human development and activity has impacted the watershed:

**Map 4 - Existing and Potential Mining Areas** – again identifies the areas of Squawrock-Witherell Complex soil, which perhaps are potential gravel mining areas. The locations of existing mining areas in and around the Forsythe Watershed area are also shown on this map.

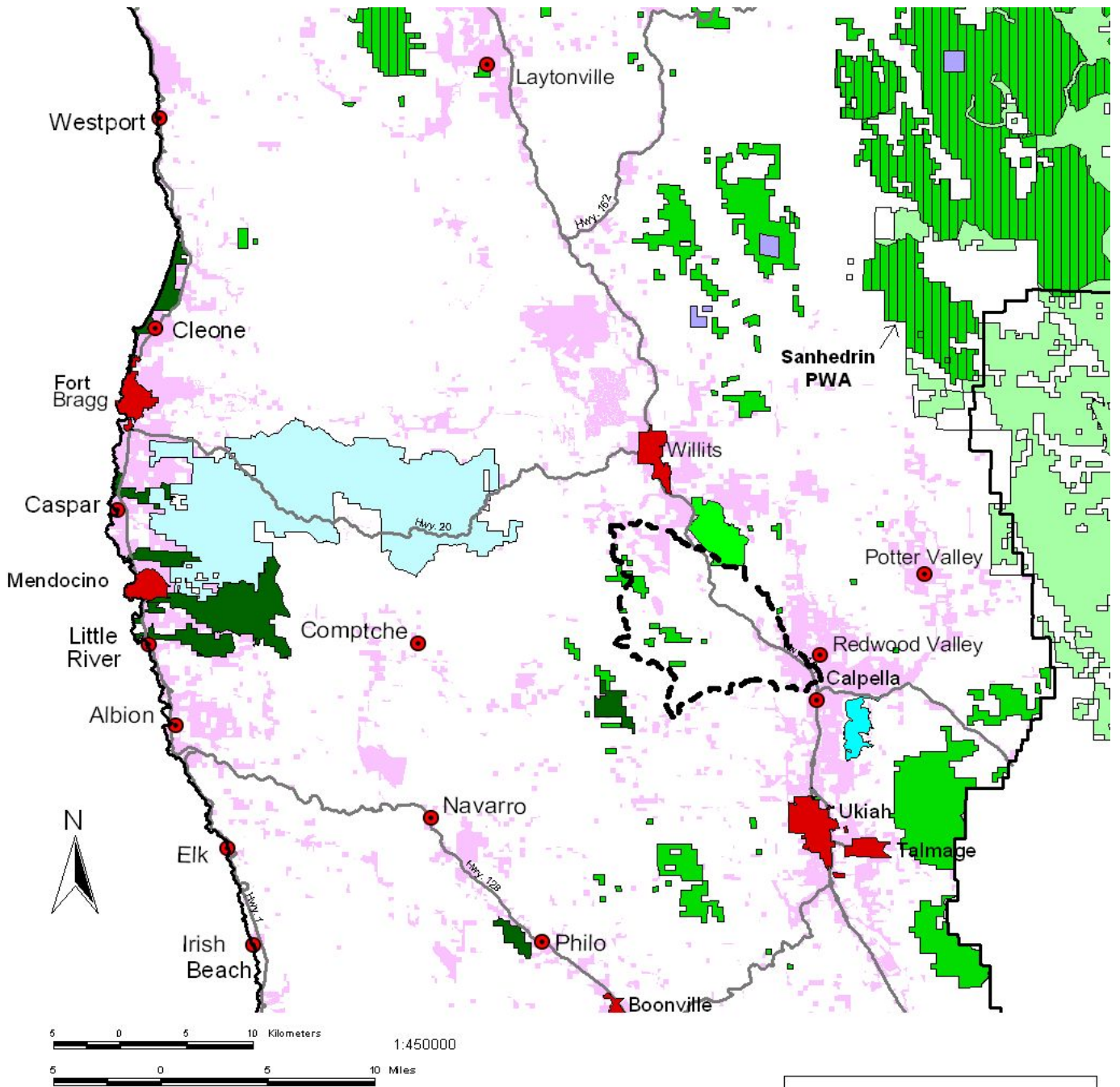
**Map 5 – Human Population** – indicates human population density.

**Map 6 – Developed Areas** – shows the smaller parcel subdivisions and areas of high and low building density. It also shows the locations of public land in and around the watershed. The area identified in the legend as “Virtually Undeveloped Land” is nearly uninhabited with only about a dozen buildings existing throughout.

**Map 7 – Wireless Communications Sites** – identifies the known wireless communications tower and antenna sites in and around the watershed. Known tower and antenna height in the county varies from 40 to 186 feet, although the height is unknown for more than half of the 69 sites that are listed. As will be explained later in this report, several studies of tower bird kill, associated with communications sites, show that some towers have an adverse impact on migratory birds.

**Map 8 – Invasive Exotic Plants** –depicts the locations of a few species of the most invasive, exotic plants that exist in the watershed: arundo (*Arundo donax*), broom (*Genista spp.*), fennel (*Goeniculum vulgare*), gorse (*Ulex europaea*), Harding grass (*Phalaris aquatica*), Himalayan blackberry (*Rubus discolor*), purple star thistle (*Centaurea calcitrapa*), tamarisk (*Tamarix spp.*), and yellow star thistle (*Centaurea solstitialis*). Although not shown on this map, in recent years, Common Tansy (*Tanacetum vulgare*) has been appearing in various locations throughout the watershed. This map is merely a beginning, and is not the result of an exhaustive study. Only those plants noticed in some areas of Ridgewood Ranch, Greenfield Ranch, the length of Reeves Canyon Road and Hwy. 101 are included. Invasive exotic plants are a major contributor to wildlife habitat loss. Landowner knowledge and effort could still be employed to arrest their spread in the Forsythe Watershed.

**Map 9 – Change Detection** – shows the loss or gain of vegetation in and around the watershed from 1994 – 1998. Most areas show no change, although where change has occurred, a loss in vegetation is mostly what is indicated, probably due to logging and/or vineyard development.



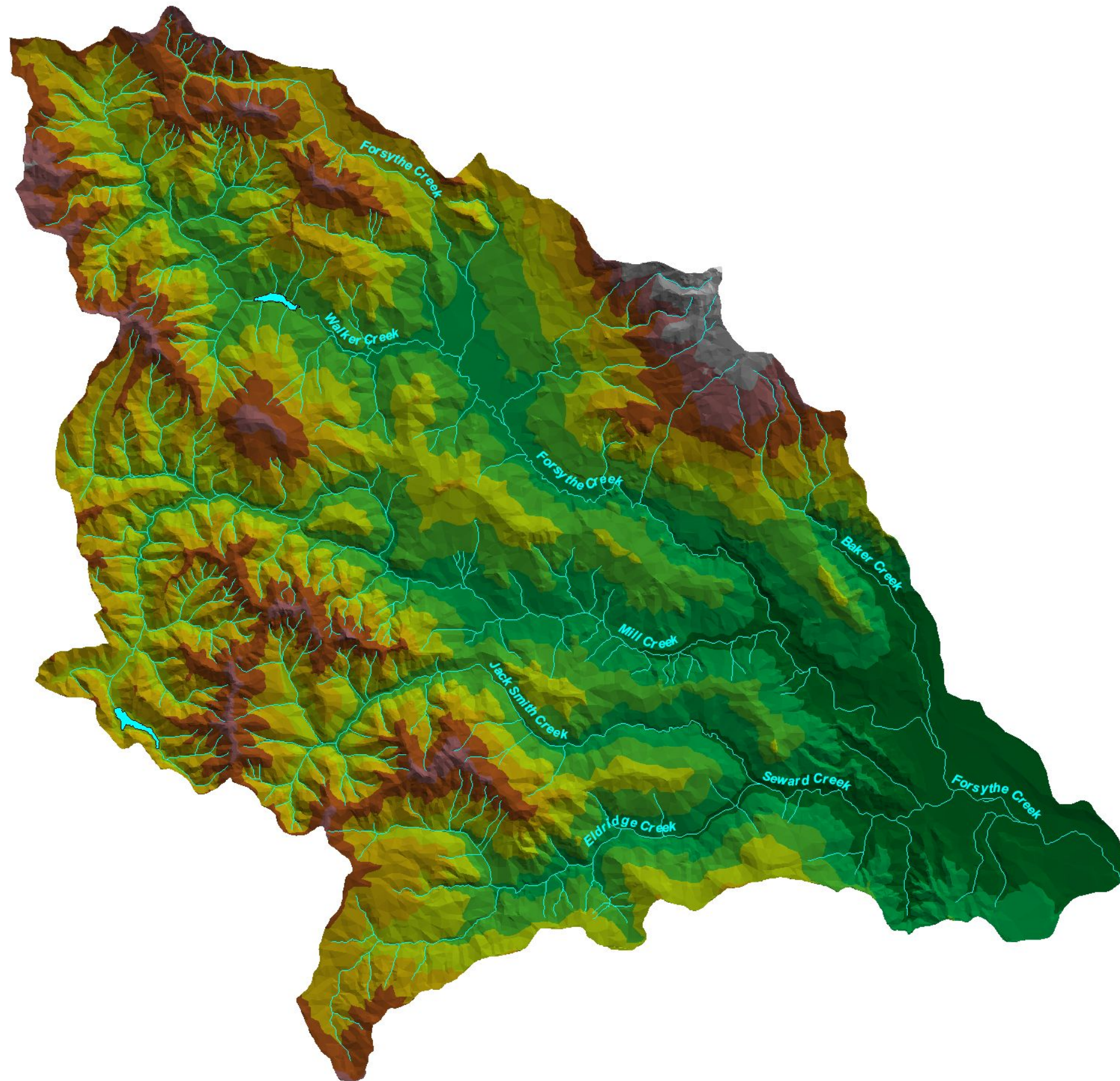
- Mendocino County Line
- Forsythe Watershed Boundary
- Highways
- State Parks
- Potential Wilderness
- Mendocino National Forest
- Jackson State Demonstration Forest
- Other State Land
- Other Public Land
- Lake Mendocino
- High Density Development
- Cities & Towns
- Small Towns

**Map 1**  
**Forsythe Watershed**  
**Central Mendocino County**  
**Linkage Potential**



This map covers an area centered around the USGS topo map for Laughlin Range in California. Map produced for the Forsythe Watershed Assessment Project of the Mendocino County Resource Conservation District, Ukiah, California 12-12-2004





**Map 2  
Forsythe Watershed  
Elevations**



Sources:  
 Forsythe TIN - Linda Gray, 2003, derived from the 10m Russian River basin DEM, 2002.  
 Streams - CDF NCHYDRO data layer, Eric Spry, 2002.  
 Forsythe Watershed - Linda Gray, 2003, derived from Calwater22, 1999



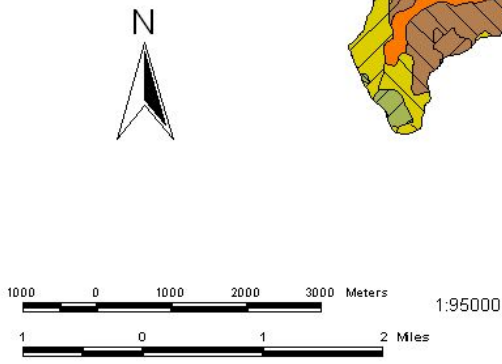
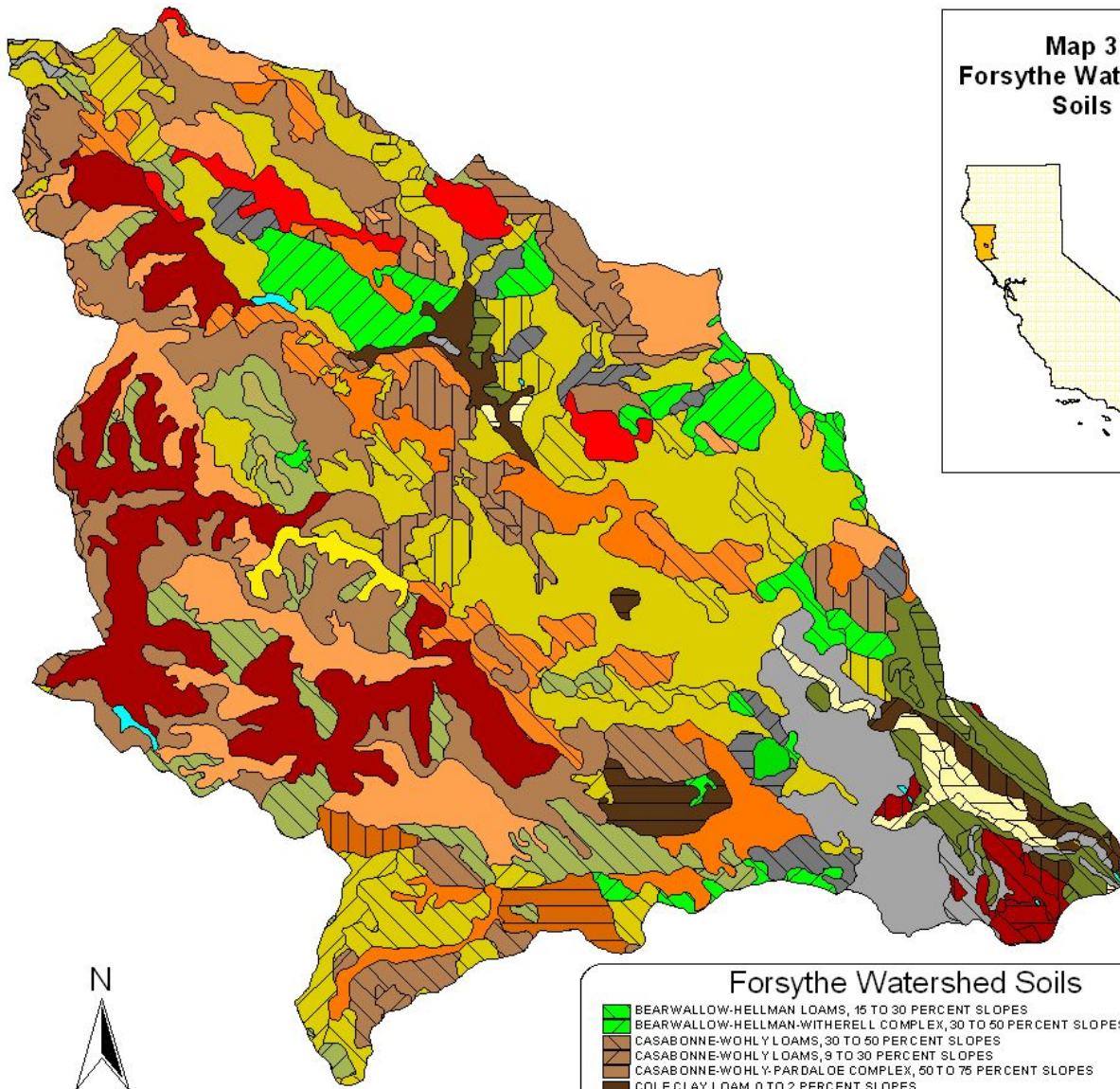
**Forsythe Creek and Tributaries**

**Elevation Range**

Lightest tan	3045' - 3350'
Light tan	2750' - 3045'
Medium tan	2455' - 2750'
Dark tan	2160' - 2455'
Yellow	1865' - 2160'
Light green	1565' - 1865'
Medium green	1270' - 1565'
Dark green	975' - 1270'
Very dark green	680' - 975'
Cyan	Lakes

This map covers an area centered around the USGS topo map for Laughlin Range in California. Map produced for the Forsythe Watershed Assessment Project of the Mendocino County Resource Conservation District, Ukiah, California 12-12-2004





Sources:

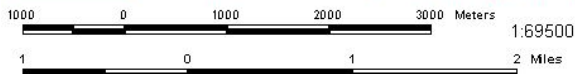
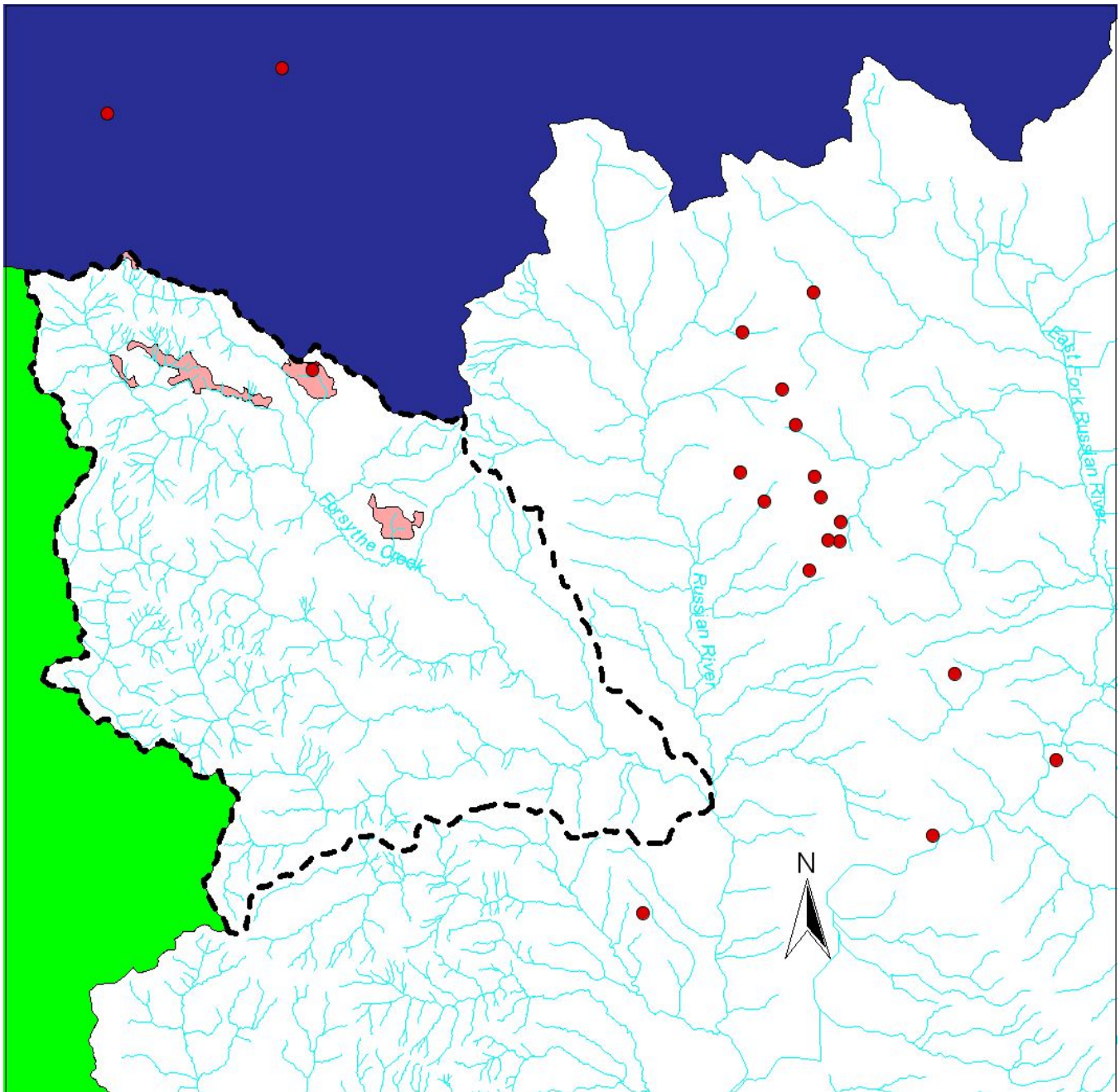
Forsythe Soils were derived from U.S. Dept. of Agriculture, Natural Resources Conservation Service Soil Survey (SSURGO), date 1999 Mendocino County Eastern and Southwestern parts - CA687; 19900224 Mendocino County Western part - CA694\_a.



This map covers an area centered around the USGS topo map for Laughlin Range in California. Map produced for the Forsythe Watershed Assessment Project of the Mendocino County Resource Conservation District, Ukiah, California 12-12-2004

### Forsythe Watershed Soils

[Green]	BEARWALLOW-HELLMAN LOAMS, 15 TO 30 PERCENT SLOPES
[Light Green]	BEARWALLOW-HELLMAN-WITHERELL COMPLEX, 30 TO 50 PERCENT SLOPES
[Light Brown]	CASABONNE-WOHL Y LOAMS, 30 TO 50 PERCENT SLOPES
[Orange]	CASABONNE-WOHL Y LOAMS, 9 TO 30 PERCENT SLOPES
[Dark Orange]	CASABONNE-WOHL Y-PARDALOE COMPLEX, 50 TO 75 PERCENT SLOPES
[Dark Brown]	COLE CLAY LOAM, 0 TO 2 PERCENT SLOPES
[Light Green]	ETSEL-WOODIN-ROCK OUTCROP ASSOCIATION, 50 TO 75 PERCENT SLOPES
[Light Green]	FELIZ CLAY LOAM, GRAVELLY SUBSTRATUM, 0 TO 2 PERCENT SLOPES
[Light Green]	FELIZ LOAM, 2 TO 5 PERCENT SLOPES
[Dark Brown]	HAPLOXERALS-ARGIXER OLLS COMPLEX, 0 TO 9 PERCENT SLOPES
[Light Brown]	HOPLAND LOAM, 30 TO 50 PERCENT SLOPES
[Light Green]	HOPLAND-SAN HEDRIN-KEKAWAKA COMPLEX, 15 TO 30 PERCENT SLOPES
[Light Green]	HOPLAND-SAN HEDRIN-KEKAWAKA COMPLEX, 30 TO 50 PERCENT SLOPES
[Light Green]	HOPLAND-SAN HEDRIN-KEKAWAKA COMPLEX, 50 TO 75 PERCENT SLOPES
[Light Green]	HOPLAND-WOODIN COMPLEX, 50 TO 75 PERCENT SLOPES
[Light Green]	KEKAWAKA-CASABONNE-WOHL Y COMPLEX, 30 TO 50 PERCENT SLOPES
[Light Green]	MAYMEN-ETSEL-SNOOK COMPLEX, 30 TO 75 PERCENT SLOPES
[Light Green]	MAYMEN-WOODIN-ETSEL COMPLEX, 50 TO 75 PERCENT SLOPES
[Light Green]	ORNBAUN-ZENI LOAMS, 50 TO 75 PERCENT SLOPES
[Light Green]	PARDALOE-KEKAWAKA-CASABONNE COMPLEX, 50 TO 75 PERCENT SLOPES
[Light Green]	PARDALOE-WOODIN COMPLEX, 50 TO 75 PERCENT SLOPES
[Light Green]	PARDALOE-WOODIN-CASABONNE COMPLEX, 30 TO 50 PERCENT SLOPES
[Light Green]	PINNOBIE LOAM, 2 TO 8 PERCENT SLOPES
[Light Green]	PINOLE GRAVELLY LOAM, 15 TO 30 PERCENT SLOPES
[Light Green]	PINOLE GRAVELLY LOAM, 2 TO 8 PERCENT SLOPES
[Light Green]	PINOLE GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES
[Light Green]	PINOLE VERY GRAVELLY LOAM, 2 TO 16 PERCENT SLOPES
[Light Green]	RUSSIAN LOAM, 0 TO 2 PERCENT SLOPES
[Light Green]	SQUAWROCK-WITHERELL COMPLEX, 50 TO 75 PERCENT SLOPES
[Light Green]	TALMAGE GRAVELLY SANDY LOAM, 0 TO 2 PERCENT SLOPES
[Light Green]	TALMAGE VERY GRAVELLY SANDY LOAM, 0 TO 2 PERCENT SLOPES
[Light Green]	WOHL Y-CASABONNE LOAMS, 30 TO 50 PERCENT SLOPES
[Light Green]	WOHL Y-CASABONNE-PARDALOE COMPLEX, 50 TO 75 PERCENT SLOPES
[Light Green]	XEROCHREPTS-HAPLOXERALS-ARGIXER OLLS COMPLEX, 30 TO 50 PERCENT SLOPES
[Light Green]	XEROCHREPTS-HAPLOXERALS-ARGIXER OLLS COMPLEX, 9 TO 30 PERCENT SLOPES
[Light Green]	XEROFLUVENTS, 0 TO 2 PERCENT SLOPES
[Light Green]	YELLOWHOUND-KIBESILLAH COMPLEX, 50 TO 75 PERCENT SLOPES
[Light Green]	YOKAYO SANDY LOAM, 0 TO 8 PERCENT SLOPES
[Light Green]	YOKAYO-PINOLE-PINNOBIE COMPLEX, 0 TO 15 PERCENT SLOPES
[Light Green]	YORKTREE HOPLAND-WOODIN COMPLEX, 30 TO 50 PERCENT SLOPES
[Light Green]	YORKTREE HOPLAND-WOODIN COMPLEX, 50 TO 75 PERCENT SLOPES
[Light Green]	YORKTREE-YORKVILLE LOAMS, 15 TO 30 PERCENT SLOPES
[Light Green]	YORKTREE-YORKVILLE LOAMS, 30 TO 50 PERCENT SLOPES
[Light Green]	YORKVILLE-HOPLAND LOAMS, 30 TO 50 PERCENT SLOPES
[Light Green]	YORKVILLE-SQUAWROCK-WITHERELL COMPLEX, 15 TO 30 PERCENT SLOPES
[Light Green]	YORKVILLE-SQUAWROCK-WITHERELL COMPLEX, 30 TO 50 PERCENT SLOPES
[Light Green]	YORKVILLE-YORKTREE-SQUAWROCK COMPLEX, 15 TO 30 PERCENT SLOPES
[Light Green]	YORKVILLE-YORKTREE-SQUAWROCK COMPLEX, 30 TO 50 PERCENT SLOPES
[Light Green]	WATER



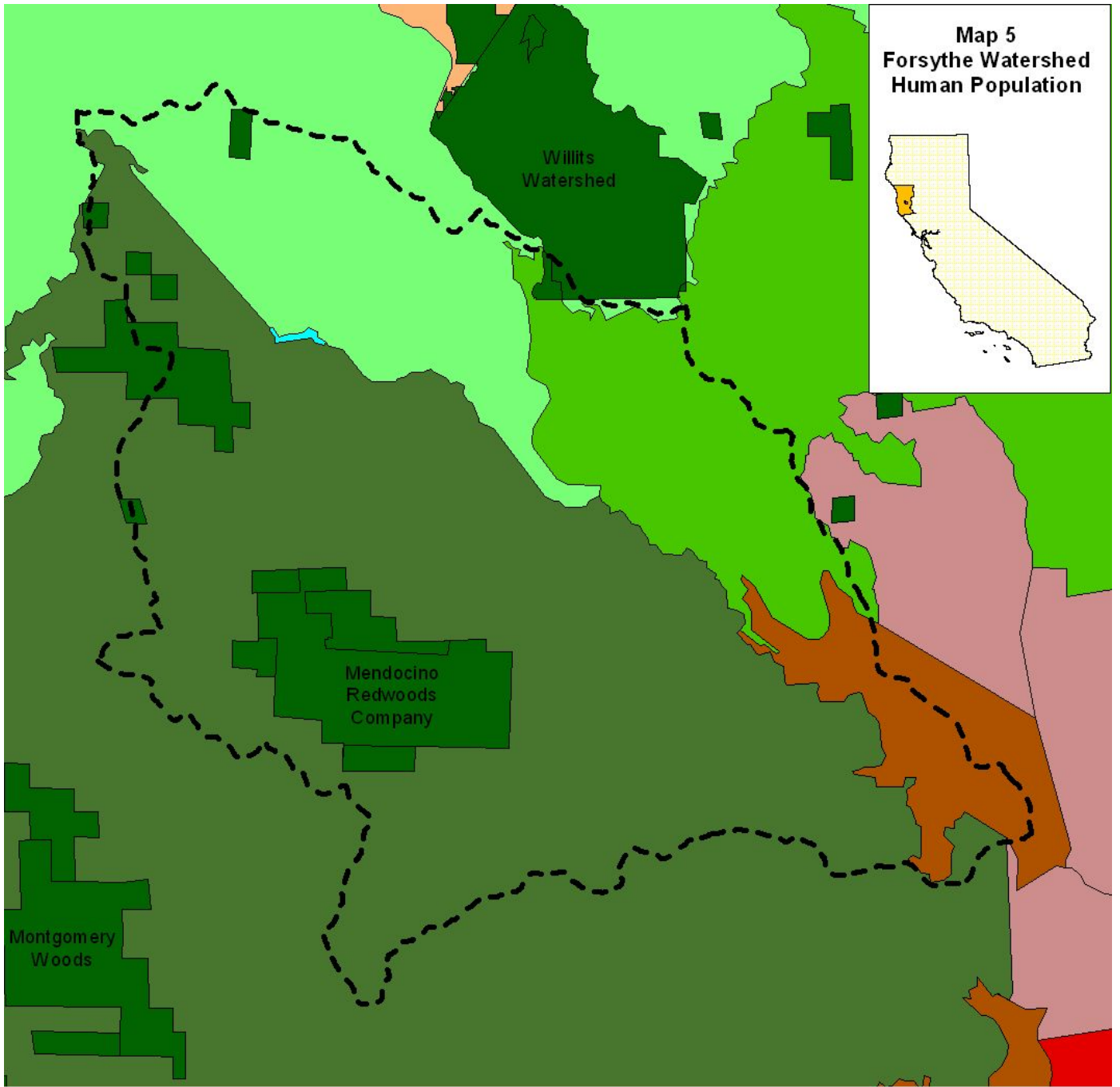
Sources:  
 Existing Mines - U.S. Bureau of Mines, Carl Almquist; 1995  
 2004 Gravel Mining Operation - derived from 2004 rectified aerial photos, Linda Gray; 2004  
 Squaw Rock Witherall Complex - derived from USDA SSURGO 1999 Soils data.

- Existing Mines
- Forsythe Watershed Boundary
- ~ Russian River System
- Squaw Rock-Witherell Complex
- Forsythe Gravel Mining Operation 2004
- Big River Watershed
- Eel River Watershed

This map covers an area centered around the USGS topo map for Laughlin Range in California. Map produced for the Forsythe Watershed Assessment Project of the Mendocino County Resource Conservation District, Ukiah, California 12-12-2004



**Map 5  
Forsythe Watershed  
Human Population**

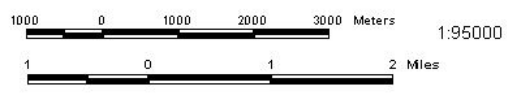


**Human Population**

Forsythe Watershed Boundary

**Human Population Density**

- 0
- > 0 - 4
- 4 - 8
- 8 - 16
- 16 - 32
- 32 - 64
- 64 - 128
- 128 - 256
- 256 - 512
- Walker Lake

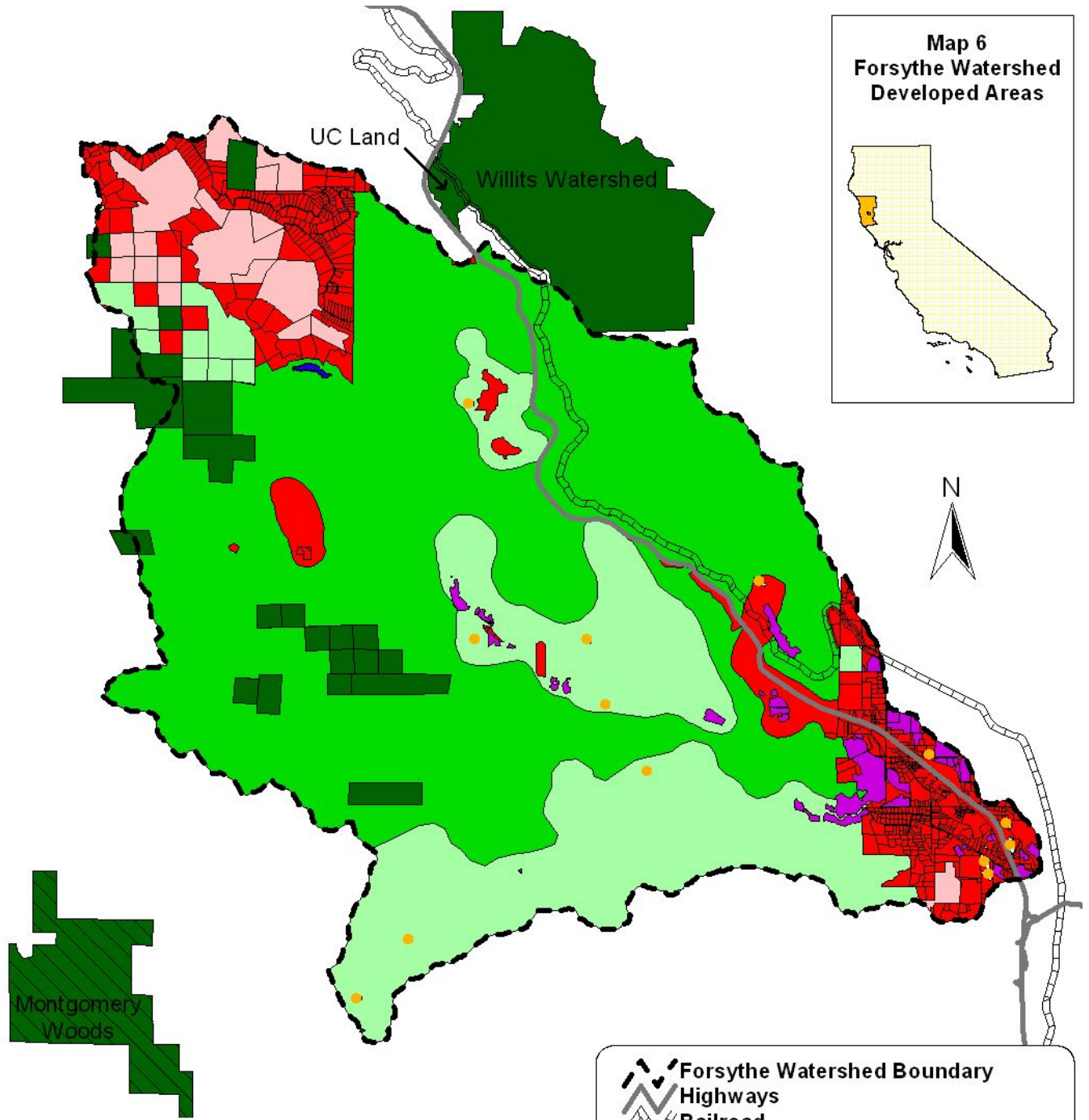


Sources:  
Human Population Density - LEGACY - TLC; 2004, derived from 2000 Tiger Census data and LEGACY - TLC North Coastal Basin Ownership coverage.



This map covers an area centered around the USGS topo map for Laughlin Range in California.  
Map produced for the Forsythe Watershed Assessment Project of the Mendocino County Resource Conservation District, Ukiah, California 12-12-2004

**Map 6  
Forsythe Watershed  
Developed Areas**

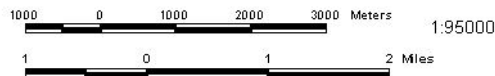


**Forsythe Watershed Boundary**  
**Highways**  
**Railroad**

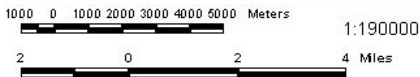
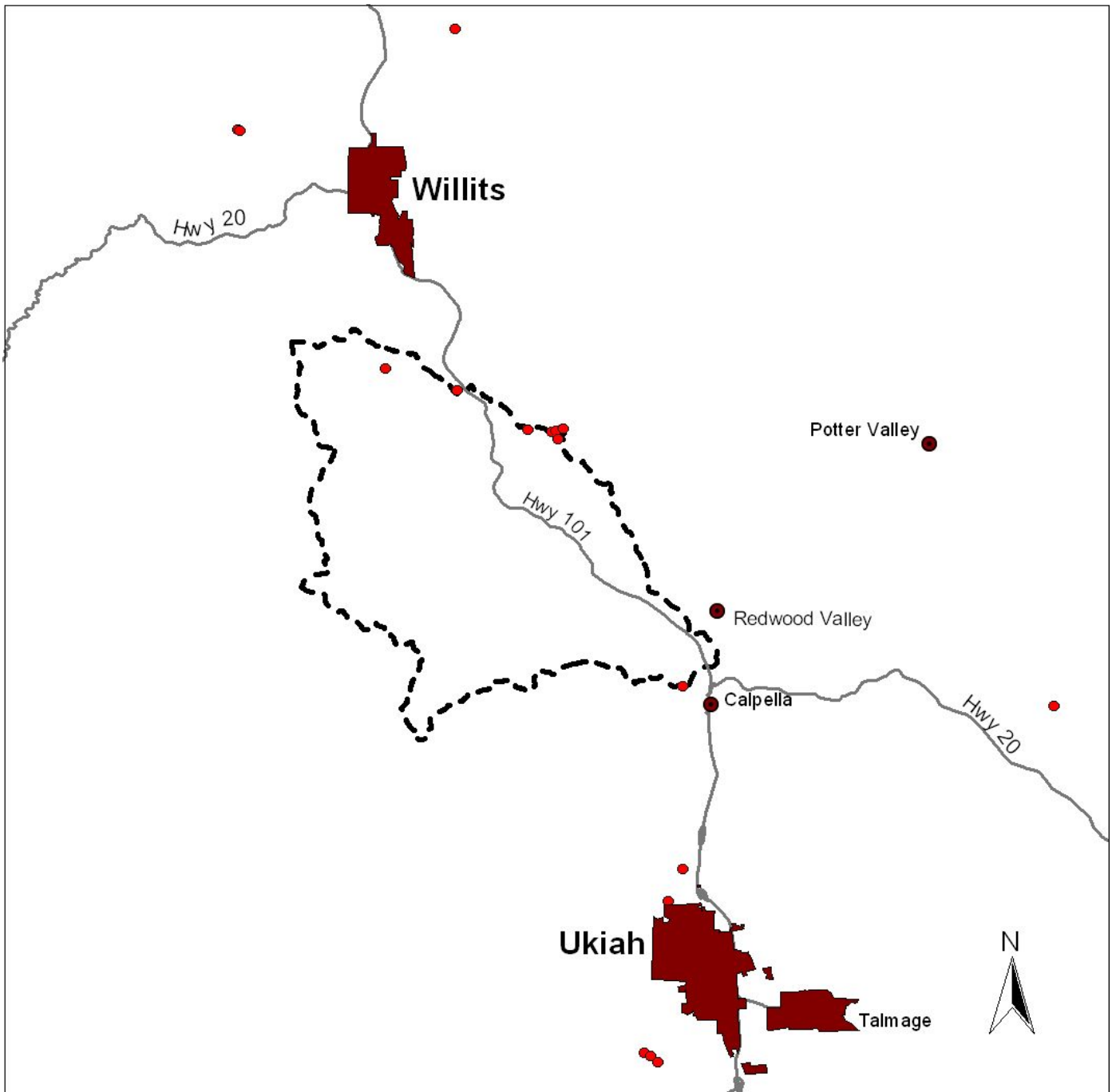
**Protected Land**  
**Public land**  
**Virtually Undeveloped Land**  
**Less Than 1 Building Per 35 Acres**  
**Area Surrounded By Development**  
**More Than 1 Building Per 35 Acres**  
**Vineyard**  
**Reservoir**

**Orchards**

Sources:  
 Building Density & Other Development - Linda Gray, 2005, derived from Mendocino Co. Planning Dept. GIS assessor parcel data and building locations from 2004 Aerial Photos



This map covers an area centered around the USGS topo map for Laughlin Range in California. Map produced for the Forsythe Watershed Assessment Project of the Mendocino County Resource Conservation District, Ukiah, California 12-12-2004



Sources:  
 Wireless Communications Sites - Linda Gray, 2005; derived from  
 Mendocino Co. Planning Dept. Wireless Sites, Vale Wippert, 2004

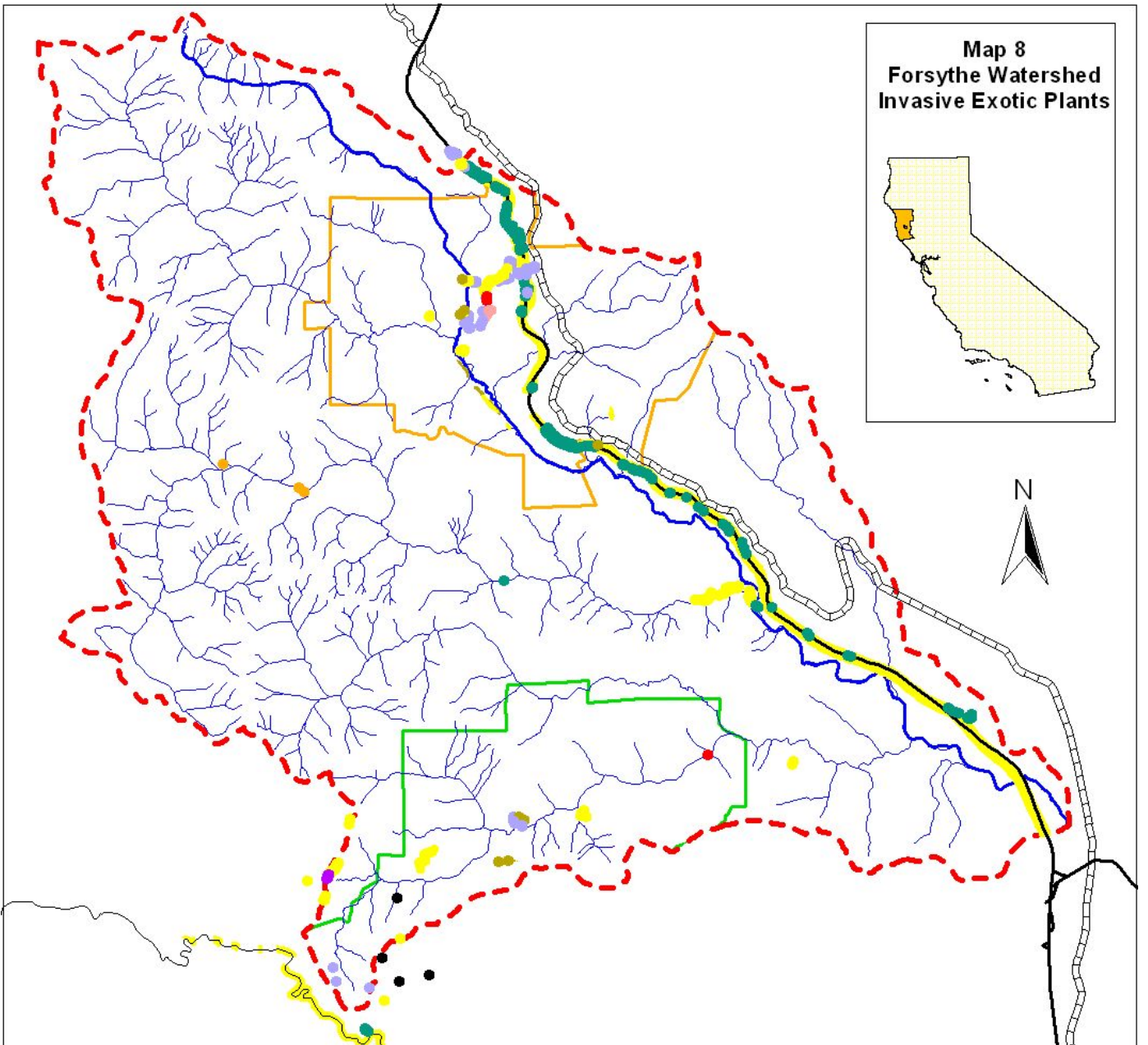
- Wireless Communications Sites
- Small Towns
- Cities & Towns
- Highways
- - - Forsythe Watershed Boundary

This map covers an area centered around the USGS topo map for Laughlin Range in California.  
 Map produced for the Forsythe Watershed Assessment Project of the Mendocino County  
 Resource Conservation District, Ukiah, California 12-12-2004

**Map 7  
 Forsythe Watershed  
 Wireless  
 Communications Sites**



**Map 8  
Forsythe Watershed  
Invasive Exotic Plants**



**Invasive Exotic Plants**

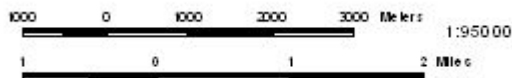
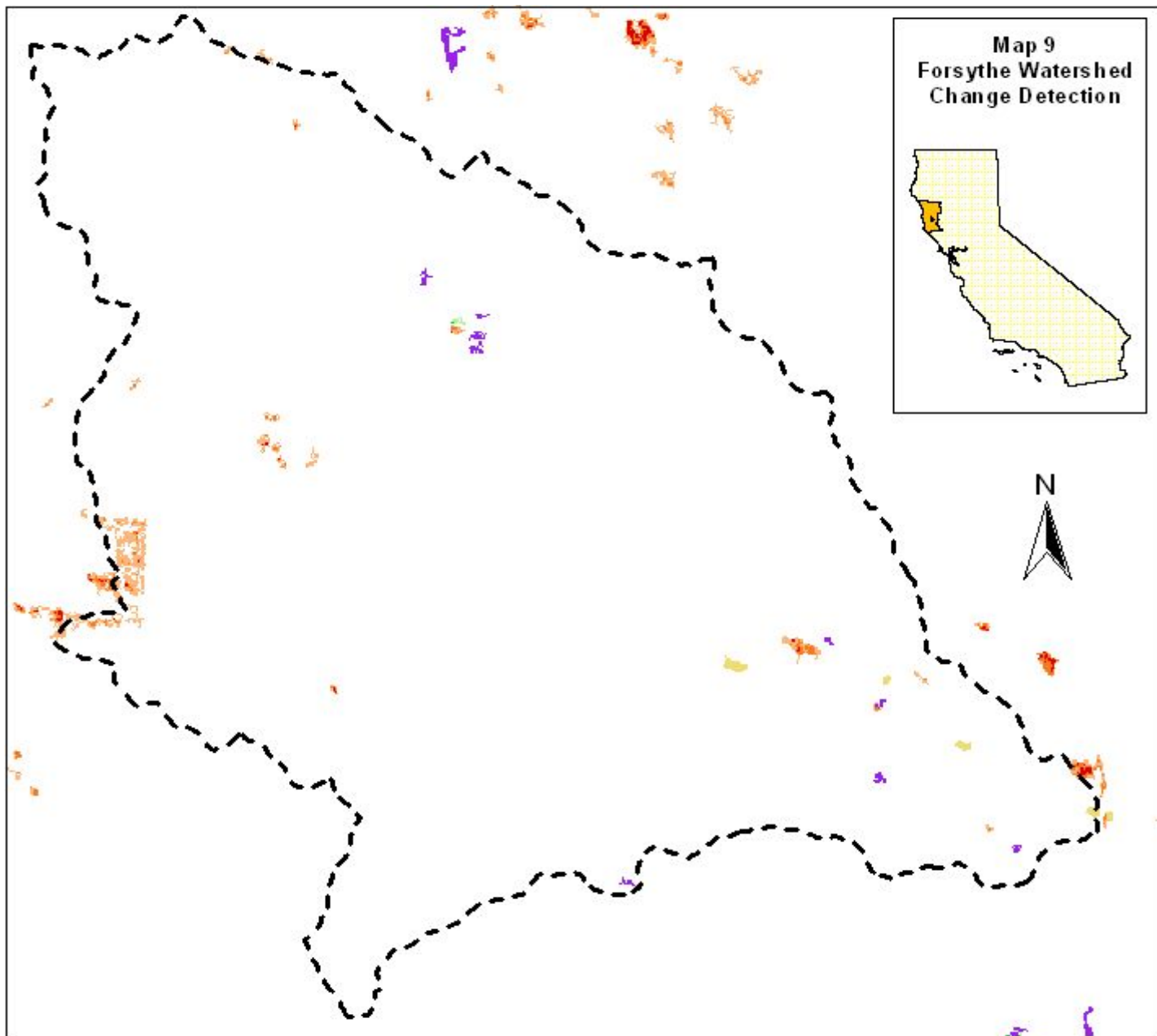
- Arundo
- Broom
- Fennel
- Gorse
- Harding Grass
- Himalayan Blackberry
- Purple Star Thistle
- Tamarisk
- Yellow Star Thistle
- ▬ Forsythe Creek
- ▬ Forsythe Tributaries
- ▬ Railroad
- ▬ Highways
- ▬ Orr Springs Road
- ▬ Forsythe Watershed Boundary
- ▬ Ridgewood Ranch Property Line
- ▬ Greenfield Ranch Property Line



Source:  
Invasive exotic plant locations derived from  
personal field notes & maps, Linda Gray, 2004

This map covers an area centered around the USGS topo map for Laughlin Range in California.  
Map produced for the Forsythe Watershed Assessment Project of the Mendocino County  
Resource Conservation District, Ukiah, California 12-12-2004













**Map 9  
Forsythe Watershed  
Change Detection**



Source:  
Change Detection Image, North Coast, 1994-1998; CA Dept. of  
Forestry & Fire Protection & USDA Forest Service; 2001



**Change Detection**

-  -71 to -100 % CC
-  -41 to -70 % CC
-  -16 to -40 % CC
-  +15 to -15 % CC (Little or No Change)
-  +16 to +40 % CC
-  +41 to +100 % CC
-  Shrub/Grass Decrease > 15 %
-  Shrub/Grass Increase > 15 %
-  Non-veg Change (Including Urban)
-  Cloud, Fog, Smoke
-  No Data
-  Forsythe Watershed Boundary

This map covers an area centered around the USGS topo map for Laughlin Range in California.  
Map produced for the Forsythe Watershed Assessment Project of the Mendocino County  
Resource Conservation District, Ukiah, California 12-12-2004



**Figure 1 – Forsythe Creek Corridor Comparison** – (pg 14) consists of three aerial photos of the same section of Forsythe Creek taken in 1952, 1993 and 2004. The blue line is the stream corridor as it was depicted on the 1991 USGS topographical map. The change between 1952 and 1993 clearly demonstrates a dramatic loss of riparian canopy, a problem that has occurred on streams throughout the watershed. There seems to be a slight improvement from 1993 – 2004. Some species of wildlife need well-canopied stream corridors for their daily travels and/or seasonal migrations (e.g. certain species may forage in one area for most of the year, but may travel long distances to another undeveloped area in search of a mate). Lacking riparian canopy, their movements are restricted. (See Map 18 - Significant Features, for the location of Figure 1 in the watershed as well as Figures 2 and 3 that follow)

**Figure 2 – Southwest Forsythe Watershed Comparison** – also consists of three aerial photos taken in three different time periods, but begins with 1942 instead of 1952. The old growth Douglas fir stands that existed in 1942 were clear-cut in the 1950's or '60s. In 2004, regeneration of those forested areas is still sparse.

**Figure 3 – Radical Mountain Comparison** – is three photos taken in the same years as Figure 2. Radical Mountain is a very steep, south-facing, chaparral covered mountain. Prior to the middle of the 1900s, fire was a regular occurrence on this mountain, as it was throughout the region, caused either by the Native people who lived here prior to contact, the early settlers who copied that practice from the Native people, or by lightening strikes. At some point in time fire was suppressed. The 1993 and 2004 photos show the results of many decades without fire; dense thickets of chaparral and the encroachment of Douglas fir into areas where they previously didn't exist.

**Figure 4 – Photo Comparison Looking South Toward Eagle Peak** – shows the landscape, as viewed from Ridgewood Ranch in Walker Valley, circa 1910 and again in 2004 (See the white arrow and photo point on Map 18 for the location of Figure 4 in the watershed). The old growth trees in the foreground, and also those in the forested mountains of the background in the top (early 1900s) photo, are no longer present in the lower photo. By the time the circa 1910 photo was taken, settlers had already inhabited Walker Valley for at least 45 years and most likely had already removed much of the old growth riparian forest to convert it to farm land.

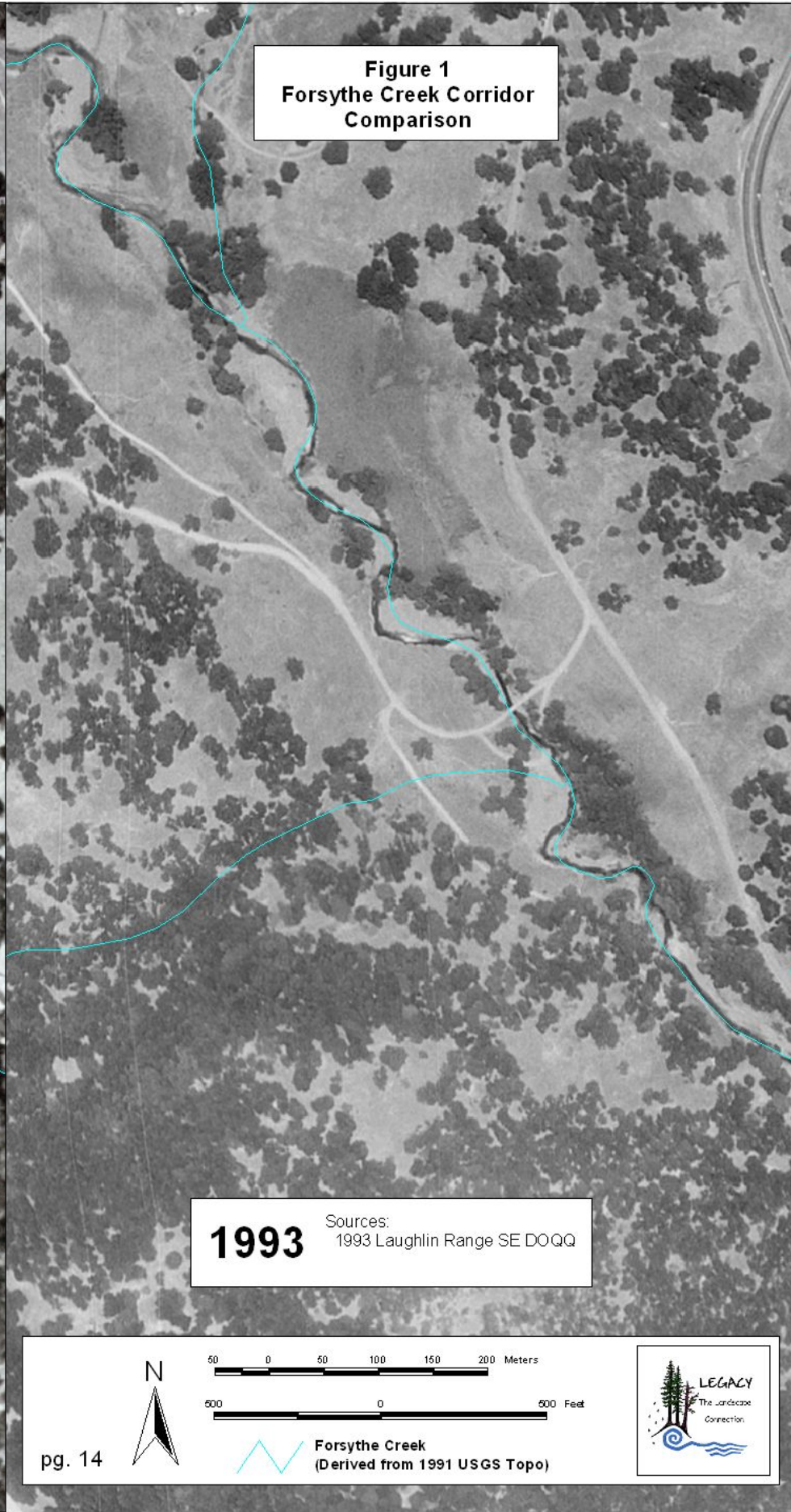
Another interesting point to note is that it appears that there is a layer of smoke hanging in the air across the middle of the top photo, perhaps suggesting that underbrush was being burned that day in the early 1900s. This photo was taken in either late spring, summer, or early fall as evidenced by the tree next to the barn on the right side of the photo. In the top photo that tree is fully leafed out. It is a white oak that still exists, and can be seen in the lower photo. It's worthwhile at this point to quote Dora Eschelman, who grew up in the Forsythe Watershed in the early decades of the 1900s and was interviewed for the Oral History part of the Forsythe Watershed Assessment:

*“We always could burn our underbrush in the spring . . . like the Indians did. . . but we were just a small family . . . you know 4 or 5 of us would all get together, and we would set a fire . . . you can burn under Redwood and under fir if it doesn't get too hot. But now the reason all these trees are burning up is because you're not allowed to burn out the underbrush anymore”*

**Figure 1**  
**Forsythe Creek Corridor**  
**Comparison**



**1952** Sources:  
1952 aerial photo rectified to the  
1993 Laughlin Range SE DOQQ



**1993** Sources:  
1993 Laughlin Range SE DOQQ



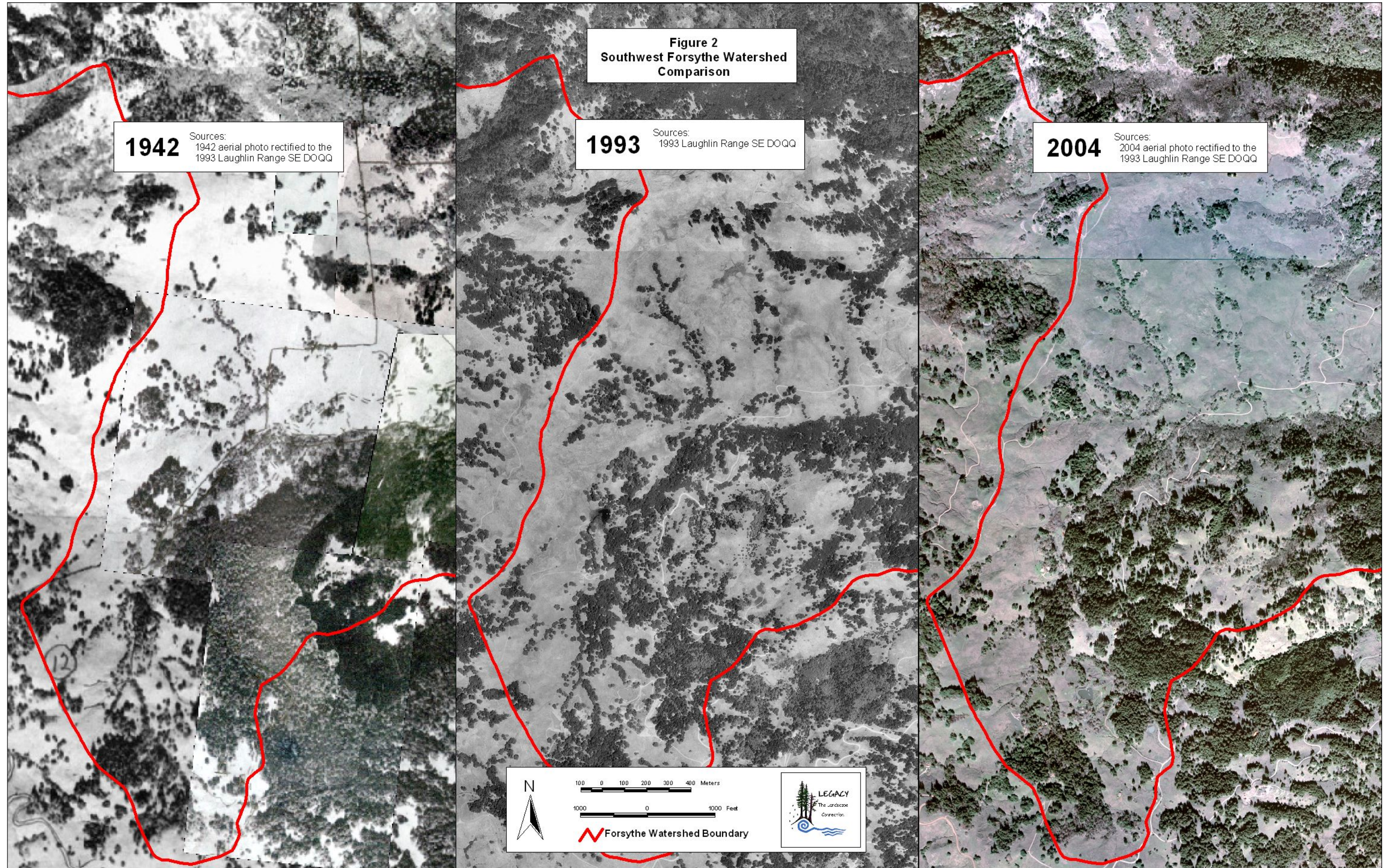
**2004** Sources:  
2004 aerial photo rectified to the  
1993 Laughlin Range SE DOQQ

pg. 14

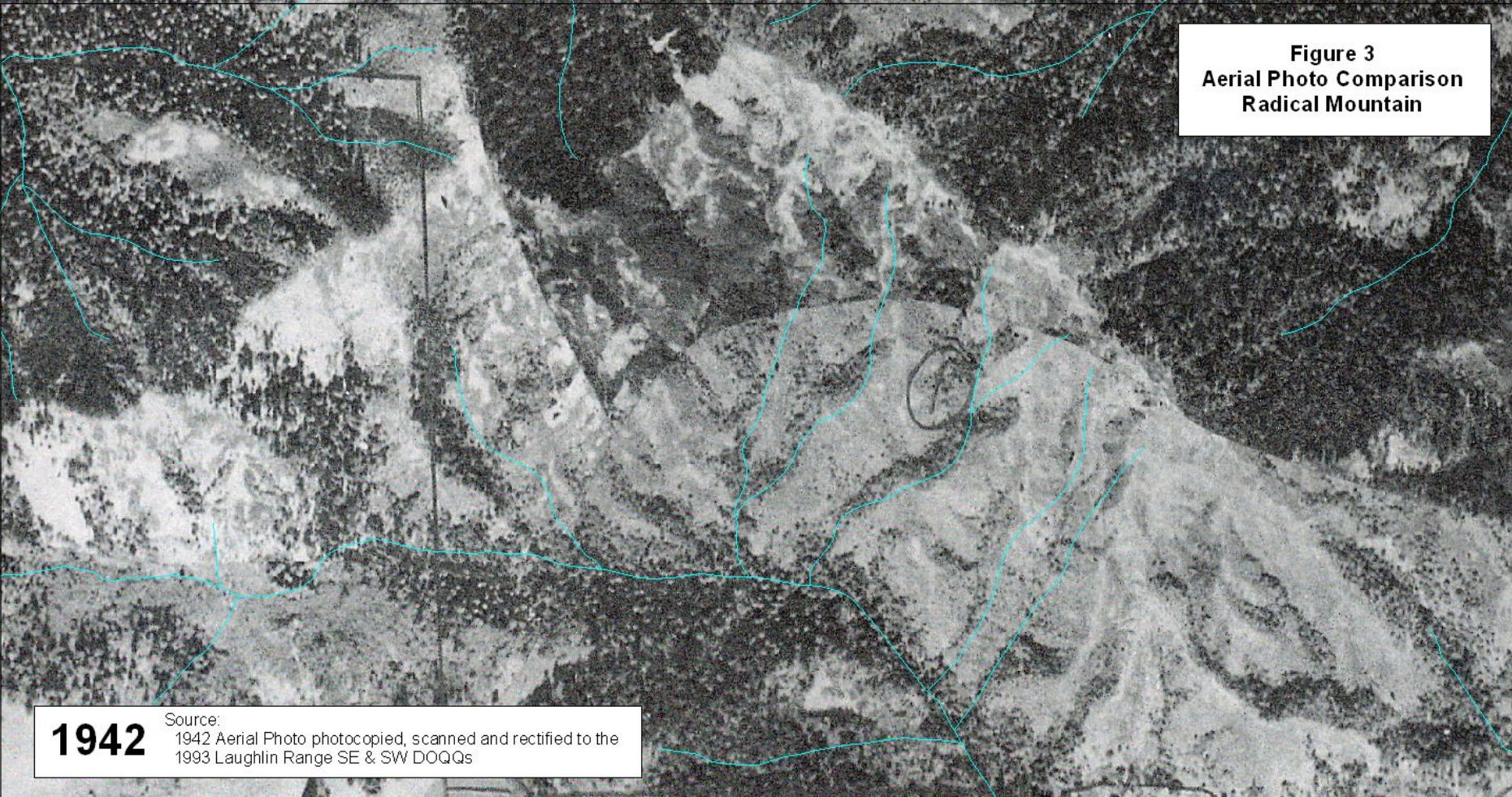
50 0 50 100 150 200 Meters

500 0 500 Feet

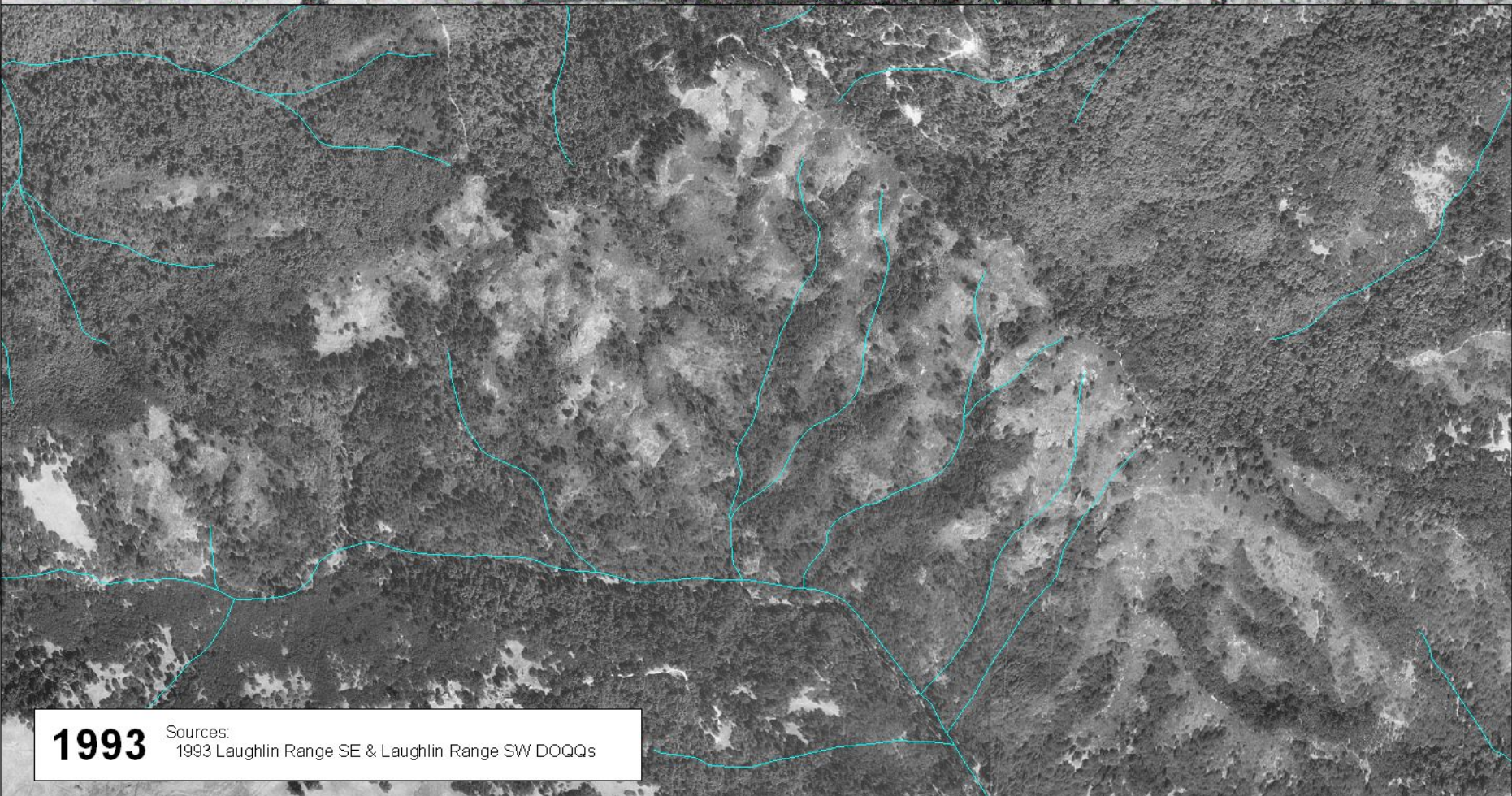
Forsythe Creek  
(Derived from 1991 USGS Topo)



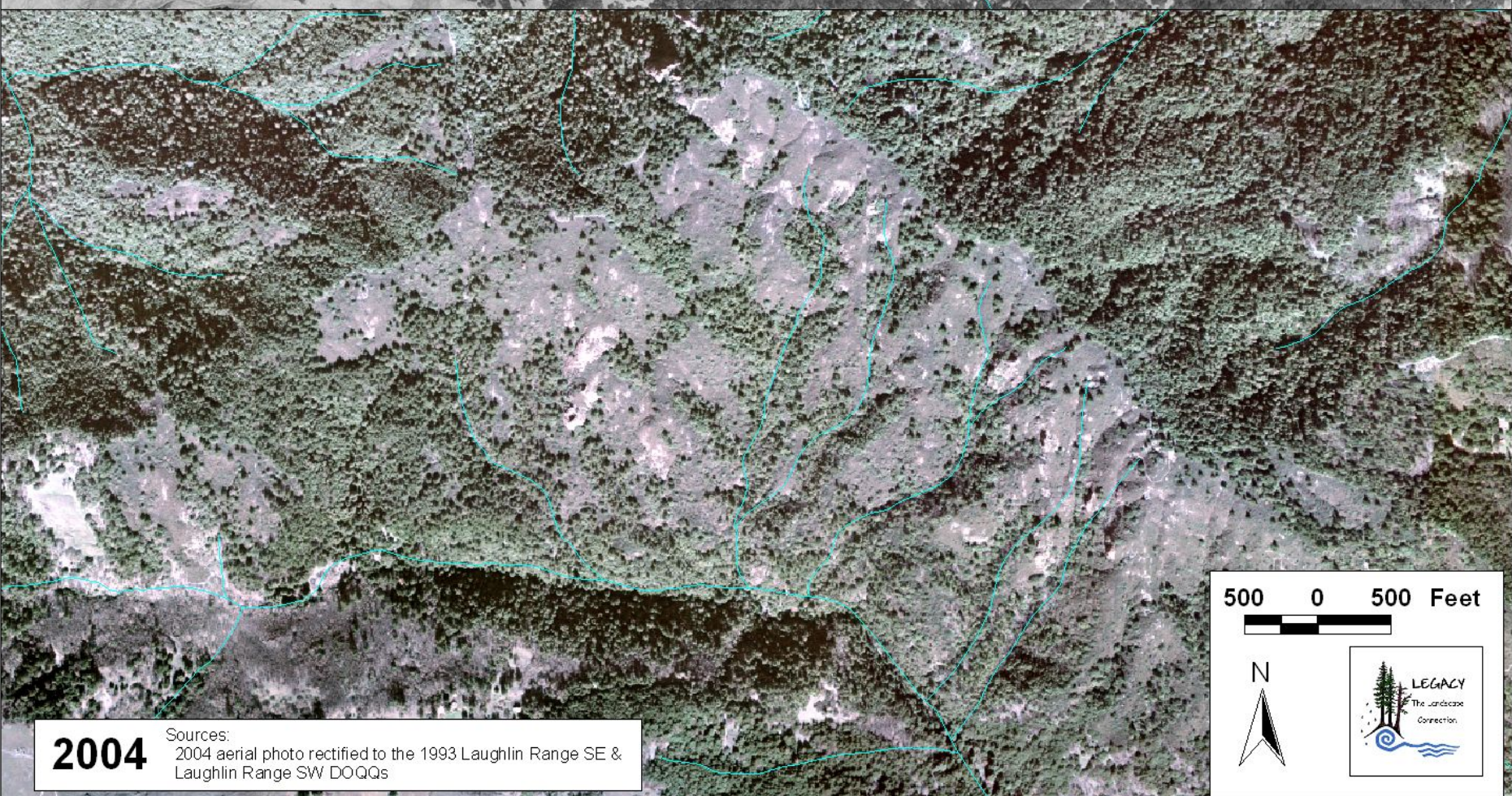
**Figure 3**  
**Aerial Photo Comparison**  
**Radical Mountain**



**1942** Source:  
1942 Aerial Photo photocopied, scanned and rectified to the  
1993 Laughlin Range SE & SW DOQQs



**1993** Sources:  
1993 Laughlin Range SE & Laughlin Range SW DOQQs



**2004** Sources:  
2004 aerial photo rectified to the 1993 Laughlin Range SE &  
Laughlin Range SW DOQQs

500 0 500 Feet

N

LEGACY  
The Landscape  
Connection

1910 Wonocot Collection Photo  
Ridgewood Ranch  
Printed with permission of the  
Mendocino County Museum

Figure 4  
Photo Comparison  
Looking South  
Toward Eagle Peak



96-2-367 Mendocino County Museum Collection

2004 Photo



## **Vegetation Maps**

The next three maps, in various ways, depict the vegetation of the watershed: No single GIS model is 100% accurate, but these three maps, studied together, give the viewer a sense of the great diversity of habitat types that exist here

***Map 10 – 2004 Aerial Photos*** – is simply a photograph of the entire watershed.

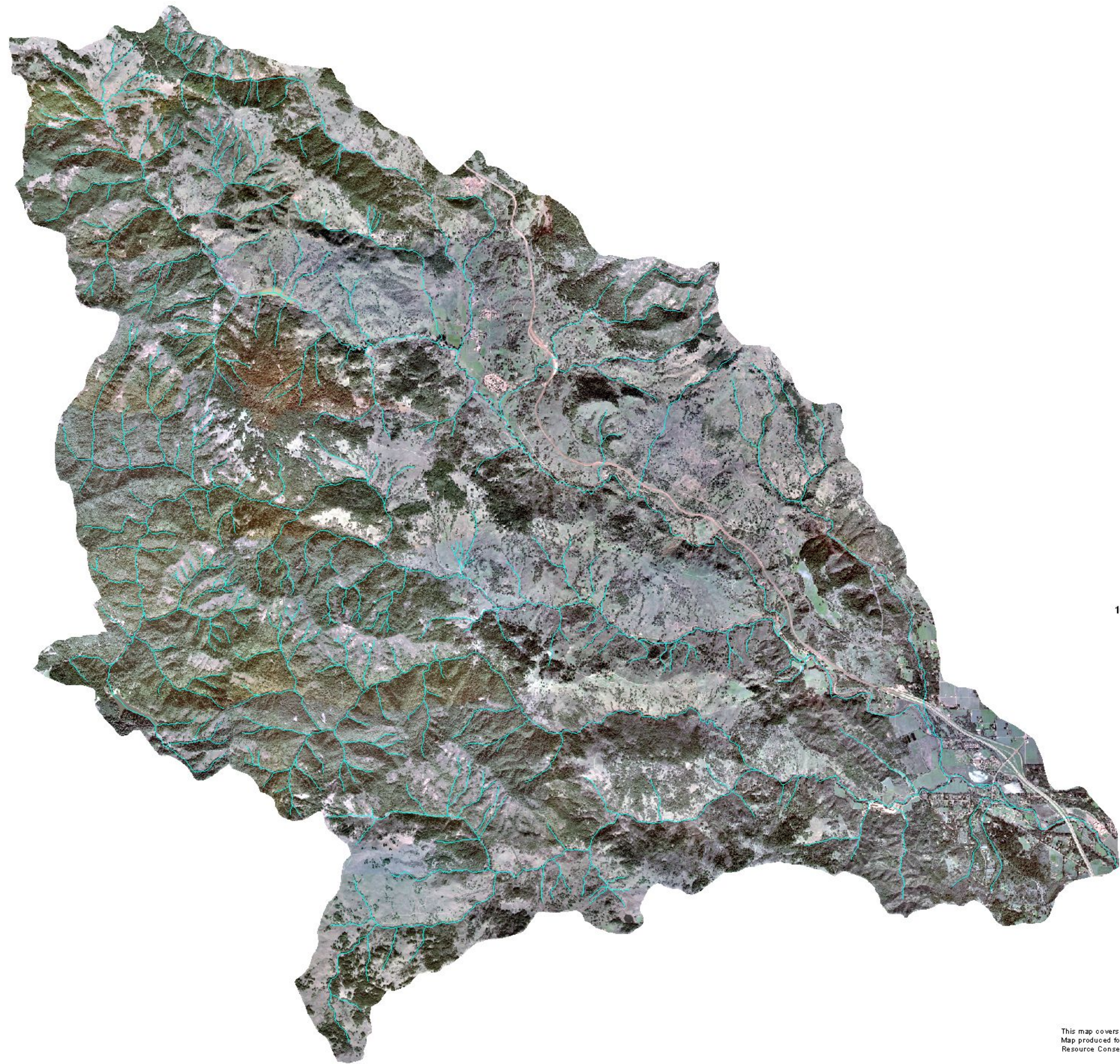
***Map 11 – CDF Hardwood and Rangelands*** – is a vegetation data layer derived from 1990 Landsat TM imagery.

***Map 12 - C-Veg Data*** – is a vegetation data layer created in 2003 under a CA Dept of Forestry and Fire Protection (CDF) and US Forest Service (USFS) joint project.

***Map 13 – Rare, Threatened & Endangered Species*** – identifies locations where these sensitive types of plant and animal species have been found. Unfortunately, very few assessments for rare, threatened and endangered species have been made anywhere within the watershed.

***Map 14 – Significant Features*** – shows locations of numerous features that are discussed elsewhere in this report.

***Map 15 – Conservation Value*** – ranks known areas of land in and near the watershed according to each area's conservation value. Areas identified as "Highest Conservation Value" were determined by creating 100 meter buffers around known important features. For the most part, awareness of these features exists only due to the assessments being made of Ridgewood Ranch during the conservation easement process. Little is known about the biological significance of the rest of the watershed.



**Map 10**  
**2004 Aerial Photos**

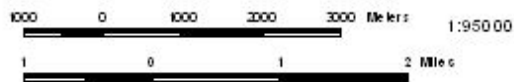
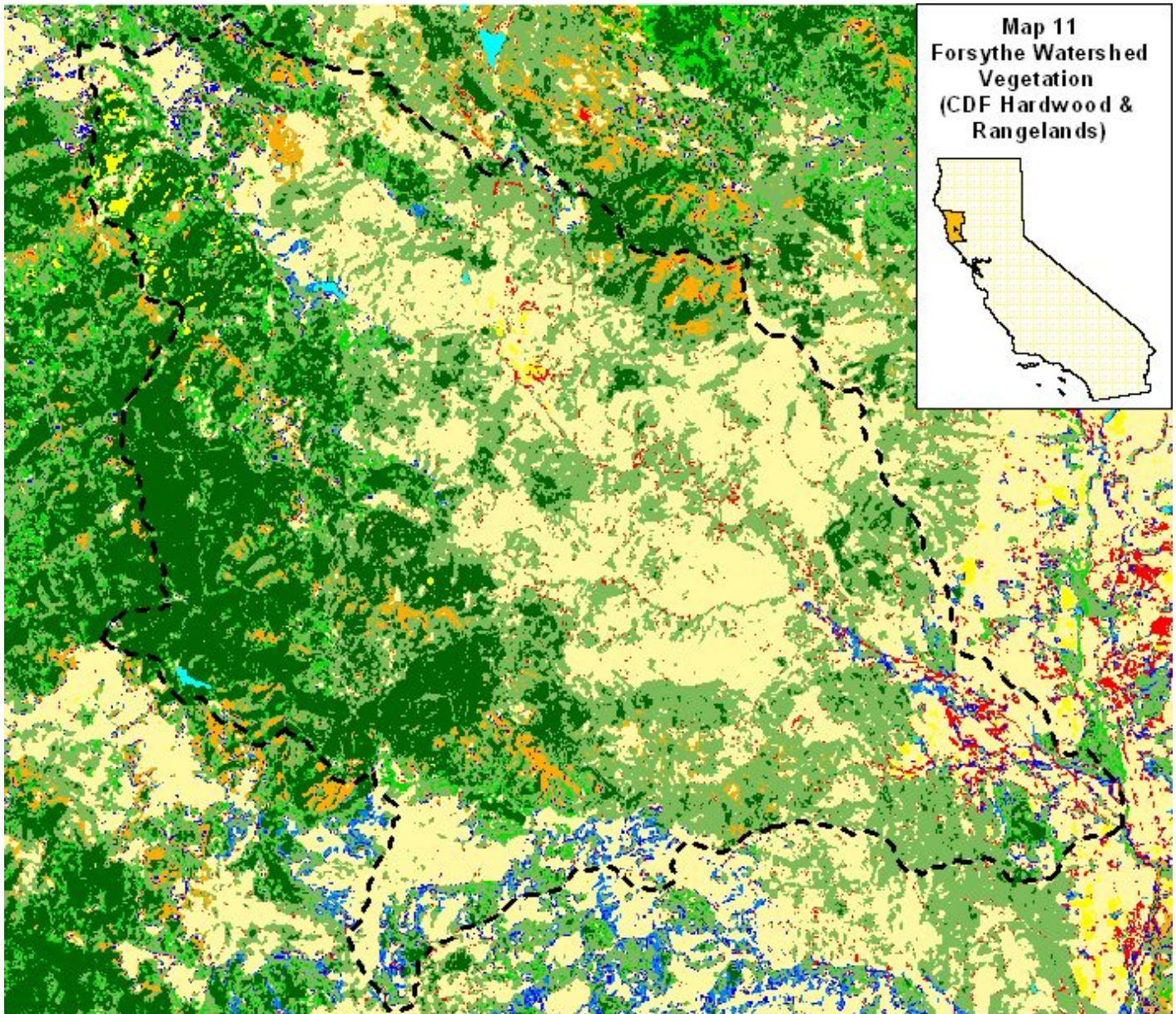


Sources:  
2004 aerial photos produced for the Forsythe Watershed Assessment Project,  
rectified to the 1993 Greenough Ridge NE & SE, Laughlin Range SE, SW, NE, NW,  
Orr Springs NE, NW, Redwood Valley NW & SW and Ukiah NW DOQs

This map covers an area centered around the USGS topo map for Laughlin Range in California.  
Map produced for the Forsythe Watershed Assessment Project of the Mendocino County  
Resource Conservation District, Ukiah, California 12-12-2004











**Map 11  
Forsythe Watershed  
Vegetation  
(CDF Hardwood &  
Rangelands)**

Source:  
Vegetation - California Hardwood Rangelands, CA Dept of  
Forestry & Fire Protection 1994 using 1990 Landsat TM Imagery.

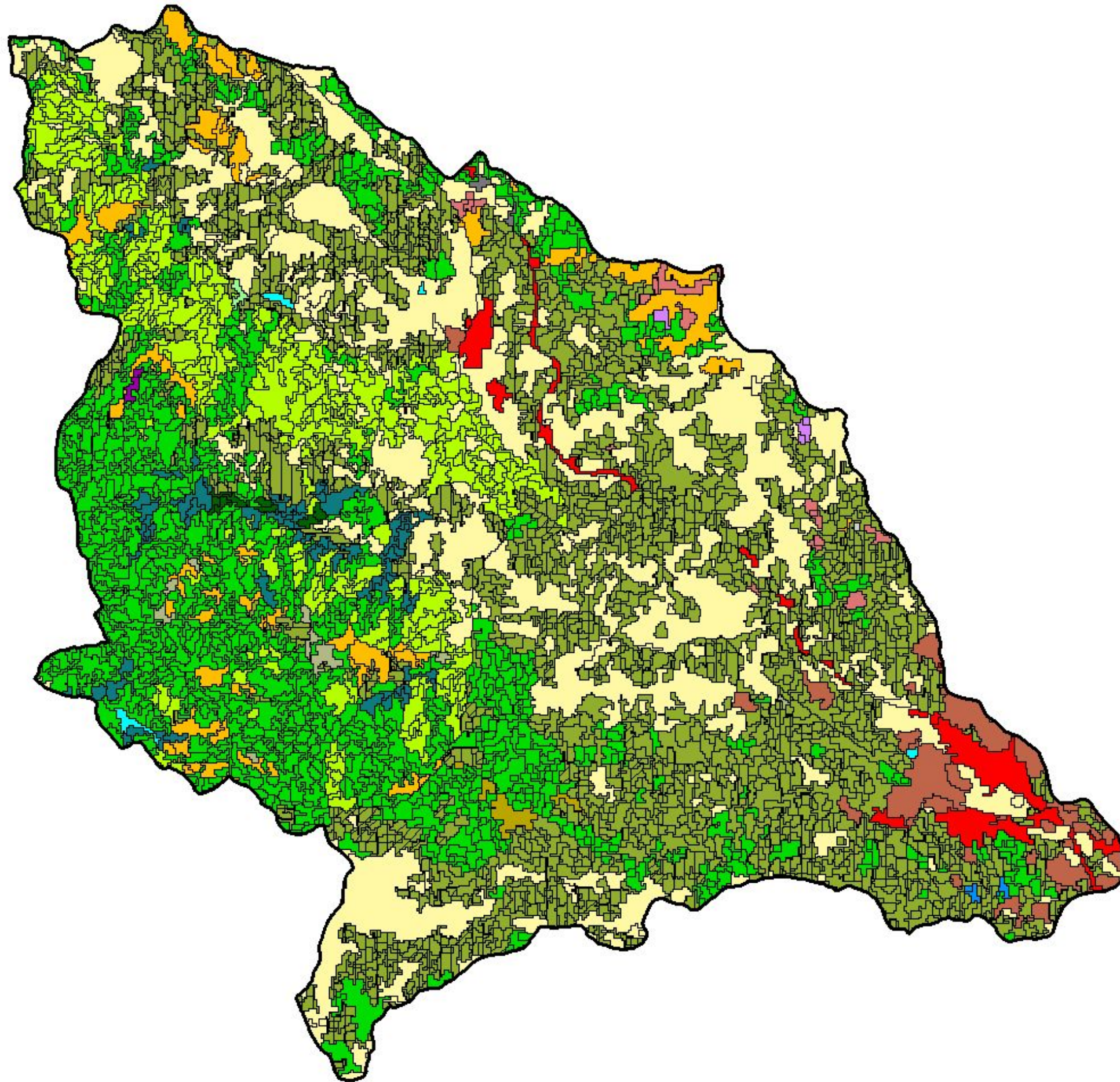


**Vegetation Types**

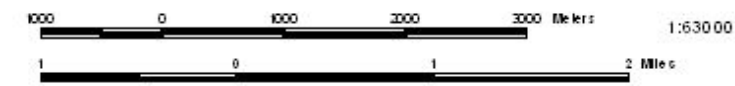
-  Blue Oak Woodland
-  Conifer
-  Coastal Oak Woodland
-  Grassland
-  Montane Hardwood
-  Potential Hardwood
-  Shrub
-  Other
-  Urban
-  Water
-  No Data
-  Forsythe Watershed Boundary

This map covers an area centered around the USGS topo map for Laughlin Range in California. Map produced for the Forsythe Watershed Assessment Project of the Mendocino County Resource Conservation District, Ukiah, California 12-12-2004





**Map 12  
Forsythe Watershed  
Vegetation  
(C-Veg Data)**



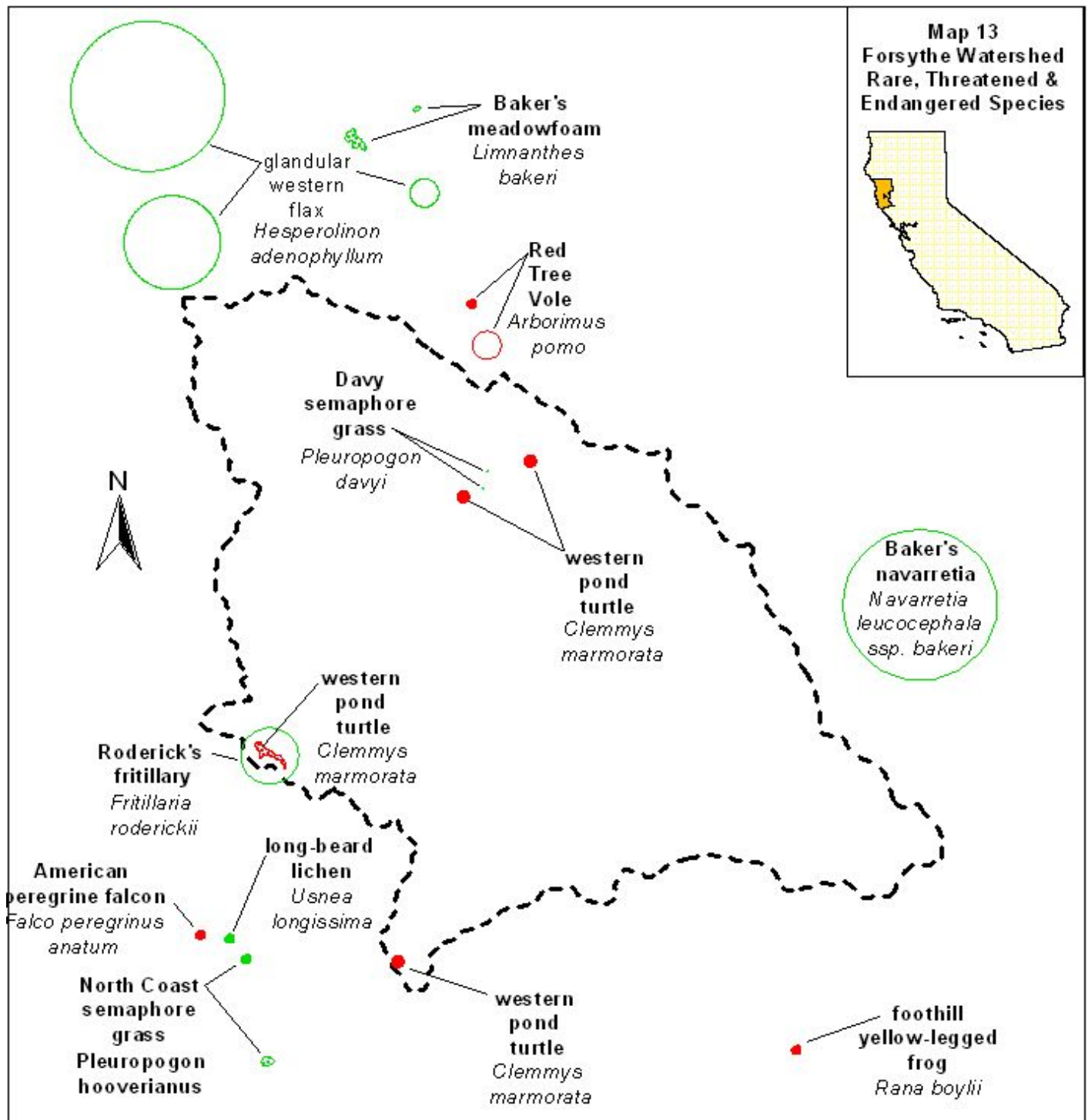
Source:  
Vegetation - CDF & US FS; 2003, LCMMMP Vegetation Data

- Forsythe Watershed Vegetation Types**
- Agriculture
  - Barren Rock
  - Chamise
  - Northern Mixed Chaparral
  - Scrub Oak
  - Douglas Fir
  - Douglas Fir - Pine
  - Annual Grass/Forbes
  - Gray Pine
  - California Bay
  - Blue Oak
  - Mixed Hardwoods
  - Montane Mixed Hardwood
  - Canyon Live Oak
  - Oregon White Oak
  - Black Oak
  - Valley Oak
  - Tan Oak
  - Madrone
  - Redwood - Doug Fir
  - Redwood
  - Willow
  - Water
  - Urban
  - Forsythe Watershed Boundary Line



This map covers an area centered around the USGS topographic map for Laughlin Range in California. Map produced for the Forsythe Watershed Assessment Project of the Mendocino County Resource Conservation District, Ukiah, California 12-12-2004.

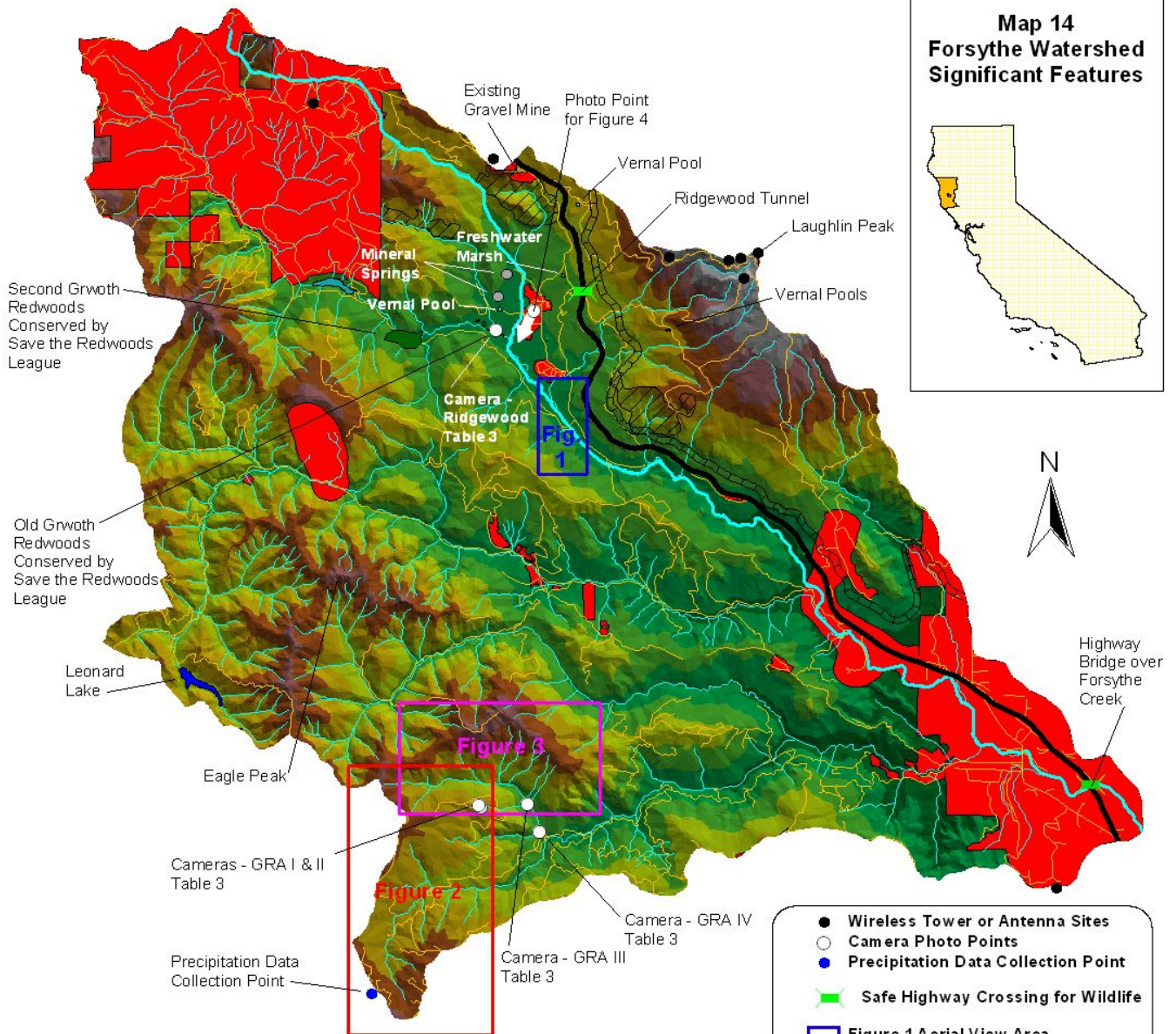
**Map 13**  
**Forsythe Watershed**  
**Rare, Threatened &**  
**Endangered Species**



Sources:  
 California Natural Diversity Database (CNDDDB), Dept of Fish & Game Natural Heritage Division, 2003.  
 Davy semaphore grass locations identified by CNPS member, Chuck Williams & Michael Barbour, Professor of Plant Ecology, UC Davis, 2002.  
 Western Pond Turtle sited by Linda Gray, 2002 - 2005.

This map covers an area centered around the USGS topographic map for Laughlin Range in California. Map produced for the Forsythe Watershed Assessment Project of the Mendocino County Resource Conservation District, Ukiah, California 12-12-2004.

**Map 14  
Forsythe Watershed  
Significant Features**



- Wireless Tower or Antenna Sites
- Camera Photo Points
- Precipitation Data Collection Point
- Safe Highway Crossing for Wildlife
- Figure 1 Aerial View Area
- Figure 2 Aerial View Area
- Figure 3 Aerial View Area
- Highway 101
- Railroad
- Roads
- Forsythe Creek
- Tributaries
- ▨ Squaw Rock-Witherell Complex
- Leonard Lake
- Walker Lake
- Low Conservation Value

**Elevation Range**

- 3045' - 3350'
- 2750' - 3045'
- 2455' - 2750'
- 2160' - 2455'
- 1865' - 2160'
- 1565' - 1865'
- 1270' - 1565'
- 975' - 1270'
- 680' - 975'

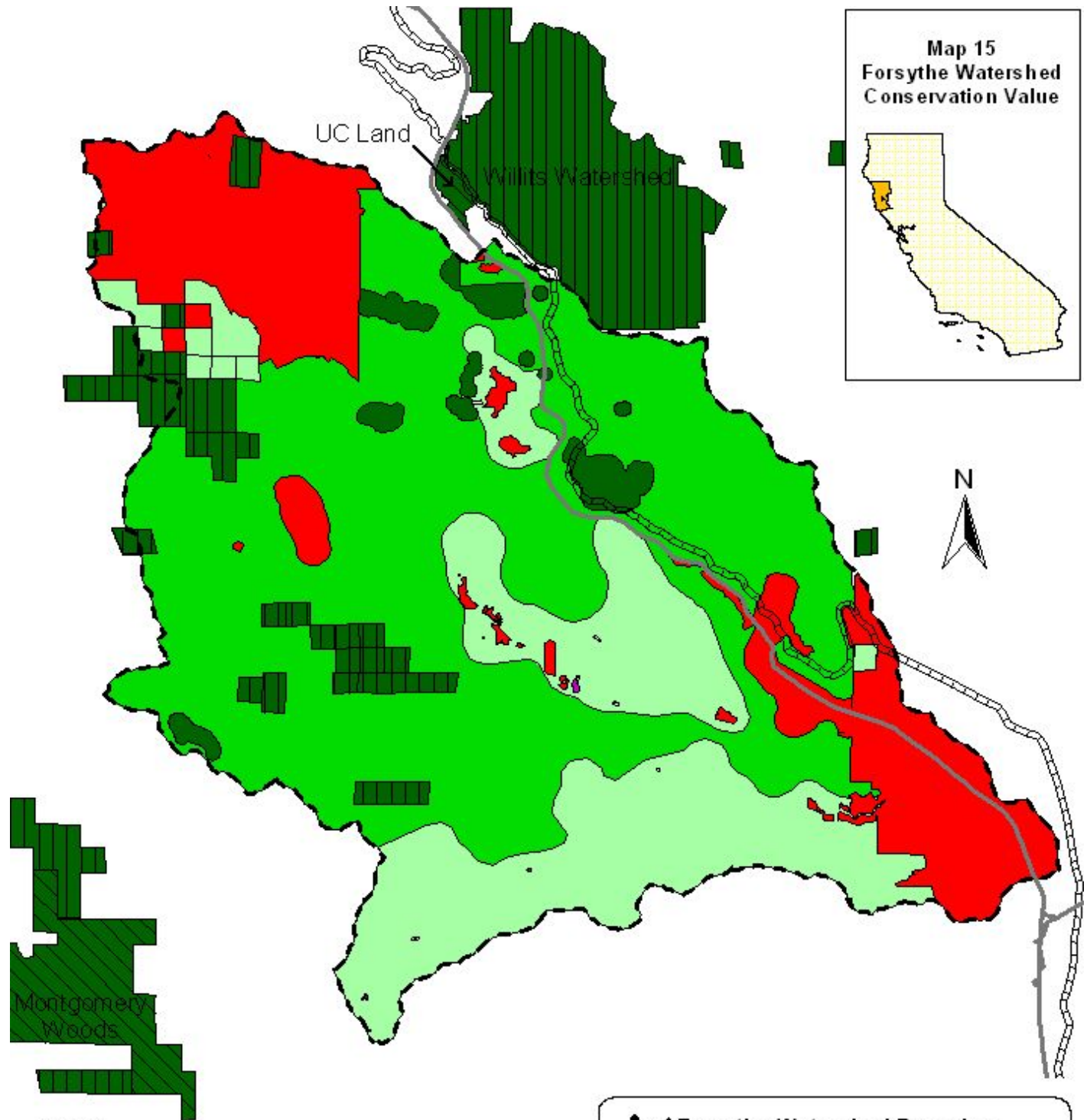
**Source:**

Hwy 101 & Railroad derived from 1993 USGS DOQs.  
 Streams - CDF NCHYDRO data layer, Eric Spry, 2002.  
 Roads - NCWAP Mendocino Co Raods layer.  
 Squaw Rock-Witherell Complex derived from SSURGO soils data.  
 Leonard Lake and Walker Lake derived from 1993 USGS DOQs  
 Low Conservation Value, Linda Gray, 2004 - derived from Mendo Co. GIS AP data and building density, existing gravel mine, vineyards & orchards determined from digital, rectified 2004 Forsythe Aerial Photos  
 Elevation Range Tin, Linda Gray, 2002 - derived from the 10-meter USGS DEM for the Russian River basin, 2002

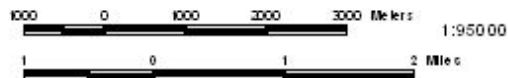


This map covers an area centered around the USGS topo map for Laughlin Range in California. Map produced for the Forsythe Watershed Assessment Project of the Mendocino County Resource Conservation District, Ukiah, California 12-12-2004

**Map 15  
Forsythe Watershed  
Conservation Value**



Sources:  
 Hwy 101 & Railroad derived from 1993 USGS DOQs  
 Protected and Public Land - Linda Gray; 2002, derived from Mendocino County GIS AP data.  
 Highest Conservation Value - Linda Gray; 2005, buffered known features.  
 Medium & Lowest Conservation Value - Linda Gray; 2004, derived from Mendocino County GIS AP data & buffered building locations found on rectified 2004 aerial photos.



	<b>Forsythe Watershed Boundary</b>
	<b>Highways</b>
	<b>Railroad</b>
	<b>Protected Land</b>
	<b>Public Land</b>
	<b>Highest Conservation Value</b>
	<b>High Conservation Value</b>
	<b>Medium Conservation Value</b>
	<b>Lowest Conservation Value</b>

This map covers an area centered around the USGS topo map for Laughlin Range in California. Map produced for the Forsythe Watershed Assessment Project of the Mendocino County Resource Conservation District, Ukiah, California 12-12-2004.

## **Native Wildlife**

Following are some of the species known to exist within the Forsythe watershed. Invertebrates are not included.

### **Amphibians**

Arboreal Salamander	<i>Aneides hardii</i>
Giant Pacific Salamander	<i>Dicamptodon ensatus</i>
Speckled Black Salamander	<i>Aneides flavipunctatus</i>
Red Belly Newt	<i>Taricha rivularis</i>
California Newt	<i>Taricha torosa</i>
Rough-skinned Newt	<i>Taricha granulosa</i>
Foothill Yellow-legged Frog	<i>Rana boylei</i>
Pacific Tree Frog	<i>Hyla regilla</i>
Western Toad	<i>Bufo boreas</i>

### **Reptiles**

Pacific Ringneck Snake	<i>Diadophis punctatus</i>
Western Rattlesnake (Northern Pacific)	<i>Crotalus viridis</i>
Gopher Snake (Pacific)	<i>Pituophis catenifer</i>
Common King Snake	<i>Lampropeltis getula</i>
Aquatic Garter Snake	<i>Thamnophis atratus</i>
California Red-sided Gartersnake	<i>Thamnophis sirtalis</i>
Western Fence Lizard	<i>Sceloporus occidentalis</i>
Western Skink	<i>Eumeces skiltonianus</i>
Northern Alligator Lizard	<i>Gerrhonotus coeruleus</i>
Rubber Boa	<i>Charina bottae</i>
Western Pond Turtle	<i>Clemmys marmorata</i>

The Western Pond Turtle is considered a *Species of Concern* both federally and in the state of California. This species is still doing well in Northern California but is in decline in Washington, Oregon, British Columbia and the southern regions of California (see photo pg 27).

**Figures 5, 6 and 7** (beginning on page 27) are photos of 3 of Forsythe Watershed's reptiles

### **Fish**

Chinook Salmon	<i>Oncorhynchus tshawytscha</i>
Steelhead	<i>Oncorhynchus mykiss</i>
Roach	<i>Sp. ?</i>
Three-spine Stickleback	<i>Gasterosteus aculeatus</i>

### **Mammals**

Black-tailed Deer	<i>Odocoileus hemionus</i>
Striped Skunk	<i>Mephitis mephitis</i>
Porcupine	<i>Erethizon dorsatum</i>
Cougar	<i>Felis concolor</i>
Black Bear	<i>Ursus americanus</i>
Bobcat	<i>Lynx rufus</i>

Northern Flying Squirrel  
Meadow Vole  
Red Tree Vole  
Gray Fox  
Dusky-footed Wood Rat  
White-footed Mouse  
Ground Squirrel  
Western Gray Squirrel  
Raccoon  
River Otter  
Coyote  
Black-tailed Jackrabbit  
Pacific Shrew  
Botta's Pocket Gopher  
Pacific Jumping Mouse  
Broad-footed Mole

*Glaucomys sabrinus*  
*Microtus californicus*  
*Arborimus longicaudus*  
*Urocyon cinereoargenteus*  
*Neotoma fuscipes*  
*Peromyscus spp.*  
*Spermophilus beecheyi*  
*Sciurus griseus*  
*Procyon lotor*  
*Lutra canadensis*  
*Canis latrans*  
*Lepus californicus*  
*Sorex pacificus*  
*Thomomys bottae*  
*Zapus trinotatus*  
*Scapanus latimanus*



Figure 5  
Western Pond Turtle  
*Clemmys marmorata*  
October, 2004





**Figure 6**

**Rubber Boa**

*Charina bottae*

**June 5 2004**

**Photo by  
Linya Quinn-Davidson  
and Eamon Engber**





**Figure 7**  
**California Red-sided  
Garter Snake**  
*Thamnophis sirtalis*  
**May 27, 2005**  
**Photo by  
Linda Gray**

## **Forsythe Birds**

There are, by far, a greater number of bird species, which frequent the Forsythe Watershed, than there are mammals, reptiles, fish and amphibians combined. There are two private lists which identify birds within the Forsythe Watershed - one was developed over a seven year period (1988 – 1995) at Ridgewood Ranch by Ben and Willie Eizinger, two Audubon members; and the other was compiled by ornithologist Steve Granholm on Greenfield Ranch over a 2-day period, May 4 & 5, 1991 (See Appendix I, pg 71, for both lists). Together the two lists represent 141 species of birds, five of which are introduced species and one, the Yellow Rail, an eastern species which was apparently off course during its migration. The two lists have been combined into one titled “Forsythe Birds” (see Table 1).

The US Fish and Wildlife Service (USFWS) document, titled “**Birds of Conservation Concern 2002**” (BCC 2002), lists “*species, subspecies and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act . . .*”. Forsythe Birds that are on the BCC 2002 list for Coastal California are: Lewis Woodpecker, Olive-sided Flycatcher, Peregrine Falcon, Prairie Falcon and Tricolored Blackbird (See Appendix I, pg 69 for the BCC lists with Forsythe birds).

At least 80 of the 135 Forsythe bird species (nearly 60%) are known to migrate. They are either coming to this region to spend the winter, nesting here during the summer breeding season, or they are simply passing through on their way to somewhere else

According to The Wilderness Society, the Northern Pintale, Rough-Legged Hawk, Savannah Sparrow and possibly the Arctic Peregrine Falcon are all Arctic birds which migrate from Alaska south to this region for the winter. They are all identified in the following spreadsheet as “Arctic Migrants”, except for the Peregrine. Bird species which breed in Canada or the United States, and have been recorded in their non-breeding season in Mexico, Central or South America, are known as neotropical migrants (*Roca et al. 1996*). These birds generally fly short distances every night (between 150 and 200 miles), they stop in the mornings in suitable habitat to eat and rest, and then they move on again the following night. Since much of the Forsythe Watershed is still relatively intact, it still provides stopover habitat for birds migrating through this area.

A subset of the neotropical migratory birds are those that are found during the non-breeding season in the Tropical Andes, the area that is defined as the land and coast within Bolivia, Colombia, Ecuador, Peru and Venezuela. These birds are identified in Table 1 as “Tropical Andes Migrants”.

Mention should be made here that the small Freshwater marsh on Ridgewood Ranch provides nesting habitat for 3 or 4 pairs of mallards each spring as well as many pairs of redwing blackbirds. There are also two small vernal pools on Ridgewood as well as numerous man-made ponds throughout the watershed that provide spring and

summertime feeding habitat for waterfowl, such as numerous species of ducks, Canada geese, Great Blue Herons, Green Herons, Egrets and Belted Kingfishers.

Also of interest is the discovery in April 2005 of a nest belonging to a pair of Golden Eagles in the Eldridge Creek watershed (see Figure 8, page 35 for photos of one of the two eaglets hatched in May). Eldridge Creek is located in the southern portion of the Forsythe Watershed.

**Figures 8, 9, and 10** are photos of 3 of Forsythe Watershed's bird species (or their eggs) beginning on page 36.

**TABLE 1 – FORSYTHE BIRDS**

Common Name	Species Name	Family	Type	List	Conservation Status	Date
Cooper's Hawk	<i>Accipiter cooperii</i>	Accipitridae	Year Round	Both Lists		1988 - 1995
Golden Eagle	<i>Aquila chrysaetos</i>	Accipitridae	Possibly Year Round	Both Lists		1988 - 1995
Bald Eagle (flying overhead)	<i>Haliaeetus leucocephalus</i>	Accipitridae	No American Migrant	Ridgewood		1988 - 1995
Ferruginous Hawk	<i>Buteo regalis</i>	Accipitridae	Winters Here	Ridgewood		1988 - 1995
Northern Harrier	<i>Circus cyaneus</i>	Accipitridae	Possibly Year Round	Ridgewood		1988 - 1995
Osprey	<i>Pandion haliaetus</i>	Accipitridae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Red-shouldered Hawk	<i>Buteo lineatus</i>	Accipitridae	Year Round	Ridgewood		1988 - 1995
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Accipitridae	Year Round	Ridgewood		1988 - 1995
Rough-legged Hawk	<i>Buteo lagopus</i>	Accipitridae	Arctic Migrant	Ridgewood		1988 - 1995
Sharp-shinned Hawk	<i>Accipiter striatus</i>	Accipitridae	Possibly Year Round	Ridgewood		1988 - 1995
White-tailed Kite	<i>Banus leucurus</i>	Accipitridae	Year Round	Ridgewood		1988 - 1995
Bushtit	<i>Psaltriparus minimus</i>	Aegithalidae	Year Round	Ridgewood		1988 - 1995
Belted Kingfisher	<i>Ceryle alcyon</i>	Alcedinidae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Bufflehead	<i>Bucephala albeola</i>	Anatidae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
Canada Goose	<i>Branta canadensis</i>	Anatidae	No American Migrant	Ridgewood		1988 - 1995
Common Merganser	<i>Mergus merganser</i>	Anatidae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
Gadwall	<i>Anas strepera</i>	Anatidae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
Hooded Merganser	<i>Lophodytes cucullatus</i>	Anatidae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
Lesser SCAUP	<i>Aythya marila</i>	Anatidae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Mallard	<i>Anas platyrhynchos</i>	Anatidae	Possibly Year Round	Ridgewood		1988 - 1995
Northern Pintail	<i>Anas acuta</i>	Anatidae	Arctic Migrant	Ridgewood		1988 - 1995
Ringnecked Duck	<i>Aythya collaris</i>	Anatidae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
Ruddy Duck	<i>Oxyura jamaicensis</i>	Anatidae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
Woodduck	<i>Aix sponsa</i>	Anatidae	No. American Migrant - Possibly Year Round	Ridgewood		1988 - 1995
Vaux's Swift	<i>Chaetura vauxi</i>	Apodidae	Neotropical Migrant	Ridgewood		1988 - 1995
Black-crown Night-Heron	<i>Nycticorax nycticorax</i>	Ardeidae	Possibly Year Round	Ridgewood		1988 - 1995
Great American Egret	<i>Casmerodius albus</i>	Ardeidae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Great Blue Heron	<i>Ardea herodias</i>	Ardeidae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Green-backed Heron	<i>Butorides virescens</i>	Ardeidae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Snowy Egret	<i>Egretta thula</i>	Ardeidae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Cedar Waxwing	<i>Bombycilla cedrorum</i>	Bombycillidae	Neotropical Migrant	Ridgewood		1988 - 1995
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	Cardinalinae	Neotropical Migrant	Both Lists		1988 - 1995
Turkey Vulture	<i>Cathartes aura</i>	Cathartidae	Year Round	Both Lists		1988 - 1995
Wren Tit	<i>Chamaea fasciata</i>	Chamaeidae	Year Round	Greenfield		May4-5, 1991
Killdeer	<i>Charadrius vociferus</i>	Charadriidae	Tropical Andes Migrant	Ridgewood		1988 - 1995

Common Name	Species Name	Family	Type	List	Conservation Status	Date
Band-tailed Pigeon	<i>Columba fasciata</i>	Columbidae	Neotropical Migrant	Ridgewood		1988 - 1995
Mourning Dove	<i>Zenaida macroura</i>	Columbidae	Year Round	Ridgewood		1988 - 1995
Rock Dove **	<i>Columba livia</i>	Columbidae	Non-native	Ridgewood		1988 - 1995
Common Raven	<i>Corvus Corax</i>	Corvidae	Year Round	Both Lists		1988 - 1995
Stellar's Jay	<i>Cyanocitta stelleri</i>	Corvidae	Year Round	Both Lists		1988 - 1995
American Crow	<i>Corvus Brachyrhynchos</i>	Corvidae	Year Round	Ridgewood		1988 - 1995
California Scrub Jay	<i>Aphelocoma coerulescens</i>	Corvidae	Year Round	Ridgewood		1988 - 1995
Dark-eyed Junco	<i>Junco hyemalis</i>	Emberizinae	Possibly Year Round	Both Lists		1988 - 1995
Rufous-sided Towhee	<i>Pipilo erythrophthalmus</i>	Emberizinae	Possibly Year Round	Both Lists		1988 - 1995
California Towhee	<i>Pipilo crissalis</i>	Emberizinae	Year Round	Ridgewood		1988 - 1995
Chipping Sparrow	<i>Spizella passerina</i>	Emberizinae	Neotropical Migrant	Ridgewood		1988 - 1995
Fox Sparrow	<i>Passerells iliaca</i>	Emberizinae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	Emberizinae	West Coast US & Canada - Winters Here	Ridgewood		1988 - 1995
Lark Sparrow	<i>Chondestes grammacus</i>	Emberizinae	Possibly Year Round	Ridgewood		1988 - 1995
Lincoln Sparrow	<i>Melospiza lincolni</i>	Emberizinae	Neotropical Migrant	Ridgewood		1988 - 1995
Savannah Sparrow	<i>Passerculus sandwichensis</i>	Emberizinae	Arctic Migrant	Ridgewood		1988 - 1995
Song Sparrow	<i>Melospiza melodia</i>	Emberizinae	Year Round	Ridgewood		1988 - 1995
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	Emberizinae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
White-throated Sparrow	<i>Zonotrichia albicollis</i>	Emberizinae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
American Kestrel	<i>Falco sparverius</i>	Falconidae	Year Round	Both Lists		1988 - 1995
Merlin	<i>Falco columbarius</i>	Falconidae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Peregrine Falcon	<i>Falco peregrinus</i>	Falconidae	Year Round	Ridgewood	USFWS 2002 BCC List	1988 - 1995
Prairie Falcon	<i>Falco mexicanus</i>	Falconidae	Possibly Year Round	Ridgewood	USFWS 2002 BCC List	1988 - 1995
Lesser Goldfinch	<i>Carduelis psaltria</i>	Fringillidae	Neotropical Migrant	Both Lists		1988 - 1995
Purple Finch	<i>Carpodacus purpureus</i>	Fringillidae	Possibly Year Round	Both Lists		1988 - 1995
Brown (Canyon) Towhee	<i>Pipilo fuscus</i>	Fringillidae	Year Round	Greenfield		May4-5, 1991
Lazuli Bunting	<i>Passerina amoena</i>	Fringillidae	Neotropical Migrant	Greenfield		May4-5, 1991
American Goldfinch	<i>Carduelis tristis</i>	Fringillidae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
Evening Grosbeak	<i>Coccothraustes vespertina</i>	Fringillidae	Possibly Year Round	Ridgewood		1988 - 1995
House Finch	<i>Carpodacus mexicanus</i>	Fringillidae	Year Round	Ridgewood		1988 - 1995
Pine Siskin	<i>Carduelis pinus</i>	Fringillidae	Possibly Year Round	Ridgewood		1988 - 1995
Sandhill Cranes (flying overhead)	<i>Grus canadensis</i>	Gruidae	No American Migrant - Migrates Through Here	Ridgewood		1988 - 1995
Violet-green Swallow	<i>Tachycineta thalassina</i>	Hirundinidae	Neotropical Migrant	Both Lists		1988 - 1995
Barn Swallow	<i>Hirundo rustica</i>	Hirundinidae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Cliff Swallow	<i>Hirundo pyrrhonota</i>	Hirundinidae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Northern Rough-winged Swallow	<i>Stelgidopteryx semipennis</i>	Hirundinidae	Neotropical Migrant	Ridgewood		1988 - 1995

Common Name	Species Name	Family	Type	List	Conservation Status	Date
Violet-green Swallow	Tachycineta thalassina	Hirundinidae	Neotropical Migrant	Both Lists		1988 - 1995
Brewer's Blackbird	Euphagus cyanocephalus	Icterinae	Year Round	Ridgewood		1988 - 1995
Brown-headed Cowbird	Molothrus ater	Icterinae	Possibly Year Round	Ridgewood		1988 - 1995
Hooded Oriole	Icterus cucullatus	Icterinae	Neotropical Migrant	Ridgewood		1988 - 1995
Northern Oriole	Icterus bullockii	Icterinae	Neotropical Migrant	Ridgewood		1988 - 1995
Red-winged Blackbird	Agelaius phoeniceus	Icterinae	Year Round	Ridgewood		1988 - 1995
Tricolored Blackbird	Agelaius tricolor	Icterinae	Year Round	Ridgewood	USFWS 2002 BCC List	1988 - 1995
Western Meadowlark	Sturnella neglecta	Icterinae	No American Migrant	Both Lists		1988 - 1995
Yellow-headed Blackbird	Xanthocephalus xanthocephalus	Icterinae	Neotropical Migrant	Ridgewood		1988 - 1995
Northern Mockingbird	Mimus polyglottos	Mimidae	Year Round	Ridgewood		1988 - 1995
Chestnut-backed Chickadee	Parus rufescens	Paridae	Year Round	Both Lists		1988 - 1995
Plain Titmouse	Parus inornatus	Paridae	Year Round	Ridgewood		1988 - 1995
Nashville Warbler	Vermivora ruficapilla	Parulidae	Neotropical Migrant - Migrates Through Here	Greenfield		May4-5, 1991
Black and White Warbler	Mniotilta varia	Parulinae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Black-throated Gray Warbler	Dendroica nigrescens	Parulinae	Neotropical Migrant	Greenfield		1988 - 1995
Common Yellow-throat Warbler	Geothypis trichas	Parulinae	Tropical Andes Migrant	Ridgewood		May4-5, 1991
Hermit Warbler	Dendroica occidentalis	Parulinae	Neotropical Migrant	Greenfield		May4-5, 1991
Orange-crowned Warbler	Vermivora celata	Parulinae	Possibly Year Round	Greenfield		1988 - 1995
Wilson's Warbler	Wilsonia pusilla	Parulinae	Neotropical Migrant	Greenfield		1988 - 1995
Yellow Warbler	Dendroica petechia	Parulinae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Yellow-rumped Warbler	Dendroica coronata	Parulinae	Tropical Andes Migrant	Ridgewood		1988 - 1995
House Sparrow **	Passer domesticus	Passeridae	Non-native	Ridgewood		1988 - 1995
California Quail	Callipepla californica	Phasianidae	Year Round	Ridgewood		May4-5, 1991
Mountain Quail	Oreortyx pictus	Phasianidae	Year Round	Greenfield		1988 - 1995
Ring-necked Pheasant **	Phasianus colchicus	Phasianidae	Non-native	Ridgewood		1988 - 1995
Wild Turkey **	Meleagris gallopavo	Phasianidae	Non-native	Ridgewood		1988 - 1995
Acorn Woodpecker	Melanerpes formicivorus	Picidae	Year Round	Greenfield		1988 - 1995
Downy Woodpecker	Picoides pubescens	Picidae	Year Round	Ridgewood		1988 - 1995
Lewis Woodpecker	Melanerpes lewis	Picidae	Possibly Year Round	Ridgewood	USFWS 2002 BCC List	1988 - 1995
Northern Flicker	Colaptes auratus	Picidae	Year Round	Ridgewood		1988 - 1995
Nuttall's Woodpecker	Picoides nuttallii	Picidae	Year Round	Both Lists		1988 - 1995
Pileated Woodpecker	Dryocopus pileatus	Picidae	Year Round	Both Lists		1988 - 1995
Red-breasted Sapsucker	Sphyrapicus ruber	Picidae	Possibly Year Round	Ridgewood		1988 - 1995
Yellow-bellied Sapsucker	Sphyrapicus varius	Picidae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Pied-bill Grebe	Podilymbus podiceps	Podicipedidae	Year Round	Ridgewood		1988 - 1995
American Coot	Fulica americana	Rallidae	Neotropical Migrant	Ridgewood		1988 - 1995

Common Name	Species Name	Family	Type	List	Conservation Status	Date
Sora Rail	Porzana carolina	Rallidae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Virginia Rail	Rallus limicola	Rallidae	Possibly Year Round	Ridgewood		1988 - 1995
Yellow Rail (off course)	Coturnicops noveboracensis	Rallidae	Off Course	Ridgewood		1988 - 1995
Common Snipe	Gallinago gallinago	Scolopacidae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
Red-breasted Nuthatch	Sitta canadensis	Sittidae	Possibly Year Round	Ridgewood		1988 - 1995
White-breasted Nuthatch	Sitta carolinensis	Sittidae	Year Round	<b>Both Lists</b>		1988 - 1995
Great Horned Owl	Bubo virginianus	Strigidae	Year Round	Ridgewood		1988 - 1995
European Starling **	Sturnus vulgaris	Sturnidae	Non-native	Ridgewood		1988 - 1995
Ruby-crowned Kinglet	Regulus calendula	Sylviinae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
Western Tanager	Piranga ludoviciana	Thraupinae	Neotropical Migrant	<b>Both Lists</b>		1988 - 1995
Allen's Hummingbird	Selasphorus sasin	Trochilidae	Neotropical Migrant	Ridgewood		1988 - 1995
Anna's Hummingbird	Calypte anna	Trochilidae	Year Round	Both Lists		1988 - 1995
Black-chinned Hummingbird	Archilochus alexandri	Trochilidae	Neotropical Migrant	Ridgewood		1988 - 1995
Rufous Hummingbird	Selasphorus rufus	Trochilidae	Neotropical Migrant - Migrates Through Here	Ridgewood		1988 - 1995
Bewick's Wren	Thryomanes bewickii	Troglodytidae	Year Round	Both Lists		1988 - 1995
Marsh Wren	Cistothorus palustris	Troglodytidae	Neotropical Migrant - Migrates Through Here	Ridgewood		1988 - 1995
American Robin	Turdus migratorius	Turdinae	No American Migrant	Both Lists		1988 - 1995
Hermit Thrush	Catharus guttatus	Turdinae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
Swainson's Thrush	Catharus ustulatus	Turdinae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Varied Thrush	Ixoreus naevius	Turdinae	No American Migrant - Winters Here	Ridgewood		1988 - 1995
Western Bluebird	Sialia mexicana	Turdinae	Neotropical Migrant	Ridgewood		1988 - 1995
Ash-throated Flycatcher	Myiarchus cinerascens	Tyrannidae	Neotropical Migrant	Ridgewood		1988 - 1995
Dusky Flycatcher	Empidonax oberholseri	Tyrannidae	Neotropical Migrant	Ridgewood		1988 - 1995
Olive-sided Flycatcher	Contopus borealis	Tyrannidae	Tropical Andes Migrant	Ridgewood	USFWS 2002 BCC List	1988 - 1995
Phoebe, Black	Sayornis nigricans	Tyrannidae	Year Round	Both Lists		1988 - 1995
Phoebe, Say's	Sayornis saya	Tyrannidae	Possibly Year Round	Ridgewood		1988 - 1995
Western Kingbird	Tyrannus verticalis	Tyrannidae	Neotropical Migrant	Ridgewood		1988 - 1995
Western Willow Flycatcher	Empidonax traillii	Tyrannidae	Tropical Andes Migrant	Ridgewood		1988 - 1995
Western Wood-pewee	Contopus sordidulus	Tyrannidae	Tropical Andes Migrant	Both Lists		1988 - 1995
Pacific Slope Flycatcher (aka Western Willow Flycatcher)	Empidonax difficilis	Tyrannidae	Neotropical Migrant	Greenfield		May4-5, 1991
Bell's Vireo	Vireo bellii	Vireonidae	Neotropical Migrant	Ridgewood	CA subspecies endangered - Cornell Lab of Ornithology	1988 - 1995
Hutton's Vireo	Vireo huttoni	Vireonidae	Year Round	Both Lists		1988 - 1995
Solitary Vireo	Vireo solitarius	Vireonidae	Neotropical Migrant	Both Lists		May4-5, 1991
Warbling Vireo	Vireo gilvus	Vireonidae	Neotropical Migrant			1988 - 1995



**Figure 8**  
**Golden Eaglet**  
**in Nest**  
*Aquila chrysaetos*  
**May 27, 2005**  
**Photos by**  
**Linda Gray**







**Figure 9**  
**Mallard Duck Eggs**  
**in Nest**

*Anas platyrhynchos*  
**Next to Ridgewood**  
**Ranch Reservoir in**  
**Parcel 13**  
**May 31, 2005**

**Photos by**  
**Linda Gray**



**Figure 10**  
**Killdeer Near Nest**  
*Charadrius vociferus*  
**Forsythe Creek**  
**Gravel Bar**  
**Ridgewood Ranch**  
**Parcel 24**

**May 31, 2005**

**Photo by**  
**Linda Gray**

### **Tower Bird Kill**

A growing hazard to migrating birds is the occurrence of tall, lighted communications towers in bird migration paths. This problem is increasing due to the popularity of cell phones and digital television. These towers are particularly problematic when lighted at night during foggy weather conditions. Birds are drawn into the lighted sphere of fog, and once there, tend to circle around endlessly within the lighted area and are often killed or injured by crashing into guy wires.

Unfortunately, few studies exist regarding this “tower bird kill” phenomena, and funding for further research does not seem to be forthcoming. However, of the few studies that exist, five are substantial:

- Herbert Stoddard began his *daily* 15-year inventory of tower bird kills in 1955 at the 204 meter Tall Timbers broadcasting tower near Tallahassee, Florida. After his death his work was continued for another 10 years by others until 1980. During that time 42,000 birds, comprising 189 species, were killed.
- Charles Kemper kept a tower bird kill inventory during both the spring and fall migration seasons over a 37 year period (1957 – 1994) at a 1000’ tower in Eau Claire Wisconsin. During that time 121,560 birds (123 species) were killed.
- Migration casualty collections, for both migration seasons, began at the WSMV television tower in Nashville, TN in 1960 and continued until 1997. During that time 19,880 birds (112 species) were killed.
- Wilifred Howard kept a tower bird kill inventory at the 850’ television tower in Elmira NY *during the fall migration season only*, from 1963-1983. She documented over 7500 birds killed during that time.
- A 529’ tower near Weston, WV was checked irregularly from 1978-1986 during the migration seasons and 841 birds (58 species) were killed during that time.

According to the 2000 USFWS guidelines for communications tower construction, there are approximately 350 species of night-migrating birds. (See Appendix II) Construction of communications towers has been increasing at an estimated rate of 6% - 8% annually. Non-compliance with the government’s registry program is estimated at 24% - 38%, so the location of these towers is often not even known by governmental agencies. USFWS estimates that nationally there are currently 4 – 5 million birds killed each year and, as already stated, the hazard is increasing. Map 7 - Wireless Communications Sites - shows the locations of all known communications towers and antennas in and around the Forsythe Watershed.

### **Forsythe Watershed’s Extirpated Wildlife**

Species known to have existed in Mendocino County (and probably the Forsythe Watershed), and now believed or known to be absent in parts or all of their range, are the Humboldt Marten (*Martes americana humboldtensis*); the Fisher (*Martes pennanti*); California Badger (*Taxidea taxus neglecta*) (Grinnell 1937); Mendocino Grizzly Bear (*Ursus mendocinensis*) (Grinnell 1937); Roosevelt Elk (*Cervus elaphus roosevelti*); possibly the Northwestern Timber Wolf (*Canis lupus gigas*), (Grinnell 1937); Red-legged Frog (*Rana aurora*); and Coho Salmon (*Oncorhynchus kisutch*). There may be others. (See Appendix III – Wildlife Information, p. 88, for information on Badgers)

The Humboldt Marten, endemic to the North Coast region, is a subspecies of the American Marten and is a small forest predator about the size of a housecat. It was believed to be extinct until the 1990's when its existence was confirmed in Humboldt County (See Fig. 5, for photos and drawings of this animal. Photos were not taken in the Forsythe Watershed, but are simply included in this report for educational purposes, since few people in this region have ever heard of a Marten, let alone know what they look like.) There has been no documented evidence of the presence of Martens in Mendocino County in the last 45 years, but there have been numerous anecdotal accounts of Marten sightings in the remotest parts of Greenfield Ranch and elsewhere.

### **Camera Wildlife Study**

With the help of landowner Dale Glaser and California Department of Fish and Game (CDFG) employee Tracie Nelson (formerly Tracie Hughes) and the use of CDFG cameras and sensing equipment, several camera monitoring sites were set up in the watershed from August 2003 – April 2004. Four of the sites were on the Greenfield Ranch and one site was on Ridgewood Ranch (see Significant Features Map 14, for camera locations). Placing the cameras on Greenfield was an attempt to document the existence of the Humboldt Marten. Chicken wings for bait and Caven's "Gusto" lure were used to attract wildlife at the four Greenfield sites, but no bait or lure were used at the Ridgewood site. Martens, our target species, were not detected, but native species that were photographed include Gray Fox, Black Bear, Cougar, Black-tailed Deer, Northern Flying Squirrel, Striped Skunk, Gray Squirrel, Screech Owl, Turkey Vultures and a Raven. The motion sensor was so sensitive that the camera even photographed California Sister butterflies (See Figures 7 – 11 for some of these photos and Table 2, for each site's species list). The greatest diversity of wildlife occurred at the GRA III site with 11 species recorded.



Figure 11  
American Marten  
*Martes americana*



**Figure 12**  
**Redwood Creek Camera Study**

**Cougar or Mountain Lion**

*Puma concolor*

**September 24, 2003**

**Camera Site Monitored by**  
**Dale Glaser and Linda Gray**

**Figure 13**  
**Redwood Creek Camera Study**

**American Black Bear**

*Ursus americanus*

**September 6, 2003 (Top)**  
**December 6, 2003 (Bottom)**

**Camera Site Monitored by**  
**Dale Glaser and Linda Gray**



**Redwood Creek Camera Study**

**Camera Site Monitored by  
Dale Glaser and Linda Gray**

**Figure 14  
Northern Flying Squirrel**

*Glaucomys sabrinus*

**October 1 & 2, 2003**



**Figure 15  
California Sister**

*Adelpha bredowii*

**September 11, 2003**



Camera Monitoring Results August, 2003 - April, 2004

**Table 2**

	Species (Common Name)	Scientific Name	Occurrences					Species Totals
			GRA I	GRA II	GRA III	GRA IV	*Ridgewood O.G.	
			8/5/03 - 9/4/03	9/4/03 - 1/4/04	2/20/04 - 4/3/04			
<b>Native Species</b>	Black Bear	<i>Ursus americanus</i>	0	0	2	0	0	2
	Black-tailed Deer	<i>Odocoileus hemionus</i>	0	0	3	5	2	10
	Blue Jay	<i>Cyanocitta stelleri</i>	0	0	0	1	0	1
	Bobcat	<i>Lynx rufus</i>	1	0	2	1	22	26
	California Quail	<i>Lophortyx californicus</i>	0	0	0	0	2	2
	California Sister	<i>Adelpha bredowii</i>	0	0	1	0	0	1
	Cougar	<i>Puma concolor</i>	0	0	1	0	0	1
	Gray Fox	<i>Urocyon cinereoargenteus</i>	27	1	3	4	0	35
	Northern Flying Squirrel	<i>Glaucomys sabrinus</i>	0	0	2	0	0	2
	Raven	<i>Corvus corax</i>	0	1	0	0	0	1
	Screech Owl	<i>Otus asio</i>	1	0	1	0	0	2
	Striped Skunk	<i>Mephitis mephitis</i>	0	0	1	0	0	1
	Turkey Vulture	<i>Cathartes aura</i>	7	1	8	0	0	16
	Western Gray Squirrel	<i>Sciurus griseus</i>	5	2	1	1	0	9
<b>Total Occurrences</b>			36	3	24	11	26	100

<b>Introduced Species</b>	Domestic Dog	<i>Canis familiaris</i>	0	0	0	1	0	1
	Fallow Deer	<i>Cervus dama</i>	0	0	0	1	1	2
	Opossum	<i>Didelphis virginiana</i>	0	0	9	0	4	13
	Turkey	<i>Meleagris gallopavo</i>	0	0	0	0	1	1
<b>Total Occurrences</b>			0	0	9	2	6	17

\* NO BAIT or LURE used



Although we never photographed a Marten, we also never photographed a Coyote, which we know to be abundant in the watershed. Our camera wildlife study didn't prove the existence of Martens, but it didn't prove their absence from the watershed either.

### **Ridgewood Tunnel under Highway 101**

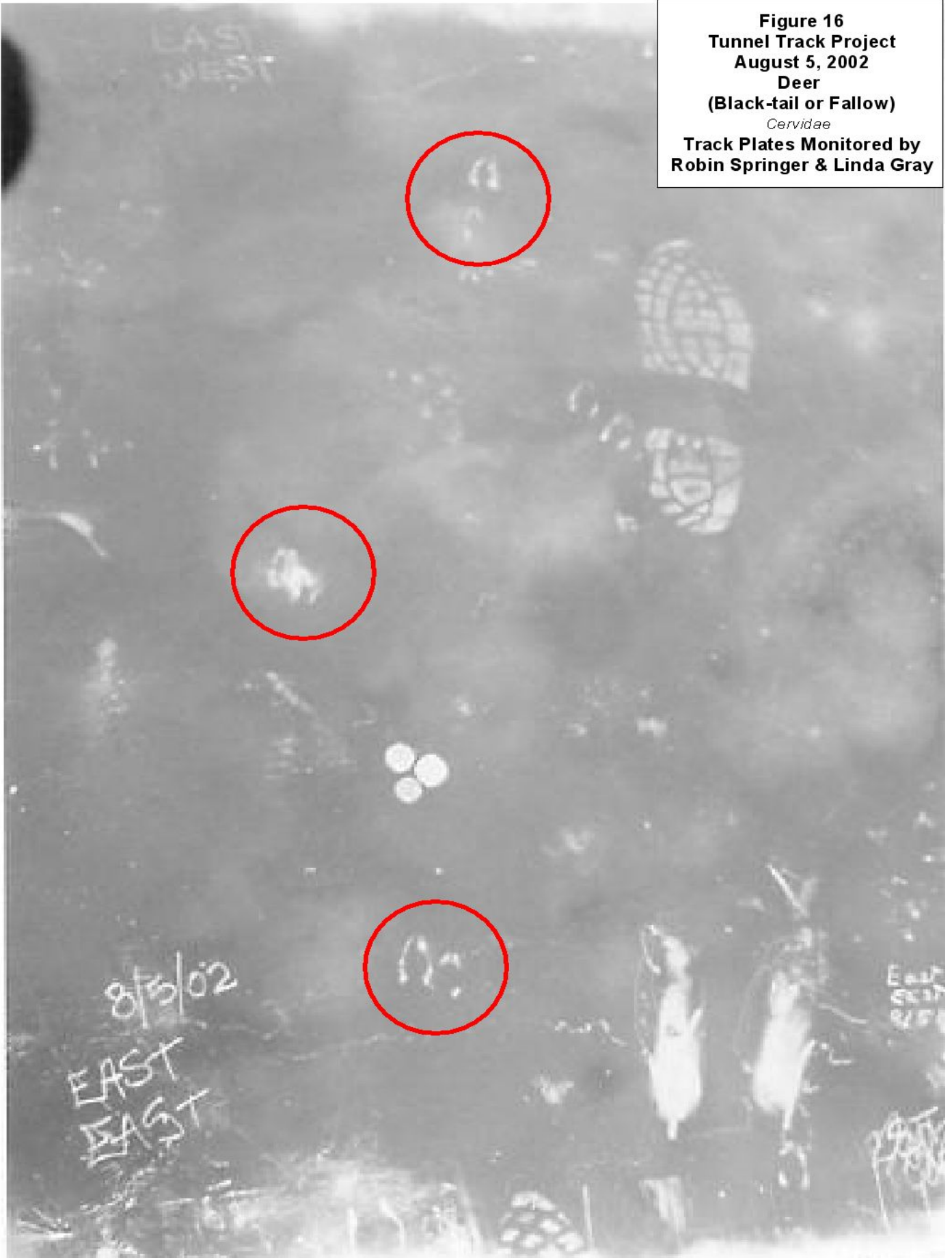
The 5000 acre Ridgewood Ranch, which is located in the northeast area of the Forsythe Watershed, is bisected by Highway 101. When Highway 101 was built in 1953, a tunnel was constructed under the highway in order to allow the property owner to easily move livestock from one side to the other.

In the summer of 2002, UC Santa Cruz student, Robin Springer and I (Linda Gray) worked together on a preliminary project to survey and document which species of wildlife use the 82.5' tunnel (12' wide x 12' high) in order to safely cross Highway 101, a significant barrier to their natural patterns of movement and/or migration. In order to achieve our goal we placed a set of 3 very large track plates centered at the mid-point of the length of the tunnel. Each track plate was 4' x 10'; the center plate was plywood covered with contact paper (we later used plain paper instead of contact paper) and the two outer plates were sooted metal. This configuration made it necessary for any animal, coming from either direction and proceeding through the tunnel, to first have to walk across a sooted metal plate (to blacken their feet) and then across the contact paper (or regular paper) to register their tracks. Once in place, the track plates covered 12' of the length of the tunnel and 10' of the width. We placed plastic buckets at the 4 corners formed by the set of track plates in order to prevent any animals from running along the edge of the walls of the tunnel to avoid stepping on the track plates. Tracks left on the sooted metal plates were photographed (see Figures 12 – 17 for some of the photos), and the paper and contact paper, which also had tracks, have been saved.

During that year, due to ongoing highway construction, California Department of Transportation (CalTrans) work crews made use of the tunnel during the work week to haul materials, water, etc. Consequently, we had to set up the track plates on Friday evenings and collect our results either the following Sundays or very early Monday mornings, before CalTrans workers returned to work after the weekend. It should also be noted that due to the ongoing construction activity with heavy equipment, wildlife use during this time period may have been less frequent than under normal conditions.

We started our project 6/28/2002 and finished 9/8/2002. During this time period we set up the track plates 5 times and documented detections for the following species: gray fox (*Urocyon cinereoargenteus*) (5), raccoon (*Procyon lotor*) (1), striped skunk (*Mephitis mephitis*) (4), black-tailed deer (*Odocoileus hemionus*) (3), small bobcat (*Lynx rufus*) (or house cat?) (1), black-tailed jackrabbit (*Lepus californicus*) (3), and many Pacific jumping mice (*Zapus trinotatus*) (about an average of 6 each weekend). We expected predators to make use of the tunnel, but were surprised to also get tracks of jackrabbits and deer. We thought the tunnel would be too unnatural an environment for them, and expected that they would avoid it (See Appendix III – Wildlife, for information about wildlife highway crossing structures.)

**Figure 16**  
**Tunnel Track Project**  
**August 5, 2002**  
**Deer**  
**(Black-tail or Fallow)**  
*Cervidae*  
**Track Plates Monitored by**  
**Robin Springer & Linda Gray**



**Figure 17**  
**Tunnel Track Project**  
**July 29, 2002**  
**Black-tailed Jack Rabbit**  
*Lepus californicus*  
**Track Plates Monitored by**  
**Robin Springer & Linda Gray**



**Tunnel Track Project**  
**Track Plates Monitored by**  
**Robin Springer & Linda Gray**

**Figure 18**  
**July 13, 2002**  
**Pacific Jumping Mouse**  
*Zapus trinotatus*

**Figure 19**  
**September 8, 2002**  
**Striped Skunk (Right)**  
*Mephitis mephitis*



6150102  
Ridgewood Ranch  
Tunnel  
Facing east  
RS #1



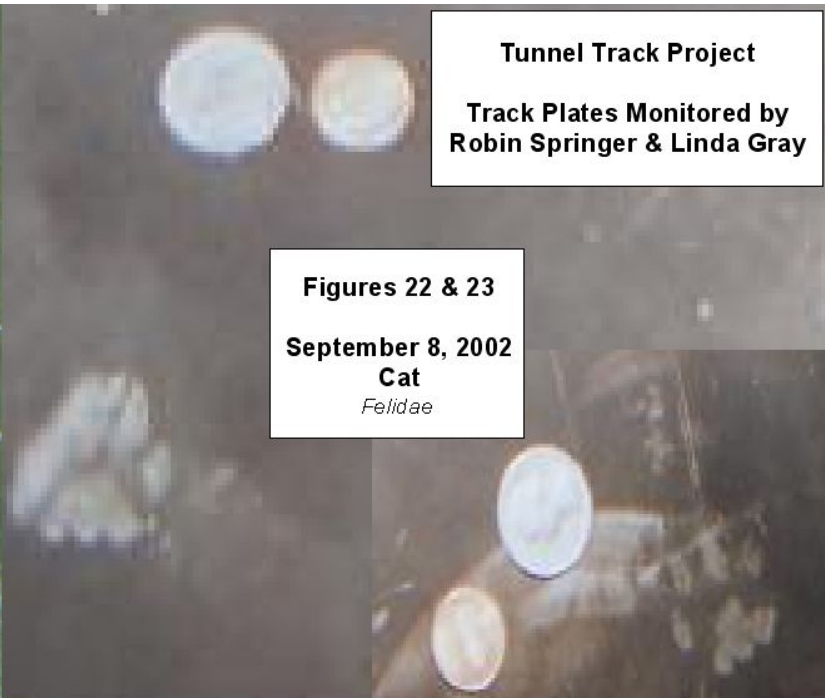
**Figure 20**  
**Tunnel Track Project**  
**June 30th 2002**  
**Pacific Jumping Mouse**  
*Zapus trinotatus*  
**Actual Size**

**Track Plates Monitored by**  
**Robin Springer & Linda Gray**





**Figure 21**  
**July 13, 2002**  
**Raccoon**  
*Procyon lotor*



**Tunnel Track Project**  
**Track Plates Monitored by**  
**Robin Springer & Linda Gray**

**Figures 22 & 23**  
**September 8, 2002**  
**Cat**  
*Felidae*



**Figures 24 & 25**  
**June 30, 2002**  
**Gray Fox**  
*Urocyon cinereoargenteus*



**Figure 26**  
**Tunnel Track Project**  
**September 8, 2002**

**Gray Fox (Center)**

*Urocyon cinereoargenteus*

**Feline (Below Coins)**

*Felidae*

**Striped Skunk (Lower Right)**

*Mephitis mephitis*

**Human (Lower Left)**

*Homo sapiens*

**Track Plates Monitored by**  
**Robin Springer & Linda Gray**

After the results of the tunnel track plate study project, the La Vida High School class attempted a camera study of the tunnel, again with the help of Tracie Nelson and CDFG cameras and motion sensing equipment. However, the equipment was vandalized three times, and therefore the project was abandoned without obtaining a single photo of wildlife using the tunnel.

Vegetation leading up to both entrances of the tunnel is sparse. Wildlife use of the tunnel would probably be increased if more vegetation were encouraged to create safe corridors to and from the tunnel connecting it to nearby stands of oak woodland.

## **Native Plants**

To date, 230 plant species have been identified within the Forsythe Watershed. This list (see Table 3), made up almost entirely of native species, is a compilation of plants identified in the Forsythe Watershed by several people: Geri Hulse-Stephens' field notes and Marisella de Santa Anna's plant lists (both of whom have led several California Native Plant Society field trip on Ridgewood Ranch), Linda Gray's herbarium of Greenfield Ranch plants, a rare Semaphore grass collected on Ridgewood by Chuck Williams, and the plant list from the UC Davis vernal pool botanical survey team on Ridgewood Ranch, headed by Michael Barbour. (See Appendix IV – Forsythe Plants for three of the separate lists & a letter from Michael Barbour and Ayzik Solomeshch.) Even the combined list in Table 3 is an incomplete sampling of the native plants that can be found within the watershed. It is hoped that this list will be expanded over time.

## **Lichens**

Included in this report is a list of 30 species of lichens (see Table 4, pg 54), which were identified on Greenfield Ranch by Jennifer Riddell and Geri Hulse-Stephens. Some lichens, such as *Evernia prunastrii*, are indicators of air quality. Photographs of some of the lichens found on Greenfield Ranch, taken by Ree Slocum, are also included in this report (see Figure 15).



**TABLE 3 - FORSYTHE PLANTS**

<b>Latin Name</b>	<b>Status</b>	<b>Common Name</b>	<b>Family</b>	<b>Collector</b>	<b>System</b>	<b>Location</b>	<b>Date</b>
<i>Acer macrophyllum</i>	native	Big-leaf Maple	Aceraceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/24/96
<i>Amaranthus species</i>	?	Pigweed	Amaranthaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Toxicodendron diversilobum</i>	native	Poison Oak	Anacardiaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99
<i>Heracleum lanatum</i>	native	Cow Parsnip	Apiaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	04/01/01
<i>Lomatium utriculatum</i>	native	Lomatia	Apiaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/06/96
<i>Angelica sp.</i>	native	Angelica	Apiaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Pteryxia terebinthinia</i>	?	Terebinth pteryxia	Apiaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Sanicula arctopoides</i>	native	Footsteps of Spring	Apiaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Sanicula crassicaulis</i>	native	Pacific Snakeroot	Apiaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Torilis arvensis</i>	non-native	Beggars Tick	Apiaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Daucus pusillus</i>	native		Apiaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Sanicula bipinnatifida</i>	native	Purple Sanicle, Shoe Buttons	Apiaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Aster radulinus</i>	native		Asteraceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	05/14/05
<i>Carduus pycnocephalus</i>	non-native	Italian Thistle	Asteraceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	05/14/05
<i>Micropus californicus</i>	native	Slender Cottoweed	Asteraceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	04/01/01
<i>Psilocarphus brevissimus</i>	native	Woolly Marbles	Asteraceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	04/01/01
<i>Achillea millefolium</i>	native	Yarrow	Asteraceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/05/96
<i>Achyrachaena mollis</i>	native	Blow-wives	Asteraceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/27/96
<i>Chamomilla suaveolens</i>	non-native	Pineapple Weed	Asteraceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/27/96
<i>Lasthenia californica</i>	native	Goldfields	Asteraceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/26/96
<i>Layia chrysanthemoides</i>	native		Asteraceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/27/96
<i>Senecio vulgaris</i>	non-native	Common Groundsel	Asteraceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Taraxacum sp.</i>	?	Dandelion	Asteraceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Wyethia sp.</i>	native	Mule Ears	Asteraceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Centaurea solstitialis</i>	non-native	Yellow Star Thistle	Asteraceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Lasthenia glaberrima</i>	native		Asteraceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Leontodon taraxacoides</i>	non-native	Hawkbit	Asteraceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Hypochaeris glabra</i>	non-native	Cat's-ear	Asteraceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Hypochaeris radicata</i>	non-native	False Dandelion	Asteraceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Madia species</i>	native	Tarweed	Asteraceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Corylus cornuta var. Californica</i>	native	Hazelnut	Betulaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/27/96
<i>Alnus rhombifolia</i>	native	White Alder	Betulaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/21/96
<i>Woodwardia frimbriata</i>	native	Giant Chain Fern	Blechnaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/06/96
<i>Amsinckia menziesii</i>	native	Rancher's Fireweed	Boraginaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/07/96

Latin Name	Status	Common Name	Family	Collector	System	Location	Date
<i>Cynoglossum grande</i>	native	Hounds Tongue	Boraginaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/24/96
<i>Plagiobothrys nothofulvus</i>	native	Popcornflower	Boraginaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Brassica campestris</i>	?	Field Mustard	Boraginaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Amsinckia menziesii</i> v. <i>intermedia</i>	native	Rancher's Fireweed	Boraginaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Myosotis discolor</i>	non-native	Forget-me-not	Boraginaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Plagiobothrys bracteatus</i>	native	Popcornflower	Boraginaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Plagiobothrys fulvus</i>	native	Popcornflower	Boraginaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Lepidium nitidum</i> var. <i>nitidum</i>	native	Peppergrass	Brassicaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/03/96
<i>Rorippa nasturtium-aquaticum</i>	native	Watercress	Brassicaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	03/23/96
<i>Draba verna</i>	native	Spring Whitlow Grass	Brassicaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Raphanus sativus</i>	non-native	Wild Radish	Brassicaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Thysanocarpus curvipes</i>	native	Lacepod or Fringepod	Brassicaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Cardamine oligosperma</i>	native	Bitter-cress, Toothwort	Brassicaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Callitriche heterophylla</i>	native	Water-starwort	Callitrichaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Callitriche marginata</i>	native	Water-starwort	Callitrichaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Downingia cuspidata</i>	native		Campanulaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Sambucus mexicana</i>	native	Elderberry	Caprifoliaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/06/96
<i>Cerastium vulgatum</i>	?	Mouse-ear Chickweed	Caryophyllaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Stellaria media</i>	non-native	Common Chickweed	Caryophyllaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Cerastium glomeratum</i>	non-native	Mouse-ear Chickweed	Caryophyllaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Moenchia erecta</i>	non-native		Caryophyllaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Sagina species</i>	native	Pearlwort	Caryophyllaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Convolvulus arvensis</i>	non-native	Bindweed	Convolvulaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Cornus nuttallii</i>	native	Mountain Dogwood	Cornaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/11/96
<i>Sedum spathulifolium</i>	native	Pacific Sedum	Crassulaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Crassula aquatica</i>	native		Crassulaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Cuscuta howelliana</i>	native	Boggs Lake Dodder	Cuscutaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Cyperus eragrostis</i>	?	Umbrella Sedge	Cyperaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/18/98
<i>Cyperus species</i>	?	Nutsedge, Galingale	Cyperaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Carex athrostachya</i>	native	Sedge	Cyperaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Carex densa</i>	native	Sedge	Cyperaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Eleocharis acicularis</i> v. <i>acicularis</i>	native	Spikerush	Cyperaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Eleocharis palustris</i>	?		Cyperaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Pteridium aquilinum</i> var. <i>pubescens</i>	native	Bracken Fern	Dennstaedtiaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/05/96

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<i>Equisetum arvense</i>	native	Horsetail	Equisetaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/27/96
<i>Arctostaphylos stanfordiana</i> spp. <i>stanfordiana</i>	native	Manzanita	Ericaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	03/24/96
<i>Arbutus menziesii</i>	native	Pacific Madrone	Ericaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/24/96
<i>Croton setigerus</i>	native		Euphorbiaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Trifolium depauperatum</i> var. <i>depauperatum</i>	native	Balloon Clover	Fabaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	04/01/01
<i>Vicia hirsuta</i>	non-native	Vetch	Fabaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	04/01/01
<i>Lupinus bicolor</i>	native	Minature Lupine	Fabaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/26/96
<i>Lupinus nanus</i>	native		Fabaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	05/14/05
<i>Trifolium fucatum</i>	native	Clover	Fabaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/25/96
<i>Vicia americana</i> var. <i>americana</i>	native	American Vetch	Fabaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/06/96
<i>Lathyrus vestitus</i>	native	Pacific Pea	Fabaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Lotus humistratus</i>	native	Hill Lotus	Fabaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Trifolium microcephalum</i>	native	Small Head or Fuzzy Pink Clover	Fabaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Lathyrus hirsutus</i>	non-native	Caley Pea	Fabaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Lotus micranthus</i>	native	Minature Lotus	Fabaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Lotus unifoliolatus</i> v. <i>unifoliolatus</i>	?	Lotus	Fabaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Medicago polymorpha</i>	non-native	California Burclover	Fabaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Trifolium albopurpureum</i> var. <i>dichotomum</i>	native		Fabaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	05/14/05
<i>Trifolium barbigerum</i>	native	Clover	Fabaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Trifolium bifidum</i>	native	Reflexed Clover	Fabaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Trifolium ciliolatum</i>	native	Clover	Fabaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Trifolium dubium</i>	non-native	Shamrock	Fabaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Trifolium hirtum</i>	non-native	Rose Clover	Fabaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Trifolium microdon</i>	native	Muffin Cap Clover	Fabaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Trifolium subterraneum</i>	non-native	Subterranean Clover	Fabaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Trifolium variegatum</i>	native	Clover	Fabaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Trifolium willdenowii</i>	native	Tomcat Clover	Fabaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Quercus chrysolepsis</i>	native	Canyon Live Oak	Fagaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/05/96
<i>Quercus agrifolia</i>	native	Coast Live Oak	Fagaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/07/96
<i>Quercus garryana</i> var. <i>garryana</i>	native	White Oak	Fagaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/02/96
<i>Quercus dumosa</i>	native	Scrub Oak	Fagaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99
<i>Quercus kelloggii</i>	native	California Black Oak	Fagaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99
<i>Quercus lobata</i>	native	Valley Oak	Fagaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99
<i>Quercus wislizenii</i>	native	Interior Live Oak	Fagaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99

Latin Name	Status	Common Name	Family	Collector	System	Location	Date
<i>Erodium moschatum</i>	non-native	Whitestem Storksbill	Geraniaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/11/97
<i>Erodium botrys</i>	non-native	Long Beaked Storksbill, Filaree	Geraniaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Erodium cicutarium</i>	non-native	Red Stem Storksbill, Filaree	Geraniaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Geranium molle</i>	non-native	Cranesbill, Geranium, Doves Foot	Geraniaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Geranium dissectum</i>	non-native	Cranesbill, Cut Leafed Geranium	Geraniaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Aesculus californica</i>	native	California Buckeye	Hippocastanaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/24/96
<i>Nemophila menziesii</i> var. <i>menziesii</i>	native	Baby Blue-eyes	Hydrophyllaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/10/96
<i>Nemophila pedunculata</i>	native		Hydrophyllaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/06/96
<i>Phacelia distans</i>	native		Hydrophyllaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/07/96
<i>Eriodictyon californicum</i>	native	Yerba Santa	Hydrophyllaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/18/98
<i>Nemophila heterophylla</i>	native	Canyon Nemophila	Hydrophyllaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/18/98
<i>Sisyrinchium bellum</i>	native	Blue-eyed Grass	Iridaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/14/96
<i>Iris macrosiphon</i>	native	Bowl-shaped Iris	Iridaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/29/96
<i>Isoetes howellii</i>	native	Quillwort	Isoetaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Isoetes nuttallii</i>	native	Quillwort	Isoetaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Isoetes orcuttii</i>	native	Quillwort	Isoetaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Juglans californica</i> var. <i>hindsii</i>	native	No. California Black Walnut	Juglandaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/05/96
<i>Luzula comosa</i>	native	Hairy Wood Rush	Juncaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/18/98
<i>Luzula subcongesta</i>	native	Hairy Wood Rush	Juncaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Juncus patens</i>	native	native	Juncaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Juncus tenuis</i>	native	Rush	Juncaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Juncus effusus</i>	native	Rush	Juncaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Juncus xiphioides</i>	native	Iris Leaved Rush	Juncaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Juncus bufonius</i>	native	Toad Rush	Juncaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Marrubium vulgare</i>	non-native	Horehound	Lamiaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/05/96
<i>Mentha pulegium</i>	non-native	Mint	Lamiaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Umbellularia californica</i>	native	Bay Laurel	Lauraceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/24/96
<i>Trillium chloropetalum</i>	native	Giant Trillium	Liliaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	04/01/01
<i>Brodiaea terrestris</i> spp. <i>terrestris</i>	native	<i>Brodiaea dichelostemma</i>	Liliaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/06/96
<i>Erythronium multiscapoideum</i>	native	Fawn Lilly	Liliaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/12/96
<i>Smilacina racemosa</i>	native	False Solomon's Seal	Liliaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/04/96
<i>Zigadenus micranthus</i> var. <i>micranthus</i>	native	Death Camus	Liliaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/27/96
<i>Calochortus tolmiei</i>	native	Pussy Ears	Liliaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/18/98
<i>Disporum hookeri</i>	native	Hooker's Fairybell	Liliaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/18/98

Latin Name	Status	Common Name	Family	Collector	System	Location	Date
<i>Smilacina racemosa amplexicalis</i>	native	Branched Soloman Seal	Liliaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/18/98
<i>Trillium ovatum</i>	native	White or Western Trillium	Liliaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/18/98
<i>Dichelostemma capitatum</i>	native	Blue Dicks	Liliaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Triteleia hyacinthina</i>	native	White Brodiaea	Liliaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Limnanthes douglasii</i> spp. <i>Nivea</i>	native	Meadowfoam	Limnanthaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/25/96
<i>Linum bienne</i>	non-native	Flax	Linaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Lythrum hyssopifolia</i>	non-native		Malvaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Fraxinus dipetala</i>	native	California ash	Oleaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/27/96
<i>Camissonia ovata</i>	native	Sun Cup	Onagraceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/18/98
<i>Epilobium torreyi</i>	native	Fireweed, Willow Herb	Onagraceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Camissonia species</i>	native	Sun Cup	Onagraceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Calypso bulbosa</i>	native	Calypso Orchid	Orchidaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	03/24/96
<i>Eschscholzia californica</i>	native	California Poppy	Papaveraceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/14/96
<i>Pinus ponderosa</i>	native	Ponderosa Pine	Pinaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99
<i>Pseudotsuga menziesii</i>	native	Douglas Fir	Pinaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99
<i>Plantago erecta</i>	native	Dwarf Plantain	Plantaginaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/18/98
<i>Plantago lanceolata</i>	non-native	English Plantain	Plantaginaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Plantago major</i>	non-native	Common Plantain	Plantanaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Pleuropogon californicus</i> var. <i>davii</i>	native	Davy's Semaphore Grass	Poaceae	Charles Williams	Herbarium Specimen	Ridgewood Ranch	04/01/02
<i>Festuca idahoensis</i>	native	Blue Bunchgrass	Poaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/06/96
<i>Festuca californica</i>	native	California Fescue	Poaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/05/96
<i>Danthonia californica</i> var. <i>americana</i>	native	California Oatgrass	Poaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/10/96
<i>Cynosurus echinatus</i>	non-native	Dogtail Grass	Poaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/11/96
<i>Bromus hordeaceus</i>	non-native	Brome	Poaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/25/96
<i>Vulpia bromoides</i>	non-native	Grass	Poaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/25/96
<i>Poa annua</i>	non-native	Annual Bluegrass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Danthonia californica</i>	native	California Oatgrass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Festuca arundinacea</i>	non-native		Poaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	05/14/05
<i>Beckmannia syzigachne</i>	native	Grass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Nassella pulchra</i>	native	Grass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Vulpia microstachys</i>	native	Grass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Deschampsia danthonioides</i>	native	Hairgrass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Glyceria occidentalis</i>	native	Mannagrass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Hordeum marinum</i> s. <i>gussonianum</i>	non-native	Barley	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02

Latin Name	Status	Common Name	Family	Collector	System	Location	Date
<i>Dactylis glomerata</i>	non-native	Orchard Grass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Briza maxima</i>	non-native	Quaking Grass	Poaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	05/14/05
<i>Briza minor</i>	non-native	Quaking Grass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Bromus diandrus</i>	non-native	Rippgut Grass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Avena barbata</i>	non-native	Slender Wild Oat	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Lolium arundinaceum</i>	non-native	Ryegrass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Lolium perenne s. multiflorum</i>	non-native	Ryegrass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Aira caryophylla</i>	non-native	Silver European Hairgrass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Anthoxanthum odoratum</i>	non-native	Sweet Vernal Grass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Holcus lanatus</i>	non-native	Velvet Grass	Poaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Linanthus bicolor</i>	native		Polemoniaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	04/01/01
<i>Linanthus androsaceus</i>	native		Polemoniaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/03/96
<i>Rumex acetosella</i>	non-native	Sheep Sorrel	Polygonaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/07/96
<i>Polygonum arenastrum</i>	non-native	Common Knotweed	Polygonaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Rumex conglomeratus</i>	non-native	Dock	Polygonaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Rumex pulcher</i>	non-native	Fiddle Dock	Polygonaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Polypodium glycerhiza</i>	native	Licorice Fern	Polypodiaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/04/96
<i>Polypodium californicum</i>	native	California Polypody	Polypodiaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99
<i>Claytonia perfoliata</i> spp. <i>perfoliata</i>	native	Miner's Lettuce	Portulacaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/24/96
<i>Calandrinia ciliata</i>	native	Red Maids	Portulacaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/29/96
<i>Montia fontana</i>	native	Water Chickweed, Blinks	Portulacaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Anagallis arvensis</i>	non-native	Scarlet Pimpernel	Primulaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/14/96
<i>Dodecatheon hendersonii</i>	native	Shooting Star	Primulaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/14/96
<i>Anagallis minima</i>	?	Pimpernel	Primulaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Adiantum Jordanii</i>	native	California Maiden-hair Fern	Pteridaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/04/96
<i>Pentagramma triangularis</i> spp. <i>triangularis</i>	native	Golden-back Fern	Pteridaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/03/96
<i>Thalictrum fendleri</i>	native	Meadow-rue	Ranunculaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	04/01/01
<i>Delphinium hesperium</i>	native	Coast Larkspur	Ranunculaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/27/96
<i>Delphinium nudicaule</i>	native	Orange Larkspur	Ranunculaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/12/96
<i>Ranunculus occidentalis</i>	native	Buttercups	Ranunculaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/24/96
<i>Ranunculus aquatilis</i>	native	Buttercups	Ranunculaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Ranunculus californicus</i>	native	Buttercups	Ranunculaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Ranunculus lobbii</i>	native	Lobb's Aquatic Buttercup	Ranunculaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
<i>Ranunculus pusillus</i>	native	Buttercups	Ranunculaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02

Latin Name	Status	Common Name	Family	Collector	System	Location	Date
Ceanothus spp.	native	Wild Lilac	Rhamnaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99
Rhamnus californica	native	California Coffeeberry	Rhamnaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/18/98
Rubus leucodermis	native	Blackcap Raspberry	Rosaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/25/96
Rubus ursinus	native	California Blackberry	Rosaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/05/96
Rhamnus	native	California Coffeeberry	Rosaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/25/96
Cercocarpus betuloides var. betuloides	native	Mountain Mahogany	Rosaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/05/96
Holodiscus discolor	native	Oceanspray	Rosaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/05/96
Heteromeles arbutifolia	native	Toyon	Rosaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	03/28/96
Rosa gymnocarpa	native	Wood Rose	Rosaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/05/96
Fragaria vesca	native	Wood Strawberry	Rosaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/17/96
Aphanes arvensis	?		Rosaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
Galium aparine	native	Bedstraw	Rubiaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/05/96
Galium californicum	native	California Bedstraw	Rubiaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	05/14/05
Galium porrigens	native	Small Leaved Bedstraw	Rubiaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99
Populus balsamifera spp. Trichocarpa	native	Black Cottonwood	Salicaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	04/01/01
Salix lasiolepis	native	Arroyo Willow	Salicaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99
Heuchera micrantha	native	Alumroot	Salicaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99
Lithophragma affine	native	Woodland Star	Saxifragaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/26/96
Saxifraga californica	native	California Saxifraga	Saxifragaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99
Castilleja attenuata	native	Valley Tassels	Scrophulariaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	05/14/05
Scrophularia californica	native	California Figwort	Scrophulariaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	04/01/01
Mimulus guttatus	native	Monkeyflower	Scrophulariaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/27/96
Pedicularis densiflora	native	Indian Warrior	Scrophulariaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/05/96
Castilleja exserta	native	Purple Owls Clover	Scrophulariaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/01/99
Gratiola ebracteata	native	Hedge-hyssop	Scrophulariaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
Veronica peregrina s. xalapensis	native	Speedwell, Brooklime	Scrophulariaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
Triphysaria pusilla	native		Scrophulariaceae	Michael Barbour	UC Vernal Pool Survey	Ridgewood Ranch	05/01/02
Sequoia sempervirens	native	Coast Redwood	Taxodiaceae	Marisella de Santa Anna	Plant List	Ridgewood Ranch	04/18/98
Urtica dioica	native	Stinging Nettle	Urticaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	04/01/01
Plectritis ciliosa	native	Long Spurred Plectritis	Valerianaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	04/01/01
Plectritis brachystemon	native		Valerianaceae	Geri Hulse-Stevens	Field Notes	Ridgewood Ranch	04/01/01
Viola douglasii	native	Douglas Violet	Violaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/27/96
Voila ocellata	native	Western Heart's Ease	Violaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	04/27/96
Vitis californica	native	California Wild Grape	Vitaceae	Linda Gray	Herbarium Specimen	Greenfield Ranch	05/05/96

**Greenfield Ranch Lichen List**

**Table 4**

<i>Caolplaca cerina</i>	ghs	grey-rimmed fir-dot lichen	CL
<i>Cladonia spp</i>	jr	Cladonia	CL
<i>Cladonia squamosa</i>	ghs	dragon funnel	CL
<i>Evernia prunastri</i>	jr	oakmoss lichen	CL,RR
<i>Flavoparmelia caperata</i>	ghs	common greenshield	CL
<i>Flavopuntelia flaventior</i>	ghs	speckeld greenshield	CL
<i>Hypogymnia imshaugii</i>	jr	forked tube lichen	CL
<i>Hypogymnia inactiva</i>	ghs	mottled tube lichen	CL
<i>Leptogium corniculatum</i>	jr	antlered jellyskin	CL, RR
<i>Leptogium pseudofurfureceum</i>	ghs	dimpled jellyskin	CL
<i>Lobaria pulmonaria</i>	ghs	lungwort	CL
<i>Lobaria scrobiculata</i>	ghs	textured lungwort	CL
<i>Nephroma helveticum var. sipeanum</i>	jr	fringed kidney lichen	CL,RR
<i>Parmelia sulcata</i>	jr	hammered shield lichen	CL, RR
<i>Peltigera membranacea</i>	ghs	membranous dog lichen	CL
<i>Phsconia americana</i>	jr	fancy frost lichen	CL
<i>Physcia adscendens</i>	jr	Hooded rosette lichen	CL
<i>Physcia aipolia</i>	jr	hoary rosette lichen	CL
<i>Physconia perisidiosa</i>	ghs	crescent frost lichen	CL
<i>Pseudocyphellaria anomala</i>	ghs	netted specklebelly	CL, RR
<i>Pseudocyphellaria anthraspis</i>	jr	dimpled specklebelly	CL, RR
<i>Punctelia subrudecta</i>	ghs	forest speckle-back	CL
<i>Ramalina farinacea</i>	jr	dotted ramalina, the dotted line	CL, RR
<i>Ramalina menziesii</i>	jr	lace lichen, fishnet	CL
<i>Tuckermannopsis chlorophylla</i>	jr	powdered wrinkle lichen	CL, RR
<i>Tuckermannopsis platyphylla</i>	jr	broad wrinkle lichen	CL
<i>Usnea arizonica</i>	jr	western Bushy Beard	CL, RR
<i>Usnea hirta</i>	jr	shaggy beard lichen	CL, RR
<i>Usnea spp.</i>	jr	beard lichens	CL, RR
<i>Xanthoria hasseana</i>	jr	poplar sunburst lichen	cl

other organisms:

*Selaginella wallacei* spike Moss

**ghs= identified by Geri Hulse-Stephens**

**jr= identified by Jennifer Riddell**

**CL= collected on Greenfield commonland**

**RR=collected on Radical Ridge**



**Figure 27**  
**California Native Plant Society**  
**Lichen Identification on**  
**Greenfield Ranch Commonland**  
**February 19, 2005**  
**Photos by Ree Slocum**



*Cladonia sp.*



*Physconia americana*



*Pseudocyphellaria anthraspis*

*Umbilicaria phaea*



*Pseudocyphellaria anomala*

*Evernia prunastri*  
*Hypogymnia enteromorpha*  
*Usnea sp.*



## Significant Features in the Watershed

**Leonard Lake**, Mendocino County's largest natural lake exists within the Forsythe Watershed (See Map 14 for location).

**Vernal Pools** – The only vernal pools known to exist in the Forsythe Watershed at this time are the three on Ridgewood Ranch (See Map 14 for location and Figures 20, 21 & 22 for photos). Of these three only two are significant in their quality of biodiversity. In a letter to the owners of Ridgewood Ranch, Michael Barbour, UC Davis professor of plant ecology, states: *These pools represent one of the rarest type of Californian vernal pools that we have so far encountered (600 pools throughout northern California). . . . This assemblage of species is very local, being known at this time only from a handful of locations in Mendocino County. Other unique features of the pools is their high number of species . . .* “ The other vernal pool is degraded, due to invasive species and/or impacts from cattle, but perhaps in time restoration of it may be worthwhile.

It should be noted here that thousands of tiny (~ 1 sq. centimeter) clams with paper-thin shells are found each year at the beginning of summer in the dry bottom of the largest vernal pool east of Hwy 101.) Also, in the largest vernal pool on the west side of Hwy 101, a very rare grass, Davy Semiphore (*Pleuropogan davii*) is found. This grass is also found in a few other areas of Ridgewood (see Map 13 – Rare, Threatened & Endangered Species – for locations). This grass grows only in Lake and Mendocino counties where there are between 20 and 30 known populations. It's usually found in vernal pools, slow draining ditches and waterways. According to Professor Barbour: “*Davy Semaphore is on the California Native Plant Society List 4, meaning that it has no protection by any state or federal regulations, but has such a limited range and small number of populations, that it should be watched closely for any downward trend that would make it eligible for state or federal listing.*” (See Appendix IV for a copy of the Michael Barbour letter.)

**Freshwater Marsh** – There is also a tiny marsh on Ridgewood (see Map 14). Migrating Mallard ducks and Redwing Blackbirds nest there each year.

**Mineral Springs** – There are two small mineral springs on Ridgewood and perhaps others elsewhere in the watershed. Whether or not these mineral springs have any biological significance is not known at this time. Ranch (see Map 14 - Significant Features - for locations of Leonard Lake, vernal pools and mineral springs)

**Old Growth Conifer Forest** – Within the watershed, tiny stands of old growth redwood forest fragments are scattered in several places, the most notable being the 20 or so trees on Ridgewood Ranch which were recently placed under a conservation easement by the Save the Redwoods League. There are also individual old growth Douglas fir trees in the watershed.

The vernal pools and freshwater marsh are tiny examples of the once vast wetlands that covered the valley floors of California. Similarly, the old growth forest fragments are reminders of the great forests that dominated this region until the middle of the 1900s.

Ridgewood Ranch Vernal Pools



**Figure 28**  
**Vernal Pool on Parcel 14**  
**West Side of Highway 101**  
**June 9, 2005**  
**Photo by Linda Gray**



**Figure 29**  
**Vernal Pool on Parcel 9**  
**East Side of Highway 101**  
**June 22, 2005**  
**Photo by Linda Gray**

**Figure 30**  
**Vernal Pool on Parcel 19**  
**East Side of Highway 101**  
**June 22, 2005**  
**Photo by Linda Gray**



## Exotic Species

**Plants** – Known locations of some of the most troublesome exotic plants in the watershed are shown on Map 8.

Arundo – There are two sites on Ridgewood Ranch and one on Greenfield Ranch.

Tamarisk – Perhaps 15 plants (at most) are growing in an area on the edge of the Ridgewood Ranch community center.

Gorse – Only one site of gorse infestation is identified in this report within the watershed, although there are three large infestations on Greenfield just outside the watershed, near the southern border.

Yellow Starthistle is found in many areas of the watershed, yet some areas are still relatively free of it. It is most common along both sides of Hwy 101 and is expanding outward from there. It has been found throughout much of the grazing land of Ridgewood Ranch, particularly on the west side of Hwy 101. Other than the first mile or so off Hwy 101, starthistle does not seem to be present along the roadside of Reeves Canyon Road. It may, however, have infested private property that is accessed by that road. In the southern part of the watershed on Greenfield Ranch, starthistle has only sparsely infested a few sites, the worst being north of the intersection of Fred MacMurray Lane and the Main Ranch Road. Many Greenfield landowners are vigilant about removing it from their property

Invasive exotic plants are a major contributor to wildlife habitat loss. Currently arundo, tamarisk, and gorse exist in only a few specific locations. Their populations will, of course, continue to expand over time. Arundo, particularly, is a serious threat to riparian vegetation and a major effort to map its locations in the Russian River Watershed, and eradicate it, has been begun by Circuit Rider Productions in Windsor, CA. Arundo's occurrences in the Forsythe Watershed, at the very top of the Russian River Watershed, if not abated, may eventually infest all riparian areas downstream. Similarly, tamarisk has become a threat to desert oases and riparian areas and enormous efforts are being made to eradicate it in Arizona and Southern California. It may eventually become a serious problem in our local waterways, as well. No known infestations of gorse are currently known to exist in riparian areas of the watershed, seeming to prefer, instead, small grassland openings in upland forested areas. The Himalayan blackberry (locations not described above) and yellow starthistle are becoming so ubiquitous that eradication would be very difficult indeed.

**Wildlife** - The following exotic wild animals are known to inhabit the watershed:

Opossum	<i>Didelphis virginiana</i>
Fallow deer	<i>Cervus dama dama</i>
Pigs	<i>Sus scrofa</i>
Wild Turkey	<i>Meleagris gallopavo</i>
Starling	<i>Sturnus vulgaris</i>
Pheasants	<i>Phasianus colchicus</i>
Rock Dove	<i>Columba livia</i>
House Sparrows	<i>Passer domesticus</i>
Bullfrogs	<i>Rana catesbeiana</i>

Some of these animals, such as starlings and pheasants, are rarely seen. Most of the others are more common. Wild pigs were abundant prior to this decade, with landowners often seeing large groups or the tell-tale rooted-up meadows where they'd been. In the last several years, though, only the occasional individual pig is ever seen in the watershed.

### **Sudden Oak Death**

Although this disease is known to exist in the Booneville area of Mendocino County, it has not infected any trees in the Forsythe Watershed at this time.

### **Precipitation Data**

Table 5 shows the rainfall data that has been gathered on the southwest edge of the watershed by Steve Ryals (see Map 14 for the “precipitation data collection point”). Steve has been conscientiously gathering this information each year beginning in the fall of 1996 and up until the present. Sequoia Greenfield transcribed Steve's rainfall data to create these precipitation data charts.

Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Year total
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**Table 5 - Steve Ryals'  
Precipitation Data**

Day	1996	1996	1996	1996	1996	1997	1997	1997	1997	1997	1997	1997
1						1.50		0.75				
2						1.50		0.50				
3						1.00	0.75				0.75	
4					4.50							
5					0.75							
6					1.00							
7					1.00		0.25					
8					0.75							
9					1.00		0.25					
10					0.50							
11					0.50							
12					0.50							
13												
14						0.25	0.15					
15							0.15					
16				1.00			0.20	2.50	0.05			
17				1.00			0.20					
18				1.00			0.15		0.50			
19				1.00		0.50	0.15		0.50			
20				0.45	0.90	0.50			0.25			
21				0.40	0.90	1.00			0.25			
22				0.40	0.95	1.50			0.75			
23										0.75		
24					1.50	1.75						
25					1.50	1.75						
26					1.50	0.75				0.75		
27					1.50	0.75						
28					1.50							
29					1.50							
30				1.00	1.50							
31					1.50	0.50		0.35				
total				6.25	25.25	13.25	2.25	4.10	2.30	1.50	0.75	55.65

Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Year total
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**Table 5 - Steve Ryals'  
Precipitation Data**

Day	1997	1997	1997	1997	1997	1998	1998	1998	1998	1998	1998	1998
1			0.65			1.00	0.85			0.40		
2						1.10	2.50	0.20	0.50	0.35	0.20	
3					0.30	1.00	0.70					
4						0.75				0.35		
5				0.50	0.50		2.25	0.20		0.10		
6					0.50	0.75	2.25		0.30			
7					0.75		2.55	0.50				
8		0.03	2.50		0.50		0.90					
9		0.02	0.25	0.25		1.00			0.75			
10				0.25		1.00	1.10		0.30			
11				0.25		1.25				0.75		
12						1.25	0.90	1.25	0.80	0.35		
13		0.40		0.50		1.00	0.65					
14		0.40		0.65	1.50	1.25	0.65		0.40			
15		0.10		1.25		1.00	0.65					
16				1.30	0.65	1.25	0.65					
17		0.10				1.25	0.65					
18				0.40		1.75				0.30		
19	0.40			0.35		1.00	2.75					
20	0.40					0.25	1.00					
21							1.00					
22				0.50			1.15					
23						0.70	1.00	2.15	0.50			
24				1.10				0.60		0.55		
25				0.50			0.20					
26				0.50		2.25	0.30					
27				0.75		0.20		0.50				
28				0.75		1.25				3.00		
29			0.20	0.50						0.60		
30			0.15	0.50								
31			0.20			0.50		1.15				
total	0.80	1.05	3.95	10.80	4.70	22.75	24.65	6.55	3.55	6.75	0.20	85.75

Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Year total
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Table 5 - Steve Ryals' Precipitation Data

Day	1998	1998	1998	1998	1998	1999	1999	1999	1999	1999	1999	1999
1				0.30								
2				0.15	2.75			0.85		0.90		
3				1.75								
4												
5					0.50		1		0.65			
6							1					
7					0.60		1					
8			0.25				1	1.20	.8			
9							1.15	.65				
10				0.35				0.80	1.70			
11												
12												
13			0.20		0.75		0.65					
14				0.25	snow 3"	0.40						
15							2.00					
16				1.00			1.95					
17						2.50						
18							1.20					
19						0.50						
20						1.00	1.00	0.25				
21			1.30	0.95			0.90					
22						1.85		0.75				
23				2.60		.5" snow	0.30					
24							1.25	2.15				
25						0.20	0.05					
26				0.65								
27					0.60		0.75					
28				1.10			0.75					
29								0.50				
30				2.00		0.75		0.70				
31												
total			1.75	11.10	5.20	7.20	17.95	7.20	2.35	0.90		53.65



Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Year total
-----	-------	------	------	------	------	------	-------	-------	-----	------	------	------------

Table 5 - Steve Ryals' Precipitation Data

Day	1999	1999	1999	1999	1999	2000	2000	2000	2000	2000	2000	2000
1								0.35				
2					0.35		0.60					
3							0.55					
4						0.50		0.75				
5							1.25	0.10				
6					0.25				0.50			
7				1.75				0.50	0.45	0.50		
8					0.80			0.80				
9					0.30			0.15				
10				1.80		1.50		0.40		0.30		
11						1.50	1.25					
12					0.20		1.25		0.20			
13						1.00	1.50		0.20			
14				0.50		1.00	1.25			0.60		
15						0.65			0.90	0.50		
16				1.25			0.35		1.50			
17				0.25					1.50			
18						1.00						
19				1.00		0.90						
20				1.75			1.15					
21						0.75						
22						0.45	1.75					
23							0.25					
24							0.20					
25						0.75						
26							2.25					
27			1.70	0.10			0.25		0.50			
28							0.75					
29				1.25			0.20					
30				0.70		1.00			0.05			
31						1.00						
total			1.70	10.35	1.90	12.00	14.80	3.05	4.85	2.35	0.50	51.50

Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Year total
-----	-------	------	------	------	------	------	-------	-------	-----	------	------	------------

**Table 5 - Steve Ryals'  
Precipitation Data**

Day	2000	2000	2000	2000	2000	2001	2001	2001	2001	2001	2001	2001
1		0.50										
2								0.60				
3				0.70								
4								3.80				
5								0.15				
6									0.65			
7												
8						1.30			0.25			
9			0.25		0.10	1.10						
10			0.20		0.70	1.20	0.68		0.10			
11						0.35	0.68					
12							0.68					
13				0.60	1.10							
14					0.45	0.10						
15				0.40								
16												
17							1.00					
18							1.00					
19							1.00					
20			0.20				0.75		1.10			
21				0.25	0.40		0.60		0.15			
22							1.30					
23						1.60	0.30					
24					0.75		1.90	0.80				
25			0.75	0.30		1.95						
26			0.15								1.25	
27				0.10								
28			1.35			0.30		0.10				
29			1.45	1.40								
30												
31												
total		0.50	4.35	3.75	3.50	7.90	9.90	5.45	2.25		1.25	38.8499

Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Year total
-----	-------	------	------	------	------	------	-------	-------	-----	------	------	------------

**Table 5 - Steve Ryals'  
Precipitation Data**

Day	2001	2001	2001	2001	2001	2002	2002	2002	2002	2002	2002	2002
1					0.75	0.75	0.35					
2					1.55	0.75						
3						0.75						
4												
5					3.55	1.80		0.50				
6								1.30				
7						0.40	1.20					
8					0.40							
9								0.70	0.30			
10				1.25								
11				1.25	0.10							
12				1.15								
13				0.95				0.40				
14												
15												
16				0.85	2.00		0.50		0.40			
17					1.65			0.40	0.45			
18					0.75		4.10					
19				0.75								
20				0.75	1.75				1.50			
21				1.00		0.60						
22				0.75	0.95			1.00				
23	0.10		0.10	0.75	0.50		0.85	0.90				
24		0.05		0.75	0.50							
25				0.75	0.40							
26						0.95						
27									0.20			
28				1.00	0.70	.25			0.05			
29			0.90	0.95	0.55				0.20			
30			0.15	0.75	0.75				0.20			
31				0.75	0.75							
total	0.10	0.05	1.15	14.40	17.60	6.00	7.00	5.20	1.80	1.50		54.80

Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Year total
-----	-------	------	------	------	------	------	-------	-------	-----	------	------	------------

Table 5 - Steve Ryals' Precipitation Data

Day	2002	2002	2002	2002	2002	2003	2003	2003	2003	2003	2003	2003
1												
2								0.65	0.30			
3								0.15	0.65	0.35		
4						0.30				0.30		
5									0.10			
6				1.00					0.20	0.10		
7				2.20								
8												
9					0.10	0.40						
10				1.50	0.60	0.90		0.20	0.15			
11				1.50	0.10	1.10		0.25				
12				0.50	1.30	1.10	0.75		1.00			
13					2.00	0.90	0.45	1.65	1.00			
14					3.00			1.00	0.90			
15					6.00		1.85	1.00				
16				0.10	4.15			0.80	0.45			
17					0.20							
18					1.70				0.25			
19					1.70		0.50	0.55	0.25			
20					0.70				0.25			
21						0.45			0.50			
22						0.75		0.70	0.50			
23									0.50			
24						0.30			0.50			
25						0.15		1.20	0.25			
26							0.50					
27					1.70				1.50			
28					2.85				1.50			
29									1.10			
30					0.95							
31					1.90	0.20						
total				6.80	28.95	6.55	4.05	7.50	12.20	1.05		67.1

Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Year total
-----	-------	------	------	------	------	------	-------	-------	-----	------	------	------------

Table 5 - Steve Ryals' Precipitation Data

Day	2003	2003	2003	2003	2003	2004	2004	2004	2004	2004	2004	2004
1					0.75	2.40	1.00	0.75				
2				0.35	0.75	0.50	1.10					
3					0.75		1.00					
4				0.15	0.50							
5					0.50							
6				1.25	1.35		0.40					
7				1.25	0.20				0.20			
8						0.25					0.15	
9		0.25			1.25	0.25						
10					1.25	0.45						
11						0.25						
12					1.75	0.25						
13					1.75			0.10				
14				0.50	1.40	0.50						
15				0.50								
16				0.40			2.90	0.70				
17							3.70					
18												
19					0.75			0.70				
20					0.10			0.60				
21												
22					0.50		0.25		0.20			
23					1.45	0.60	0.55					
24					0.80							
25				0.30			2.70	0.85				
26							1.75	0.75				
27				0.50		1.10						
28				0.50	2.75							
29				0.45								
30								0.15				
31												
total		0.25		6.15	18.55	6.55	15.35	2.50	2.10	0.40	0.15	52.00

Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Year total
-----	-------	------	------	------	------	------	-------	-------	-----	------	------	------------

Table 5 - Steve Ryals' Precipitation Data

Day	2004	2004	2004	2004	2004	2005	2005	2005	2005	2005	2005	2005	2005
1					0.9166	0.9		0.7					
2				0.2	0.9166	0.9							
3				0.1	0.9167	0.45		0.3	1.15				
4					0.9167	0.15			0.1	1.1			
5					0.9167	0.2							
6					0.9167	0.1			0.9	0.1			
7						1.55	0.3		0.9	0.85	1.6		
8			0.25		0.65	1			0.9		1.6		
9						0.15				1.2			
10				1.25		1.5							
11													
12				0.2									
13					0.2		0.6		0.05				
14							0.6						
15							0.2			0.4			
16							0.1						
17			0.95				0.45			1.825			
18							0.483			1.825	0.95		
19		0.25	1.9				0.483	3.5					
20			0.95				0.484	1.2					
21								1.2					
22	0.05		0.7					1.75	0.2				
23								0.15	0.1				
24													
25				0.2									
26	0.1		1.45	0.8	2.1	1.7							
27					1.4		1.7	2.25					
28					0.6	1.75	0.05	0.75					
29					0.55								
30					1.7								
31					0.45								
total	0.15	0.25	6.2	2.75	13.15	10.35	5.45	11.8	4.3	7.3	4.15	0	65.85

## **Forsythe Landowners**

More work can be done to assess the watershed's ecological value for conservation purposes, but in the end, it is often opportunity, not biology, that determines which lands are conserved. In other words, the willingness of the landowners to participate is what is ultimately required in order to permanently protect private land, if, for example, funding were to become available for conservation easements or for land purchase from willing sellers. Contact information for all landowners in the Forsythe Watershed can be obtained from the Mendocino County Records Office, the County Tax Assessors Office, or County Planning and Building Dept. GIS personnel. If needed for the purpose of wildland conservation, LEGACY – The Landscape Connection could possibly provide contact information as well.

## **Recommendations**

1. Recruitment of trees along stream courses is needed to reestablish riparian canopy. In time, this will accomplish a) lower stream temperatures, b) allochthonous organic material for the aquatic food web, c) stabilization of stream banks, and d) reestablishment of small terrestrial wildlife linkages. Efforts have already begun on Ridgewood Ranch and Greenfield Ranch with the planting of trees with tree protectors along sections of Forsythe and Edridge Creeks.
2. Recruitment of oaks is needed in oak woodland areas, e.g.. planting acorns along with the use of tree protectors.
3. Planting oak trees around both entrances to the Ridgewood tunnel under Hwy 101 would connect the tunnel passage to nearby oak woodlands. Contiguous canopy will likely increase wildlife use of the tunnel for safe highway crossing.
4. Encouraging landowners to remove small populations of invasive exotic plants might prevent massive infestations from those sources in the future. Collaboration with Circuit Rider Productions could prove to be useful by drawing on their experience working with landowners on arundo eradication projects, as well as adding known arundo infestation sites to Circuit Rider's database and maps.
5. More biological assessment is needed on some of the larger acreage properties within the watershed to determine which areas need the most protection. This might be achieved through outreach and collaboration with landowners and universities. For example, Michael Barbour and Ayzik Solomeshch of the University of California at Davis recently wrote a grant to fund a grassland study and several Forsythe Watershed landowners wrote letters of support, offering access to their properties if the study is funded.
6. Acquisition of funding that would enable willing landowners to put some (or all) of their land into Conservation Easements, or to sell their land, with the goal of building a contiguous network of protected land from the west side of the Forsythe Watershed across to the east side.

## Acknowledgements

I would like to thank all the people mentioned throughout this report whose work and commitment to the natural world has been available to me to include here. Also, I have great appreciation for the Department of Fish and Game and its employees, the Resource Conservation District and the Coyote Valley Rancheria, all of whom, in one way or another, have made this wildlands assessment possible. While I'm at it, I want to thank the two groups of landowners within the watershed who have made the extra effort to protect their lands for future generations by establishing conservation easements on their property. Lastly, I want to thank Tim Walls, wherever he is, for encouraging me to attempt this project.

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APPENDIX I

INFORMATION CONCERNING **BIRDS**  
WITHIN THE FORSYTHE WATERSHED

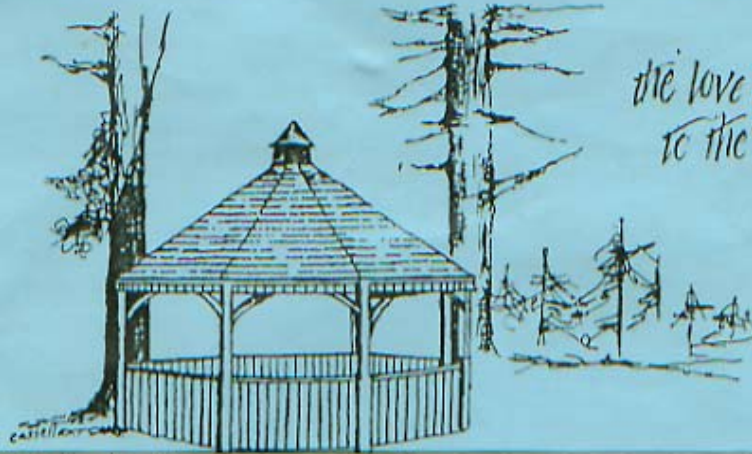
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# Greenfield Ranch Newsletter

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January- June 1991

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*the love you take is equal  
to the love you make*



## *The Birds of Greenfield*

by Mike Riddell

These birds were seen or heard on Greenfield on the days mentioned by Steve Granholm, a visiting professional ornithologist. They are not all the birds that we have here, and during migration times the list would change. Get out your bird books and look them up! Start your own list! We are fortunate to have an abundance of birds and wild life on Greenfield.

### **Birds Observed on Greenfield Ranch**

*Radical Ridge, May 4th & 5th, 1991*

Lazuli Bunting	Violet-green Swallow
Chestnut-backed Chickadee	Western Tanager
Golden Eagle (2 adults)	Wren Tit
Purple Finch	Brown Towhee
Pacific Slope Flycatcher	Rufous-sided Towhee
Lesser Goldfinch	Solitary Vireo
Black-headed Grosbeak	Warbling Vireo
Cooper's Hawk	Huttan's Vireo
Anna's Hummingbird	Turkey Vulture
Stellar's Jay	Orange-crowned Warbler
Dark-eyed Junco	Nashville Warbler
American Kestrel	Hermit Warbler
Western Meadowlark	Black-throated Gray Warbler
White-breasted Nuthatch	Wilson's Warbler
Western Wood Pewee	Acorn Woodpecker
Black Pheobe	Nuttall's Woodpecker
Mountain Quail	Pileated Woodpecker
Common Raven	Bewick's Wren
American Robin	



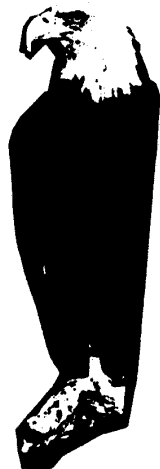
BIRDS SEEN IN WALKER VALLEY AND GOLDEN RULE VILLAGE 1988 to 1995

- |                                   |                               |
|-----------------------------------|-------------------------------|
| Pied-bill Grebe                   | Yellow-bellied Sapsucker      |
| Great Blue Heron                  | Red-breasted Sapsucker        |
| Great American Egret              | Nuttall's Woodpecker          |
| Snowy Egret                       | Downy Woodpecker              |
| Green-backed Heron                | Northern Flicker              |
| Black-crown Night-Heron           | Pileated Woodpecker           |
| Sandhill Cranes (flying overhead) | Olive-sided Flycatcher        |
| Canada Goose                      | Western Willow Flycatcher     |
| Ducks:                            | Western Wood-pewee            |
| Woodduck                          | → Dusky Flycatcher            |
| Mallard                           | → Western Flycatcher          |
| Northern Pintail                  | Phoebe, Black                 |
| Gadwall                           | Phoebe, Say's                 |
| Ringnecked                        | Ash-throated Flycatcher       |
| Lesser SCAUP                      | Western Kingbird              |
| Bufflehead                        | Tree Swallow                  |
| Hooded Merganser                  | Violet-green Swallow          |
| Common Merganser                  | Northern Rough-winged Swallow |
| Ruddy duck                        | Cliff Swallow                 |
| Turkey Vulture                    | Barn Swallow                  |
| Osprey                            | Stellar's Jay                 |
| White-tailed Kite                 | Ca, Scrub Jay                 |
| Bald Eagle (flying overhead)      | American Crow                 |
| Northern Harrier                  | Common Raven                  |
| Sharp-shinned Hawk                | Plain Titmouse                |
| Cooper's Hawk                     | Bustit                        |
| Red-shouldered Hawk               | Red-breasted Nuthatch         |
| Red-tailed Hawk                   | White-breasted Nuthatch       |
| Ferruginous Hawk                  | Bewick's wren                 |
| Rough-legged Hawk                 | Marsh Wren                    |
| Golden Eagle                      | Ruby-crowned kinglet          |
| American Kestrel                  | Western Bluebird              |
| Merlin                            | Swainson's Thrush             |
| Peregrine Falcon                  | Hermit Thrush                 |
| Prairie Falcon                    | American Robin                |
| Ring-necked Pheasant              | Varied Thrush                 |
| Wild Turkey                       | Northern Mockingbird          |
| California Quail                  | Cedar Waxwing                 |
| Yellow Rail* (Off course)         | European Starling             |
| Virginia Rail                     | Bell's Vireo                  |
| Sora Rail                         | Solitary Vireo                |
| American Coot                     | Hutton's Vireo                |
| Killdeer                          | Orange-crowned Warbler        |
| Common Snipe                      | Yellow Warbler                |
| Rock Dove                         | Yellow-rumped Warbler         |
| Band-tailed Pigeon                | Black and White Warbler       |
| Mourning Dove                     | Common Yellow-throat Warbler  |
| Great Horned Owl                  | Wilson's Warbler              |
| Vaux's Swift                      | Western Tanager               |
| Black-chinned Hummingbird         | Black-headed Grosbeak         |
| Anna's Hummingbird                | Evening Grosbeak              |
| Rufous Hummingbird                | Rufous-sided Towhee           |
| Allen's Hummingbird               | Calif. Towhee                 |
| Belted Kingfisher                 | Chipping Sparrow              |
| Lewis Woodpecker                  | Lark Sparrow                  |
| Acorn Woodpecker                  | Savannah Sparrow              |



Fox Sparrow  
Song Sparrow  
Lincoln Sparrow  
White-throated Sparrow  
Golden-crowned Sparrow  
White-crowned Sparrow  
Dark-eyed Junco  
Slate-colored Junco  
Red-winged Blackbird  
Tricolored Blackbird  
Western Meadowlark  
Yellow-headed Blackbird  
Brewer's Blackbird  
Brown-headed Cowbird  
Hooded Oriole  
Northern Oriole  
Purple Finch  
House Finch  
Pine Siskin  
Lesser Goldfinch  
American Goldfinch  
House Sparrow

Observed by Ben And Willie Eizinger  
Golden Rule Village #6 Phone 459-0566



# Pacific Flyway



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**BIRDS OF  
CONSERVATION CONCERN  
2002**

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**U.S. Fish and Wildlife Service  
Division of Migratory Bird Management  
Arlington, Virginia**

**December 2002**

## EXECUTIVE SUMMARY

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the U.S. Fish and Wildlife Service (USFWS) to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." *Birds of Conservation Concern 2002 (BCC 2002)* is the most recent effort to carry out this mandate. The overall goal of this report is to accurately identify the migratory and non-migratory bird species (beyond those already designated as Federally threatened or endangered) that represent our highest conservation priorities and draw attention to species in need of conservation action. The geographic scope of this endeavor is the United States in its entirety, including island "territories" in the Pacific and Caribbean. It is more comprehensive than previous versions. *BCC 2002* encompasses three distinct geographic scales—North American Bird Conservation Initiative (NABCI) Bird Conservation Regions (BCRs), USFWS Regions, and National—and is primarily derived from assessment scores from three major bird conservation plans: Partners in Flight, the United States Shorebird Conservation Plan, and the North American Waterbird Conservation Plan.

Bird species considered for inclusion on lists in this report include nongame birds, gamebirds without hunting seasons, subsistence-hunted nongame birds in Alaska; and Endangered Species Act candidate, proposed endangered or threatened, and recently delisted species. Assessment scores from all three bird conservation plans are based on several factors, including population trends, threats, distribution, abundance, and area importance. These assessment scores serve as the foundation on which we built the *BCC 2002* lists. Although the different bird conservation plans use somewhat different methods for determining the highest priority species, the scores from each represent true conservation priorities for each of the three species groups (landbirds, shorebirds, and waterbirds). We therefore view the conservation priorities within each plan as approximately equivalent. After creating BCR lists, we developed specific criteria for including species on USFWS Region and National lists. BCR lists include 8 to 48 species, USFWS Region lists include 28 to 88 species, and the National list contains 131 species. In virtually all cases, priority species make up 9 to 12 percent of all bird species in any given geographic unit.

While all of the bird species included in *BCC 2002* are priorities for conservation action, this list makes no finding with regard to whether they warrant consideration for ESA listing. Our goal is to prevent or remove the need for additional ESA bird listings by implementing proactive management and conservation actions. We recommend that these lists be consulted in accordance with Executive Order 13186, "Responsibilities of Federal Agencies To Protect Migratory Birds." This report should also be used to develop research, monitoring, and management initiatives. *BCC 2002* is intended to stimulate coordinated and collaborative proactive conservation actions among Federal, State, and private partners. We hope that, by focusing attention on these highest priority species, this report will promote greater study and protection of the habitats and ecological communities upon which these species depend, thereby ensuring the future of healthy avian populations and communities.



## ACKNOWLEDGMENTS

Primary responsibility for coordinating the completion of this project was shared by Steven R. Sheffield and John L. Trapp, including compilation and analysis of assessment scores, development of selection criteria, drafting and editing innumerable versions of the report, and preparing the tables and appendices.

We are especially indebted to our USFWS Region collaborators—Tara Zimmerman (Region 1), Bill Howe (Region 2), Tom Will (Region 3), William Hunter (Region 4), Randy Dettmers (Region 5), Stephanie L. Jones (Region 6), and Kenton D. Wohl (Region 7)—for providing invaluable assistance in helping to develop selection criteria, finalizing BCR and USFWS Region lists, and reviewing and commenting on several drafts of the report. This report could not have been completed without the active participation of these individuals.

Essential support of various kinds was also provided by George T. Allen, Brad Andres, Suzanne Fellows, Bob Ford, Michael Green, David Klute, Steve J. Lewis, Jim Mattson, Seth Mott, Maura Naughton, Diane Pence, Terry Rich, Bob Russell, and Bettina Sparrowe. Additionally, Cynthia M. Perry provided direction, guidance, and operational support throughout the duration of the project.

Finally, we must offer special thanks to four individuals who played key roles in providing access to the baseline data that were essential for preparing this report: Mike Carter and Arvind Panjabi (formerly and currently with the Rocky Mountain Bird Observatory, respectively) made available information from the PIF database and responded to our many questions, and Stephen Brown and Katherine Parsons (both with the Manomet Center for Conservation Sciences) supplied priority scores from the United States Shorebird Conservation Plan and the North American Waterbird Conservation Plan, respectively.

Table 32. BCR 32 (Coastal California–U.S. portion only) BCC 2002 List.

Black-footed Albatross  
Ashy Storm-Petrel  
Swainson's Hawk  
*Peregrine Falcon*  
Prairie Falcon  
Black Rail  
Mountain Plover  
Black Oystercatcher  
Whimbrel  
Long-billed Curlew  
Marbled Godwit  
Black Turnstone  
Red Knot  
Short-billed Dowitcher  
Gull-billed Tern  
Elegant Tern  
Black Skimmer  
Xantus's Murrelet  
Cassin's Auklet  
Yellow-billed Cuckoo  
Flammulated Owl  
Burrowing Owl  
Spotted Owl (*occidentalis* ssp. only)  
Black Swift  
Lewis's Woodpecker  
White-headed Woodpecker  
Loggerhead Shrike (all except Endangered *mearnsi* ssp.)  
Island Scrub-Jay  
Cactus Wren  
Le Conte's Thrasher  
Common Yellowthroat (*sinuosa* ssp. only)  
Spotted Towhee (*clementae* ssp. only)  
Black-chinned Sparrow  
Song Sparrow (*graminea*, *maxillaris*, *pusillula*, and *samuelis* ssp. only)  
Tricolored ~~Blackbird~~  
Lawrence's Goldfinch

NOTE: Please refer to Table 3 for descriptions of the stylized conventions used to indicate the Federal protective status of species on this list.

Table 41. USFWS Region 1 (Pacific Region)<sup>1</sup> BCC 2002 List.

	<u>a</u>	<u>b</u>	<u>c</u>		<u>a</u>	<u>b</u>	<u>c</u>
Black-footed Albatross	X	X	X	{Mariana Fruit-Dove}			X
{Tahiti Petrel}			X	<u>Yellow-billed Cuckoo</u>	X		
{Phoenix Petrel}			X	Flammulated Owl	X		
{Polynesian Storm-Petrel}			X	Burrowing Owl	X		
Ashy Storm-Petrel	X			Black Swift	X		
<u>Band-rumped Storm-Petrel</u>		X		Lewis's Woodpecker	X		
Tristram's Storm-Petrel		X		Williamson's Sapsucker	X		
Swainson's Hawk	X			Red-naped Sapsucker	X		
<i>Peregrine Falcon</i>	X			White-headed Woodpecker	X		
Prairie Falcon	X			Olive-sided Flycatcher	X		
Greater Sage-Grouse	X			Loggerhead Shrike	X		
(Columbia Basin population only)				(except where Endangered)			
Yellow Rail	X			Gray Vireo	X		
Black Rail	X			[Rufous Fantail]			X
{Spotless Crake}			X	[Elepaio]	X		
Pacific Golden-Plover		X	X	(except where Endangered)			
Snowy Plover	X			[Fiji Shrikebill]			X
(except where Endangered)				<u>Horned Lark</u> ( <i>strigata</i> ssp. only)	X		
<u>Mountain Plover</u>	X			Omao		X	
Black Oystercatcher	X			<u>[Bridled White-eye</u> ( <i>rotensis</i> ssp. only)]			X
Whimbrel	X			[Golden White-eye]			X
Bristle-thighed Curlew		X	X	Crissal Thrasher	X		
Long-billed Curlew	X			Le Conte's Thrasher	X		
Marbled Godwit	X			Brewer's Sparrow	X		
Black Turnstone	X			Tricolored Blackbird	X		
Red Knot	X			Lawrence's Goldfinch	X		
Short-billed Dowitcher	X			[Hawaii Amakihi]			X
Gull-billed Tern	X			[Oahu Amakihi]			X
Elegant Tern	X			[Kauai Amakihi]			X
Blue-gray Noddy			X	[Anianiau]			X
Black Skimmer	X			<u>[Akikiki]</u>			X
Xantus's Murrelet	X			[Maui Alauahio]			X
{White-throated Ground-Dove}		X		[Akekee]			X
{ <u>Friendly Ground-Dove</u> }		X		[Iiwi]			X
{ <u>Many-colored Fruit-Dove</u> }		X		[Apapane]			X

<sup>1</sup> a = mainland U.S. portion of Region, b = Hawaiian Islands portion of Region, and c = Pacific Island "trust territories."

NOTE: Please refer to Table 3 for descriptions of the stylized conventions used to indicate the Federal protective status of species on this list.

Table 48. National (including Caribbean and Pacific Island "Territories") BCC 2002 List.

Yellow-billed Loon	Rock Sandpiper	[Elepaio†]
Black-footed Albatross	Stilt Sandpiper	<u>Horned Lark</u> ( <i>strigata</i> ssp. only)
Black-capped Petrel	Buff-breasted Sandpiper	Brown-headed Nuthatch
{Phoenix Petrel}	Short-billed Dowitcher	Bewick's Wren ( <i>altus</i> and <i>bewickii</i> ssp. only)
Ashy Storm-Petrel	Wilson's Phalarope	Sedge Wren
<u>Band-rumped Storm-Petrel</u>	Red-legged Kittiwake	Omao
Little Blue Heron*	Gull-billed Tern	Bicknell's Thrush
Reddish Egret	Common Tern	Wood Thrush
Swallow-tailed Kite	Least Tern†	[ <u>Bridled White-eye</u> ( <i>rotensis</i> ssp. only)]
Northern Harrier	Aleutian Tern	Bendire's Thrasher
Swainson's Hawk	Black Skimmer	Crissal Thrasher
Ferruginous Hawk	Razorbill	Le Conte's Thrasher
<i>Peregrine Falcon</i>	Marbled Murrelet (Alaska populations only)	Sprague's Pipit
Prairie Falcon	Kittlitz's Murrelet	Golden-winged Warbler*
[ <u>Greater Sage-Grouse</u> (Columbia Basin population only)]	Xantus's Murrelet	Grace's Warbler
[ <u>Gunnison Sage-Grouse</u> ]	Whiskered Auklet	Prairie Warbler
[ <u>Lesser Prairie-Chicken</u> ]	{ <u>Friendly Ground-Dove</u> }	Cerulean Warbler*
Yellow Rail	{ <u>Many-colored Fruit-Dove</u> }	<u>Elfin-woods Warbler</u>
Black Rail	Black-billed Cuckoo	Prothonotary Warbler
{ <u>Spotless Crane</u> }	<u>Yellow-billed Cuckoo</u> (western populations only)	Worm-eating Warbler
Limpkin	Flammulated Owl	Swainson's Warbler
American Golden-Plover	Burrowing Owl	Louisiana Waterthrush
Pacific Golden-Plover	Short-eared Owl	Kentucky Warbler
Snowy Plover†	Chuck-will's Widow	Canada Warbler
Wilson's Plover	Whip-poor-will	Rufous-winged Sparrow
<u>Mountain Plover</u>	Black Swift	Cassin's Sparrow
American Oystercatcher	Rufous Hummingbird*	Bachman's Sparrow*
Black Oystercatcher	Lewis's Woodpecker	Brewer's Sparrow*
Solitary Sandpiper	Red-headed Woodpecker*	Black-chinned Sparrow
Upland Sandpiper	Williamson's Sapsucker	Grasshopper Sparrow†*
Whimbrel	Red-naped Sapsucker	Baird's Sparrow
Bristle-thighed Curlew	White-headed Woodpecker	Henslow's Sparrow*
Long-billed Curlew	Olive-sided Flycatcher*	Le Conte's Sparrow
Hudsonian Godwit	Scissor-tailed Flycatcher	Nelson's Sharp-tailed Sparrow
Bar-tailed Godwit	Loggerhead Shrike†*	Saltmarsh Sharp-tailed Sparrow
Marbled Godwit	Bell's Vireo†*	Seaside Sparrow
Black Turnstone	Gray Vireo	
Surfbird	Island Scrub-Jay	(continued)
Red Knot		

NOTE: Please refer to Table 3 for descriptions of the stylized conventions used to indicate the Federal protective status of species on this list.

Table 48 (continued)

Harris's Sparrow  
McCown's Longspur  
Smith's Longspur  
Chestnut-collared Longspur  
McKay's Bunting  
Painted Bunting\*  
Dickcissel  
Tricolored Blackbird  
Lawrence's Goldfinch  
[Hawaii Amakihi]  
[Oahu Amakihi]  
[Kauai Amakihi]  
[Anianiau (=Lesser Amakihi)]  
[Akikiki (=Kauai Creeper)]  
[Maui Alauahio (=Maui Creeper)]  
[Akekee (=Kauai Akepa)]  
[Iiwi]  
[Apapane]

† except where Threatened.

‡ except where Endangered

\* denotes species that met the rigorous criteria mentioned on p. 10 for statistically significant ( $P \leq 0.1$ ,  $N \geq 100$ ), long-term (1966-2000) populations declines of  $\geq 2.5$  percent annually, both in the United States and survey-wide, using BBS data.

NOTE: Please refer to Table 3 for descriptions of the stylized conventions used to indicate the Federal protective status of species on this list.

APPENDIX II

USFWS GUIDELINES FOR COMMUNICATIONS TOWER CONSTRUCTION

United States Department of Interior  
Fish and Wildlife Service  
Washington, DC 20240

September 14, 2000

**To:** Regional Directors

**From:** Director /s/ Jamie Rappaport Clark

**Subject:** Service Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers

Construction of communications towers (including radio, television, cellular, and microwave) in the United States has been growing at an exponential rate, increasing at an estimated 6 percent to 8 percent annually. According to the Federal Communication Commission's *2000 Antenna Structure Registry*, the number of lighted towers greater than 199 feet above ground level (AGL) currently number over 45,000 and the total number of towers over 74,000. Non-compliance with the registry program is estimated at 24 percent to 38 percent, bringing the total to 92,000 to 102,000. By 2003, all television stations must be digital, adding potentially 1,000 new towers exceeding 1,000 feet AGL.

The construction of new towers creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. Communications towers are estimated to kill 4-5 million birds per year, which violates the spirit and the intent of the Migratory Bird Treaty Act and the Code of Federal Regulations at Part 50 designed to implement the MBTA. Some of the species affected are also protected under the Endangered Species Act and Bald and Golden Eagle Act.

Service personnel may become involved in the review of proposed tower sitings and/or in the evaluation of tower impacts on migratory birds through National Environmental Policy Act review; specifically, Sections 1501.6, opportunity to be a cooperating agency, and 1503.4, duty to comment on federally-licensed activities for agencies with jurisdiction by law, in this case the MBTA, or because of special expertise. Also, the National Wildlife Refuge System Improvement Act requires that any activity on Refuge lands be determined as compatible with the Refuge system mission and the Refuge purpose(s). In addition, the Service is required by the ESA to assist other Federal agencies in ensuring that any action they authorize, implement, or fund will not jeopardize the continued existence of any Federally endangered or threatened species.

A Communication Tower Working Group composed of government agencies, industry, academic researchers and NGO's has been formed to develop and implement a research protocol to determine the best ways to construct and operate towers to prevent bird strikes. Until the research study is completed, or until research efforts uncover significant new mitigation measures, all Service personnel involved in the review of proposed tower sitings and/or the evaluation of the impacts of towers on migratory birds should use the attached interim guidelines when making recommendations to all companies, license applicants, or licensees proposing new tower sitings. These guidelines were developed by Service personnel from research conducted in several eastern, midwestern, and southern states, and have been refined through Regional review.

They are based on the best information available at this time, and are the most prudent and effective measures for avoiding bird strikes at towers. We believe that they will provide significant protection for migratory birds pending completion of the Working Group's recommendations. As new information becomes available, the guidelines will be updated accordingly.

Implementation of these guidelines by the communications industry is voluntary, and our recommendations must be balanced with Federal Aviation Administration requirements and local community concerns where necessary. Field offices have discretion in the use of these guidelines on a case by case basis, and may also have additional recommendations to add which are specific to their geographic area.

Also attached is a [Tower Site Evaluation Form](#) which may prove useful in evaluating proposed towers and in streamlining the evaluation process. Copies may be provided to consultants or tower companies who regularly submit requests for consultation, as well as to those who submit individual requests that do not contain sufficient information to allow adequate evaluation. This form is for discretionary use, and may be modified as necessary.

The Migratory Bird Treaty Act (16 U.S.C. 703-712) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the Act has no provision for allowing unauthorized take, it must be recognized that some birds may be killed at structures such as communications towers even if all reasonable measures to avoid it are implemented. The Service's Division of Law Enforcement carries out its mission to protect migratory birds not only through investigations and enforcement, but also through fostering relationships with individuals and industries that proactively seek to eliminate their impacts on migratory birds. While it is not possible under the Act to absolve individuals or companies from liability if they follow these recommended guidelines, the Division of Law Enforcement and Department of Justice have used enforcement and prosecutorial discretion in the past regarding individuals or companies who have made good faith efforts to avoid the take of migratory birds.

Please ensure that all field personnel involved in review of FCC licensed communications tower proposals receive copies of this memorandum. Questions regarding this issue should be directed to Dr. Benjamin Tuggle, Chief, Division of Habitat Conservation, at (703)358-2161, or Jon Andrew, Chief, Division of Migratory Bird Management, at (703)358-1714. These guidelines will be incorporated in a Director's Order and placed in the Fish and Wildlife Service Manual at a future date.



## Service Interim Guidelines For Recommendations On

### Communications Tower Siting, Construction, Operation, and Decommissioning

1. Any company/applicant/licensee proposing to construct a new communications tower should be strongly encouraged to collocate the communications equipment on an existing communication tower or other structure (*e.g.*, billboard, water tower, or building mount). Depending on tower load factors, from 6 to 10 providers may collocate on an existing tower.
2. If collocation is not feasible and a new tower or towers are to be constructed, communications service providers should be strongly encouraged to construct towers no more than 199 feet above ground level (AGL), using construction techniques which do not require guy wires (*e.g.*, use a lattice structure, monopole, etc.). Such towers should be unlighted if Federal Aviation Administration regulations permit.
3. If constructing multiple towers, providers should consider the cumulative impacts of all of those towers to migratory birds and threatened and endangered species as well as the impacts of each individual tower.
4. If at all possible, new towers should be sited within existing “antenna farms” (clusters of towers). Towers should not be sited in or near wetlands, other known bird concentration areas (*e.g.*, state or Federal refuges, staging areas, rookeries), in known migratory or daily movement flyways, or in habitat of threatened or endangered species. Towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.
5. If taller (>199 feet AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Unless otherwise required by the FAA, only white (preferable) or red strobe lights should be used at night, and these should be the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA. The use of solid red or pulsating red warning lights at night should be avoided. Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Red strobe lights have not yet been studied.
6. Tower designs using guy wires for support which are proposed to be located in known raptor or waterbird concentration areas or daily movement routes, or in major diurnal migratory bird movement routes or stopover sites, should have daytime visual markers on the wires to prevent collisions by these diurnally moving species. (For guidance on markers, see *Avian Power Line Interaction Committee (APLIC). 1994. Mitigating Bird Collisions with Power Lines: The State of the Art in 1994. Edison Electric Institute, Washington, D.C., 78 pp.*, and *Avian Power Line Interaction Committee (APLIC). 1996. Suggested Practices for Raptor Protection on Power Lines. Edison Electric Institute/Raptor Research Foundation, Washington, D.C., 128 pp.* Copies can be obtained via the Internet at <http://www.eei.org/resources/pubcat/enviro/>, or by calling 1-800/334-5453).

7. Towers and appendant facilities should be sited, designed and constructed so as to avoid or minimize habitat loss within and adjacent to the tower “footprint”. However, a larger tower footprint is preferable to the use of guy wires in construction. Road access and fencing should be minimized to reduce or prevent habitat fragmentation and disturbance, and to reduce above ground obstacles to birds in flight.
8. If significant numbers of breeding, feeding, or roosting birds are known to habitually use the proposed tower construction area, relocation to an alternate site should be recommended. If this is not an option, seasonal restrictions on construction may be advisable in order to avoid disturbance during periods of high bird activity.
9. In order to reduce the number of towers needed in the future, providers should be encouraged to design new towers structurally and electrically to accommodate the applicant/licensee’s antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), unless this design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower.
10. Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.
11. If a tower is constructed or proposed for construction, Service personnel or researchers from the Communication Tower Working Group should be allowed access to the site to evaluate bird use, conduct dead-bird searches, to place net catchments below the towers but above the ground, and to place radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment as necessary to assess and verify bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.
12. Towers no longer in use or determined to be obsolete should be removed within 12 months of cessation of use.

In order to obtain information on the extent to which these guidelines are being implemented, and to identify any recurring problems with their implementation which may necessitate modifications, letters provided in response to requests for evaluation of proposed towers should contain the following request:

“In order to obtain information on the usefulness of these guidelines in preventing bird strikes, and to identify any recurring problems with their implementation which may necessitate modifications, please advise us of the final location and specifications of the proposed tower, and which of the measures recommended for the protection of migratory birds were implemented. If any of the recommended measures can not be implemented, please explain why they were not feasible.”

APPENDIX III  
INFORMATION CONCERNING MAMMALS  
WITHIN THE FORSYTHE WATERSHED

California Department of Fish and Game

**JOB FINAL REPORT**

Project Number: W-65-R-4 Project Title: Nongame Wildlife Investigations

Job Number: I-11 Job Title: Badger Distribution Study

Period Covered: July 1, 1986 - June 30, 1987

**SUMMARY:**

Historically, the badger (*Taxidea taxus*) is known to occur throughout the state of California except for the humid forested region in the extreme northwestern corner. Badger recently were included on the Department of Fish and Game's list of Mammalian Species of Special Concern, since it appears that there has been a substantial reduction in range and abundance in several areas where it was formerly common (Williams 1986).

Information on the current distribution of the badger was collected by requesting sighting reports from licensed trappers that had reported taking badgers, federal animal control personnel in each county, and state and federal agency field biologists. Observers reported sighting badger at 521 locations in California, mainly during the 1970s and 1980s.

Current data indicate- that badger are still distributed throughout their range, but recent sightings are not evenly distributed, indicating some potential problem areas. Sighting reports indicate that the greatest badger abundance occurs in the northeastern region of the state and along the south coastal area, and a moderate number occurs in the southeastern desert areas, on the east side of the southern Sierra Nevada, and in the southernmost portion of the San Joaquin Valley. Reported occurrences of badger were lowest in the mid-Central Valley region and moderately low in the northern Coast Range.

**BACKGROUND:**

Although the badger is a large mustelid found throughout almost the entire state, little is known about its status, current distribution and relative abundance. No studies of its distribution and status in California have been completed since Grinnell et al. (1937).

Badger are distributed throughout California except for the extreme northeastern corner (Grinnell et al. 1937), but they have reportedly declined or disappeared in many large areas of the state, particularly areas west of the Cascade-Sierra Nevada mountain axis and in coastal basins of southern California (Williams 1986).

Prior to 1956 the badger was considered a predatory mammal with no season or bag limit. In 1957 it was classified as a furbearer and it may now be taken statewide during the designated trapping season with no bag or possession limit. In addition, the badger has long been considered a pest, especially in agricultural situations, and thus the target of many years of animal control activity.

The badger was included on the Department of Fish and Game's list of Mammalian Species of Special Concern (Williams 1986). This list includes species or subspecies of mammals that are declining in California, some of which may be on the verge of extinction, but are not designated by the Fish and Game Commission as Threatened or Endangered.

This list was compiled by the Department for administrative purposes to identify potentially endangered species or subspecies in need of research and management attention. Species of Special Concern is not a classification under any California Administrative Code, and a species so listed is not afforded any additional protection under State law. This Job was initiated because the badger was included on the Special Concern list.

### **OBJECTIVES:**

1. Determine current status and distribution of badger in California.
2. Locate areas of concentration of badger populations.
3. Determine trends in relative population size and distribution by comparing past and present data.

### **PROCEDURES:**

Data on badger was gathered by requesting sighting reports from appropriate state and federal governmental agencies and from licensed fur trappers. A supply of "Furbearer Observation" report forms (Appendix A) was sent to federal agencies that regularly have personnel in the field. Some agencies keep detailed sighting records and provided numerous locations for this survey. Federal agencies queried include the U.S. Forest Service, National Park Service, and the U.S. Bureau of Land Management. Report forms also were sent to state agencies with field personnel, including the Department of Parks and Recreation and each region of the Department of Fish and Game. Letters and report forms were sent to each County Agricultural Commissioner to obtain observations made during animal damage control activities. In addition, the Department of Health Services, Vector Biology and Control Section volunteered location information from badger carcasses originally submitted by animal control personnel for a study of plague in California.

Letters of inquiry with a map of the appropriate county were sent to all licensed fur trappers that reported capturing badger during the last two years. Participants marked and returned the map indicating locations and dates of badger that they had trapped or observed. "Furbearer Observation" report forms were included so they could report any future or additional sightings. A letter of inquiry and a supply of forms also was sent to the California Trappers Association, asking that they distribute them at one of their meetings.

Badger occurrence reports were collected, entered into a database file, and tabulated and reported by county (Appendix B). Individual sightings gathered during this survey were mapped and compared with the sighting map developed by

Grinnell et al. (1937, Fig. 131) using 1919 to 1924 trapping reports (Figure 1). Numbers of Occurrence reports from Grinnell and from this study also were tabulated by county (Table 1).

Current sightings were then compared with historical sightings to determine any relative changes in distribution and abundance of badger that may have occurred since early in this century.

Table 1.

County distribution of badger occurrence records in California. Those from Grinnell et al. (1937, Fig. 131) are 1919-1924 trapping reports. Occurrence records from this study are mainly from the 1970s and 1980s.

*Omitted* - - - - -  
*Omitted* - - - - - Page 4

**FINDINGS:**

Distribution - All 521 badger observations collected during this study were made within the range of the badger as described by Grinnell et al. (1937). Although these current locations are not evenly distributed, and are, in fact, scarce or spotty in some areas, there appears to have been no change in the overall range of the badger in California since early in this century (Fig 1).

Recent badger sightings are most heavily clustered in the northeastern and south-coastal areas of the State, and in the central. southeastern desert region. Smaller clusters appear on the eastern side of the southern Sierras and in the southern-most section of the San Joaquin Valley (Figure 1).

Recent sightings are most scarce in the middle section of the Central Valley, and are relatively scarce in the northern Coast Range. The scarcity of recent records in these areas can be visually compared with recent sightings in other areas of the state, as well as with historical sightings (Figure 1).

Abundance - Since this survey was not conducted the same way as that of Grinnell et al. (1937), numbers of occurrences per county are not directly comparable. However, if the differences between these two surveys are taken into account, some inferences can be made from just such a comparison (Table 1). The sightings in Grinnell's Fig. 131 represent those made by relatively few observers over a rather short time period (1919-1924), so they are limited. The sighting reports obtained during this survey, in contrast, were provided by several governmental agencies and their field personnel, and by numerous licensed trappers. All except eight of the 521 sighting reports received were from the 1970s and 1980s, up to mid-1987, a 17.5-year period.

Taking these differences into account when comparing numbers of sightings in each county (Table 1), the magnitudes of increases or decreases between the 1919-1924 data set and the 1970-1987 data set have differing interpretations. An increase between the two time periods may either reflect a true increase in abundance, or indicate that the population remained stable because of the longer time period and larger number of observers affecting the recent data set. A decrease, on the other hand, could be reflecting a true decrease of abundance because of the

greater opportunity to observe badger in the recent time period. Numbers of sightings that are similar between the two data sets could also indicate a decrease, assuming that the number of sightings, if the population is remaining stable, would be proportionately larger.

Counties showing a possible increase in, or a stability of relative abundance of badger include Siskiyou, Modoc, Lassen, and Plumas in the northeastern section; Inyo and Mono on the eastern side of the southern Sierra Nevada; San Bernardino and Riverside in the south-eastern desert area; Kern at the southern end of San Joaquin Valley; and Monterey, San Benito, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, and San Diego in the south coastal region.

Counties showing a possible decrease in the relative abundance of badger include **Marin, Sonoma, and Mendocino** in the northern Coast Range; and Madera, Mariposa, Merced, Tuolumne, San Joaquin, Sacramento, and Yolo in the middle section of the Central Valley.

### ANALYSIS:

Formulating conclusions and determining trends is difficult with a survey of this sort. Information received in trapping and sightings reports can not be considered a random sample providing uniform coverage of the State and this type of data set is not statistically quantifiable. There tends to be a low response to voluntary surveys when participants are asked to search old records or memories. If one agency, or a portion thereof, does not or cannot provide information, compared with another that sends in hundreds of sightings, false or misleading trends could appear in the data set. The number of observers in a particular area could cause a cluster of sighting reports, which could appear as an overly important location when mapped. Also, since badger are generally considered common or as a pest species, it is less likely that a sighting is considered important enough to be recorded by an observer.

Fur trapping results, when viewed in conjunction with the results of this survey, can give a more complete picture of the status of badgers. Badger are not usually the target of trapping, since their pelt traditionally has a low value (\$2.70 - \$5.00 in the 1985-86 season), and they make up a very small percentage of the overall harvest (0.34% in 1985-86 season). In addition, they are very vicious, making them difficult to release from a trap; captured, non-target individuals probably are most often dispatched and discarded. Trappers actually attempt to avoid them by declining to set traps in areas with abundant sign. It is thus less likely that a trapper will document their occurrence if trapped. Licensed trappers officially reported taking 186 badger during the 1985-86 season, but this number is probably artificially low. The counties with the highest reported take were San Bernardino (49), Kern (26), Fresno (14), and Modoc (13).

These trapping reports indicate that there may be a stable population of badger in the southern end of the San Joaquin Valley. In Fresno County, this survey only records five sightings in the 1970s and 1980s, and Grinnell et al.(1937) shows only three sightings. Yet the licensed fur trapper reports show that 14 were taken in Fresno County in one season (1985-86).

The middle portion of the Central Valley is the region where current badger sightings are the sparsest in this survey. Williams (1986) reports that badger have been almost completely eliminated from this portion of the state except for peripheral areas. This reduction most likely has resulted from a combination of the conversion of the badger's native scrub habitat to irrigated farmland and animal control activities involving direct removal of badger as well as the poisoning of their principle prey, ground squirrels. This area should be considered a potential problem area.

The northern Coast Range area appears to presently support a reduced number of badger when compared with historical data. Although intensive farming is probably not a problem in this area, there are active animal control activities in the region. The lack of current sightings also could be due to a failure to respond by governmental agencies in the region. Further attempts to obtain information from the region should be made to determine if this is a true population reduction, or simply due to incomplete data. The northern Coast Range also should be considered a potential problem area.

Badger populations appear to be stable or increasing in the northeastern region of the state. Clusters of current sightings occur in almost every county, including Plumas, which had none in the historical data set. Modoc County ranks fourth in badger captured (13) as reported by licensed trappers during the 1985-86 season, behind the southern San Joaquin Valley and southeastern desert regions. Intensive agriculture is rare in this region, but animal control activity continues to occur.

The southern coastal area contains large clusters of recent sightings. Williams (1986) reported that badger survived in low numbers in eastern Monterey, San Benito, and San Luis Obispo counties, and that they have declined or disappeared from the south coastal basin. In contrast, this survey collected many recent sightings from observers indicating that badger may be doing well in San Benito, Monterey, San Luis Obispo, and western Santa Barbara counties. Further south, sightings are clustered in southeastern Ventura and northwestern Los Angeles counties, between the larger metropolitan areas, and in eastern San Diego county. Scattered recent sightings also occur in Orange County. Badger, of course, cannot readily survive in urbanized areas, but they seem to continue to exist in open areas. However, it is debatable whether the south coastal badger population is really doing as well as it may appear, or whether the large number of sightings in these areas is just a function of a large number of observers. If appropriate open areas disappear, badger may be squeezed out of these in between areas.

The sightings collected in this survey seem to indicate that badger are doing well in California on the eastern side of the southern Sierra Nevada, in Mono and Inyo counties, and in the southwestern desert area in San Bernardino County. In Grinnell et al. (1937) there were only a few reports from San Bernardino County, but this may have been due to general inaccessibility of



the desert areas earlier in this century. Conversely, since both the eastern side of the southern Sierra Nevada and the southeastern desert areas are rather sparsely populated, even today, the clusters of recent sightings in these areas could either be a true reflection of a stable population or be due to a few observers that provided detailed records. It should be noted, however, that San Bernardino County did have the highest take of badger (49) reported by licensed fur trappers in the 1985-86 season.

The tentative results of this survey indicate that badger seem to be doing well in some areas of the state, specifically in the northeastern, south coastal, southern San Joaquin Valley, and southeastern desert regions, but appear to be declining in other areas, specifically the northern Coast Range and the middle Central Valley. These results, can in no way be considered conclusive, since the data is not quantitative. However, it would be prudent to devise a formal census method to more accurately determine status and abundance of badger in California.

Although there are some potential problem areas in the state, it does not appear that badger warrant formal listing as Threatened or Endangered at this time, especially in the absence of quantifiable data from a more formal status survey. The voluntary response to this survey can be considered good, and since it is the only one that has been conducted since early in this century, the potential problem areas identified should be taken seriously. In lieu of a formal survey, another survey of this type should be conducted in the future. The results would be more readily comparable, and if disturbing

winter pelage. The white stripe on the center of the head begins 20 mm. posterior to the tip of the nose pad and extends backward for 153 mm. It is 460 mm. from the posterior end of the stripe to the end of the tail. The white stripe is 10 mm. wide at the widest place, which is between the ears. The whole pelt is distinctly clay color, both

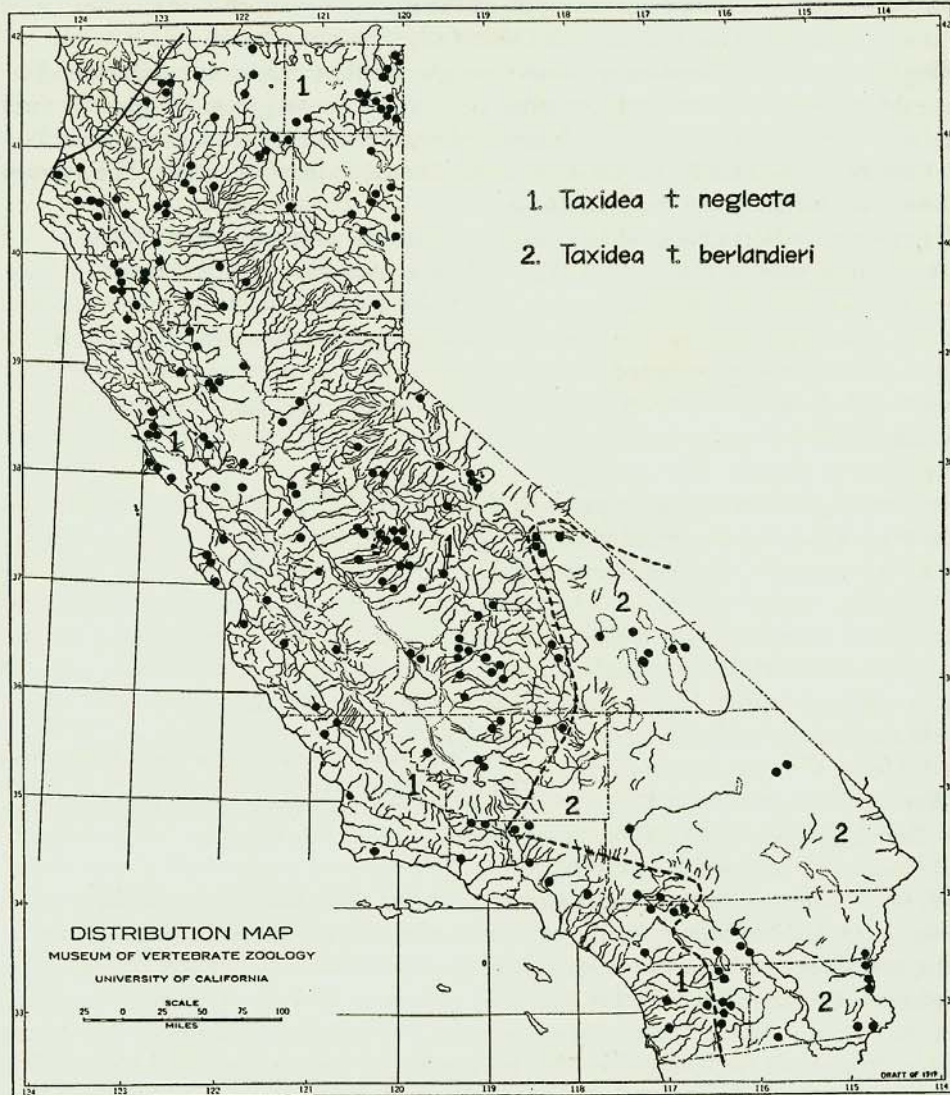


Fig. 131. Distribution of badgers in California. Solid line marks about the northwestward limit of occurrence; broken line indicates about the middle of the broad belt of intergradation between the two subspecies, which are, by vernacular names: 1, California badger; 2, Mexican badger. Spots indicate known places of capture as based on specimens examined or on reports of licensed trappers for the 5-year period, 1919-1924. In some of these reports, residence or post office of the trapper might have been meant; but then, it is thought, the differences in location of places of actual trapping would be so slight as not to be important on a small-scale map.

on the underfur and the overhair; this color extends even to the whitish facial and belly markings. The broken midventral white line is entirely cut off from the white throat by a clay-colored tract across the chest. The blackish markings on the feet and face have a brownish tinge, possibly caused in part by fading. The overhair shows a good deal of wear, which is to be expected from the season of capture of the animal.

----- Original Message -----

From: <[BOBDEGROOT1@cs.com](mailto:BOBDEGROOT1@cs.com)>

To: <[BOBDEGROOT1@cs.com](mailto:BOBDEGROOT1@cs.com)>

Sent: Monday, December 11, 2000 9:15 AM

Subject: Critter Crossings on Highways

I am sending this letter to organizations outside Maryland in hopes it will provide some ideas on improving wildlife habitat throughout the US. We need to reconnect, where possible, our highly fragmented wildlife habitat. Please go to the website at <http://www.fhwa.dot.gov/environment/wildlifecrossings/main.htm> to see examples of Critter Crossing that have been implemented successfully around the world.

Bob DeGroot  
Maryland Alliance for Greenway Improvement and Conservation  
December 11, 2000

John Porcari, Secretary  
Maryland Department of Transportation  
Post Office Box 8755  
Baltimore/Washington International Airport, MD 21240

Dear Secretary Porcari:

On June 9, 1998, President Clinton signed into law the Transportation Equity Act for the 21st Century (TEA-21). This act provided funding for projects to reduce vehicle-caused wildlife mortality while maintaining habitat connectivity. This funding can be used to provide wildlife crossings under highways where wildlife mortality is known to be high. The Act also specifies it is up to the States to recognize and develop a need for such projects.

Our existing road system was built to accommodate cars with little consideration given to its effect on wildlife. By widening and improving roads without providing wildlife crossings, we have forced thousands of animals to try to cross high-speed highways to get from one feeding area to another in order to survive. The result is a growing volume of animals killed on our highways each year. This is also a safety issue causing thousands of dollars in damage and resulting in many deaths, much of which is avoidable.

Although wildlife mortality on Maryland's highways is known to be high, there are few programs aimed at solving the problem. Highways should be constructed to allow wildlife an easy means of crossing them, and this should be part of any good road building policy. The Interstate Highway System, while helping to connect various parts of Maryland by automobile, has been devastating for wildlife. It has permanently fragmented wildlife habitats in some areas, while in others it allows wildlife to try to cross the high speed roads, where they are slaughtered in great numbers.

Maryland's DOT needs a well defined program that determines where high wildlife mortality areas are located and provides a plan to reduce wildlife mortality. Other states are moving forward with comprehensive programs including North Carolina which is using infrared cameras, radio telemetry, and surveys of animal tracks to determine wildlife movement across

roads in the state. They recognize a "clear need for management actions to reduce the incidence of vehicle-wildlife collisions for large mammals".

Arizona is constructing bridges over areas of high wildlife activity to allow animals to pass beneath their roads. Wyoming has provided wildlife fencing and access control on many miles of I-80 and I-25 and have installed a system for detecting deer movement and triggering flashing red lights on state roads. Florida has installed several underpasses on I-75 which nearly eliminated vehicle collisions with the Florida panther. They found many other species using these underpasses including bobcats, deer, raccoons, bear and alligators.

We ask that the following actions take place in Maryland:

- 1) Adopt a policy to insure wildlife crossings are built on all new or widened highways.
- 2) Set up a database to determine where the greatest wildlife mortality areas occur on State Highways. Data should be collected for all wildlife, not just deer.
- 3) Examine existing roads to see where separated wildlife crossings are needed, and determine if they can be constructed in a "cost effective" manner.

Please let us know at your earliest convenience when such action will be taken. We are eager to hear about DOT's plans for real progress in this area.

Sincerely,

Robert DeGroot

The following Alliance Partners agree with and support this letter:

Anne Arundel Green Party  
Anacostia Watershed Society  
Citizens to Conserve and Restore Indian Creek  
Earth Energy  
Eyes of Paint Branch  
Friends of Northwest Branch  
Maryland Native Plant Society  
Montgomery Intercounty Connector Coalition  
Natural Pathfinders Association  
Potomac River Association  
Protect Upper Rock Creek  
Sierra Club - Eastern Shore Group  
South Mountain Heritage Society  
The Fund for Animals  
The Humane Society of the U.S  
Urban Forest Initiative  
Wildlife Land Trust  
WindStar Wildlife Institute

## Passages for Large Mammals

<http://www.fhwa.dot.gov/environment/wildlifecrossings/lmammals.htm>

### Alberta, Canada

Each year, close to five million people travel the Trans-Canada Highway to visit Alberta's Banff National Park. In summer, at least 20,000 vehicles a day clog the road. Throughout the year, unending streams of traffic whiz up and down the high-speed commercial section between Calgary and Vancouver.

The Trans-Canada Highway cuts through the Bow River Valley and the habitats of elk, deer, moose, wolves, cougars, black bears, grizzly bears, and other species. So when 28 miles (45 km) of the highway (the section between Banff's east gate and Castle Junction) were widened, park and transportation officials joined forces to protect the corridor's wildlife. Parks Canada put up 8-foot-high (2.4-meter-high) fencing on both sides of the highway and built 22 underpasses - arched culverts, box culverts, and open-span bridges - and two 164-foot-wide (50-meter-wide) overpasses.

The result? The fence has cut ungulate (hooved animal) roadkill by 96 percent, and 35 months of monitoring animals' back-and-forth movement through the crossing structures has demonstrated that both ungulates and carnivores are using them.

Locating the underpasses and overpasses near the animals' natural travel corridors was crucial to the project's success. For carnivores, this meant placing the structures close to stream corridors or drainage areas. For ungulates, it involved doing the opposite - placing the structures far from carnivores (their predators) and with a clear view of the structures' entrance.



The park's overpasses and underpasses (like the underpass shown in this aerial view) have cut ungulate roadkill by 96 percent.

So far, equal numbers of species are using the overpasses and the underpasses (especially open-span bridges), but Parks Canada biologist David Poll thinks overpass use will surpass underpass use over time. "Once the new vegetation has grown," he says, "the animals will no longer see the highway as they approach or travel on the overpass, and they'll be less bothered by traffic noise."



Wolves and grizzly bears are more likely to use underpasses like these when there's no sign of human activity nearby. Parks Canada hopes that urging stricter limits on human activity near the crossing structures will increase the numbers of carnivores using them.

Despite the successes of the project, Parks Canada admits there's a lot more work to be done. For example, solutions must be found to preventing black bears and cougars from climbing over the fence. Parks Canada contractor Tony Clevenger has already begun exploring strategies ranging from eliminating the dandelions (a delicacy for black bears) on the highway side of the fence to placing additional wire mesh at a 90-degree angle on top of the fence. Parks Canada researchers are also urging stricter limits on human activity near the Banff crossing structures - a strategy they hope will increase the low numbers of large carnivores (especially wolves and female grizzlies) using the structures and a critical step to take as traffic continues to increase on the Trans-Canada Highway and more and more visitors come to the Park. "Distance from humans is the most important consideration in designing crossing structures for large carnivores," says Clevenger. "The further, the better." For more information, contact Tony Clevenger at 403-760-1371 or [tony\\_clevenger@pch.gc.ca](mailto:tony_clevenger@pch.gc.ca)

## Banff Wildlife Crossing



One part of the Trans-Canada Highway that runs through Banff National Park in Alberta, Canada was once called "The Meatmaker" because so many wild animals were killed there. This wildlife bridge was built there as a solution to that problem.

## Badger Tunnels

<http://www.fhwa.dot.gov/environment/wildlifecrossings/badger.htm>

### The Netherlands



Badgers live in families in a maze of underground tunnels and chambers called a "set." Some sets are hundreds of years old. Badgers are nocturnal animals, foraging for food at night along hedges and wooded banks. Their favorite foods are mice, slugs, insects, and earthworms. Although they can live to age 14, badgers often die or are killed at a younger age. Urbanization and agriculture can threaten the long-term survival of the species, since badgers adapt poorly to change once their sets are disturbed and they are forced to move.

Until the 1990s, 20 percent of the badger population in the Netherlands were killed every year on the country's highways.

As their habitats were destroyed - for example, by intensive farming - the animals had fewer places to live and no easily-available food. When they ventured away from their sets to hunt for food, they often had to cross roads, where they were usually killed.



This badger tunnel under A73 near the town of Heumen was the first to be built in the Netherlands.

Early fences and tunnels to prevent roadkill and allow movement were not highly successful. The fences were too low and were not anchored in the ground, allowing the badgers to climb over or crawl under them and onto the road. The fences also frequently developed large holes, so they offered little protection. These deficiencies were corrected in later projects. Near the town of Heumen, for example, the national Ministry of Transport constructed five tunnels under the highway and built higher, stronger fences. Escape gates were put in the fences at one-kilometer-intervals to protect any badgers that ended up on the road.

That's not all. Workers created a "green network" between the badger sets, and Heumen Municipality incorporated rules for protecting the sets into its by-laws. Together, the fences, tunnels, green space, and habitat protection have resulted in nearly doubling the local badger population.

As for the badgers safely crossing the road...Infrared cameras and tracks in sand and ink beds demonstrate the animals are using the Heumen tunnels almost every night. Foxes, rabbits, and hedgehogs also travel through them.

Similar successes have been reported on badger-tunnel projects in

other parts of the country. In fact, badger tunnels in the Netherlands have been so effective it is now standard procedure to consider them for every new highway project.



In one project, badger sets like the one shown here were linked to other sets by a protective "green network."

For more information, contact Hans Bekker at +31-15-2699-470 or [H.J.Bekker@DWW.RWS.MinVenW.NL](mailto:H.J.Bekker@DWW.RWS.MinVenW.NL)



APPENDIX IV  
INFORMATION CONCERNING **PLANTS**  
WITHIN THE FORSYTHE WATERSHED

<b>Genus</b>	<b>Species</b>	<b>Var/Spec.</b>	<b>Subspecies</b>	<b>Common Name</b>
Alnus	rhubifolia			white alder
Calandrinia	ciliata			
Heracleum	lanatum			cow parsnip
Juncus	bufonius			toad rush
Lasthenia	californica			goldfields
Linanthus	bicolor			
Micropus	californicus			slender cottonweed
Plectritis	villosa			
Plectritis	brachystemon			
Populus	balsamifera	ssp	trichocarpa	black cottonwood
Psilocarphus	brevissimus			wooly marbles
Scrophularia	californica			California figwort
Thalictrum	fendleri			meadow-rue
Trifolium	depauperatum	var	depauperatum	
Trifolium	fucatum			
Trillium	chloropetalum			giant trillium
Urtica	dioica			stinging nettle
Vicia	hirsuta			

**Geri Hulse-Stephens**  
 CNPS - Ridgewood 4/2001

FAX Linda Gray  
468-8228

MARISELLA DE SANTA ANNA

Laughlin Peak Wild Flower Walk 4-11-97

Plant List (First by Family then Common Name then Latin)

Apiaceae Carrot Family

Biscuit Root Lomatium sp.

Pacific Snakeroot Sanicula crassicaulis

Purple Sanicle Sanicula bipinnatifida

Footsteps of Spring Sanicula arctopoides

Terebinth pteryxia Pteryxia terebinthina

Beggars Tick Torilis arvensis

Angelica Angelica sp.

Asteraceae Sunflower Family

Common Groundsel (old man spring) Senecio vulgaris

Mule Ears Wyethia sp.

Cottonweed Micropus californicus

Dandelion Taraxacum sp.

False Dandelion Hypochaeris radicata

Boraginaceae-Forget-me-not Family

Hounds Tongue Cynoglossum grande

Popcorn Flower Plagiobothrys nothofulvus

Brassicaceae- Mustard Family

Lace or Fringe Pod Thysanocarpus curvipes

Spring Whitlow Grass Draba verna

Field Mustard Brassica campestris

Wild Radish Raphanus sativus

MARKELLA DE SANTA ANNA

Caryophyllaceae - Pink or Carnation Family

- Common Chickweed Stellaria media
- Large Mouse Ear Chickweed Cerastium vulgatum

Crassulaceae Sedum Family

- Pacific Sedum Sedum spathulifolium

Fabaceae Pea Family

- American Vetch Vicia americana
- Bur Clover Medicago polymorpha
- Miniature Lotus Lotus micranthus
- Hill Lotus Lotus humistratus
- Miniature Lupine Lupinus bicolor or L. nanus
- Pacific Pea Lathyrus vestitus
- Balloon Clover Trifolium depauperatum
- Tomcat Clover Trifolium willdenovii
- muffin cap clover Trifolium microdon
- Reflexed Clover Trifolium bifidum
- ~~Bluebonnet Clover~~ Trifolium microcephalum small head pink flowers

Geraniaceae ~~Geranium~~ Geranium Family

- Long beaked Storksbill Erodium botryos
- Red stem Storksbill E. cicutarium
- Whitestem Storksbill E. moschatum
- Cut leafed Geranium G. dissectum
- Downy foot G. G. molle

**White Deer Valley Wildflower Walk-----**

4/18/98

**~~Flora~~ Plant List**

Carrot Family-Apiceae  
 Biscuit Root Lomatium spp.  
 Pacific Snakeroot Sanicula crassicaulis  
 Footsteps of Spring S. arcifoloides  
 Terebinth pteryxia Pteryxia terebinthina  
 Beggars Tick Torilis arvensis  
 Angelica Angelica sp.  
 Sunflower Family-Asteraceae  
 Old Man Spring Senecio vulgaris  
 Mule Years Wyethia sp.  
 Cottonweed Micropis californicus  
 Dandelion Taraxacum sp.  
 False Dandelion Hypochaeris radicata  
 Forget-Me-Not Family-Boraginaceae  
 Hounds Tongue Cynoglossum grande  
 Popcorn Flower Plagiobothrys nothofolius  
 Mustard Family-Brassicaceae  
 Lace or Fringedpod Thysanocarpus cucupias  
 Spring Whitlow Grass Draba verna  
 Carnation Family-Caryophyllaceae  
 Common Chickweed Stellaria media  
 Large Mouse Ear Chickweed Cerastium vulgare  
 Sedum Family-Crasulaceae  
 Pacific Sedum Sedum scaberrifolium  
 Pea Family-Fabaceae  
 American Vetch Vicia americana  
 Bur Clover Medicago polymorpha  
 Miniature Lotus Lotus micranthus  
 Hill Lotus Lotus humistratus  
 Miniature Lupine Lupinus bicolor L. nanus  
 Pacific Pea Lathyrus vestitus  
 Balloon Clover Trifolium depauperatum  
 Tomcat Clover Trifolium wildenoyii  
 Muffin Cap Clover Limnolobos

Reflexed Clover L. bifidum  
 Fuzzy Pink Clover Limnolobos  
 Geranium Family-Geraniaceae  
 Longbeaked Storkbill Erodium botrys  
 Redstem Storkbill Erodium cicutarium  
 Whitestem Storkbill E. moschatum  
 Cut Leaved Geranium Geranium dissectum  
 Doves Foot Geranium G. molle  
 Waterleaf Family-Hydrophyllaceae  
 Baby Blue Eyes Nemophila menziesii  
 Canyon Nemophila N. heterophylla  
 Yerba Santa Eriodictyon californicum  
 Iris Family-Iridaceae  
 Bowl-shaped Iris Iris macrosiphon  
 California Blue-eyed Grass  
Saxifraga sp.  
 Lily Family-Liliaceae/  
Lilium ovatum *Fawn Lily*  
*Erythronium californicum*  
Trillium chloropetalum  
 Blue Dicks Dichelostemma vulgatum  
 Branched Solomon Seal Smilacina racemosa amplicaulis  
 Hookers Fairybell Diaporum hookeri  
 Hairy Pussy Ears Galanopsis tolmiei  
 Meadow Foam Family-Limnanthaceae  
 Douglas's Meadow Foam Limnanthus douglasii  
 Evening Primrose Family-Onagraceae  
 Coast Suncup Camissonia ovata  
 Poppy Family-Papaveraceae  
 California Poppy Euphonia californica  
 Plantain Family-Plantaginaceae  
 Dwarf Plantain Plantago erecta  
 English Plantain Plantago lanceolata  
 Plox Family-Polemoniaceae

**Shrubs and Trees**

Sumac Family-Anacardiaceae  
 Poison Oak Toxicodendron diversiloba  
 Heather Family-Ericaceae  
 Manzanita Arctostaphylos spp.  
 Madrone Tree Arbutus Menziesii  
 Buckthorn Family-Rhamnaceae

Giant Redwood Sequoia sempervirens  
 Grasses, Rushes, and Sedges  
 Sedge Family-Cyperaceae  
 Carex Carex spp.  
 Umbrella Sedge Cyperus aragostis  
 Rush Family-Juncaceae  
 Rush Juncus sp.  
 Iris Leaved Rush Juncus xiphioides  
 Hairy wood Rush Luzula comosa

MARISSELLA DE SANTA ANNA  
4/99

Baby Stars Linanthus spp.  
 Buckwheat Family  
 Dock Rumex spp.  
 Purslane Family-Portulacaceae  
 Miner's Lettuce Claytonia perfoliata  
 Red Maids Calandrinia ciliata  
 Primrose Family-Primulaceae  
 Henderson's Shooting star Dodecatheon hendersonii  
 Buttercup Family-Ranunculaceae  
 Western Buttercup Ranunculus spp.  
 Aquatic Buttercup R. aquatilis  
 Madder Family-Rubiaceae  
 Bedstraw Galium aparine  
 Small Leaved Bedstraw G. porrigens  
 Saxifrage Family-Saxifragaceae  
 Cal Saxifrage Saxifraga californica  
 Alumroot Heuchera micrantha  
 Snapdragon Family-  
 Scrophulariaceae  
 Purple Owls Clover Castilleja exserta  
 Valerian Family-Valerianaceae  
 Long spurred Plectritis Plectritis ciliosa  
 Violet Family-Violaceae  
 Two-eyed Violet Viola ocellata

#### Ferns-

Adiantum jordanii- Maiden hair  
Pentagramma triangularis-Golden back  
Polypodium californicum-Cal Polypody

#### Shrubs and Trees

Sumac Family-Anacardiaceae  
 Poison Oak Toxicodendron diversiloba

Heather Family-Ericaceae  
 Manzanita Arctostaphylos spp.  
 Madrone Tree Arbutus Menziesii

Buckthorn Family-Rhamnaceae

Wild Lilac Ceanothus spp.  
 Cal Coffeeberry Rhamnus Californica

Rose Family-Rosaceae  
 Mountain Mohogany Cercocarpus betuloides

Willow Family-Salicaceae  
 Arroyo Willow Salix lasiolepis

Maple Family-Aceraceae  
 Bigleaf Maple Acer macrophyllum

Alder Family-Betulaceae  
 White Alder Alnus rhombifolia

Oak Family-Fagaceae  
 Cal Valley Oak Quercus lobata  
 Cal Black Oak Quercus kelloggii  
 Cal Live Oak Q. wislizenii  
 Canyon Oak Q. chrysolepis  
 Oregon Oak Q. garryana  
 Scrub Oak Q. dumosa

Laurel Family-Lauraceae  
 Cal Bay Laurel Umbellularia californica

Pine Family-Pinaceae  
 Ponderosa Pine Pinus ponderosa  
 Douglas Fir Pseudotsuga menziesii  
 Giant Redwood Sequoia sempervirens

#### Grasses, Rushes, and Sedges

Sedge Family-Cyperaceae  
 Carex Carex spp.  
 Umbrella Sedge Cyperus eragrostis

Rush Family-Juncaceae  
 Rush Juncus sp.  
 Iris Leaved Rush Juncus xiphiodes  
 Hairy wood Rush Luzula comosa

----- Original Message -----

From: "gerihs" <[gerihs@pacific.net](mailto:gerihs@pacific.net)>

To: "Linda Gray" <[ukiah@legacy-tlc.org](mailto:ukiah@legacy-tlc.org)>

Sent: Wednesday, May 18, 2005 11:26 AM

Subject: some additions

Hi Linda

It was fun to go out on the ranch last weekend with all those enthusiastic people! Here as a few plants I saw:

*Aster radulinus*

*Briza maxima*

*Cardus pycnocephalus*, Italian thistle

*Castilleja attenuata*, valley tassels

*Festuca arundinacea*

*Galium californicum*, California bedstraw

*Lupinus nanus*

*Trifolium albopurpureum* var. *dichotomum*

I never went back over that other *Castilleja* so I can't call it

*C. densiflora* for sure. It can be a pretty chaotic environment for keying on those trips. Hope all finishes out well on the easement.

Geri

## UNIVERSITY OF CALIFORNIA, DAVIS

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Copies:  
 -Ken  
 -Chet  
 -Linda  
 -Janine

COLLEGE OF AGRICULTURAL AND  
 ENVIRONMENTAL SCIENCES  
 AGRICULTURAL EXPERIMENT STATION  
 COOPERATIVE EXTENSION

Please reply to  
 DEPARTMENT OF ENVIRONMENTAL HORTICULTURE  
 ONE SHIELDS AVENUE  
 DAVIS, CALIFORNIA 95616-8507 USA  
 TELEPHONE: (530) 752-0130  
 FAX: (530) 752-1819

August 21, 2002

Golden Rule Church Association  
 16200 North Highway 101  
 Willits, CA 95490  
 Attention: Tracy Livingston

Dear Mr. Livingston,

In May of this year Linda Gray accompanied our team of botanists to Ridgewood Ranch, Mendocino County. We collected vegetation data as part of a state-wide vernal pool survey being carried out by the University of California, Davis. Some of the pools we sampled were close to Highway 101 and can be located in Township 17 North, Range 13 West on the Laughlin Range USGS Topo map.

These pools represent one of the rarest type of Californian vernal pools that we have so far encountered (600 pools throughout northern California). It is characterized by the unique combination of *Plagiobothrys bracteatus*, *Pleuropogon davyl*, *Juncus tenuis*, *Isoetes howellii*, *Myosotis discolor*, and *Ranunculus pusillus*. This assemblage of species is very local, being known at this time only from a handful of locations in Mendocino County. Other unique features of the pools is their high number of species and the presence of rare semaphore grass, *Pleuropogon davyl*. Davy semaphore grass is on the California Native Plant Society List 4, meaning that it has no protection by any state or federal regulations, but has such a limited range and small number of populations, that it should be watched closely for any downward trend that would make it eligible for state or federal listing. The surrounding matrix of woodland/grassland vegetation is rich in native species.

~~In our professional opinion, these vernal pools deserve protection from development and we strongly support the Mendocino Land Trust's efforts in this regard.~~

Sincerely,

Michael Barbour  
 Professor of Plant Ecology  
 Rod Macdonald  
 Consulting Plant Ecologist  
 Ayzik Solomeshch  
 Ph.D., Dr.Sc. of Plant Ecology

Michael Barbour  
 Rod Macdonald  
 Ayzik Solomeshch

cc. Roger Sternberg



Ridgewood Ranch Vernal pools (08.05.2002)

Michael Barbour - Vernal Pool Survey Data

Table number	1	2	3	4	6	7	8	18	13	20	11	12	14	17	15	19	16	9	5
Relevé number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	4	4	4	4	5	5	5	6	5	6	5	5	5	6	6	6	6	5	5
	6	7	8	9	1	2	3	3	8	5	6	7	9	2	0	4	1	4	0
Field_nr	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1	1
	A	F	C	B	D	E	F	E	D	F	A	H	B	G	C	I	U	G	U
Author code	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
	8	8	4	5	2	2	2	3	8	2	5	5	1	3	1	3	1	2	5
Relevé area (m2)																			
																	1		1
	1	1	1	1	1	1	1	1	1	1	1	1		1		1	0	1	0
	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	0	0	0	0
Cover herb layer (%)	9	9	6	9	8	8	9	7	8	9	8	9	6	6	7	9	9	9	9
	0	6	5	7	5	0	0	0	5	0	0	0	5	5	0	0	0	0	5
Cover algae layer (%)					1	1	1			1									
					0	0	0		1	0									
	5	0	0	0	0	0	0	5	0	0	0	0	1	1	5	0	0	0	0
Cover litter layer (%)			1		1	1	2						1	2	1		1	1	
	5	5	0	1	5	0	0	5	1	0	1	0	3	5	5	5	0	0	3
Aver. height (high) herbs (cm)	1	4	1	2	3	3	2		1				1	2		2	2	2	2
	5	5	2	5	0	2	5	8	2	5	8	8	5	5	8	0	0	0	5
Maximum height herbs (cm)																	1		1
	4	6	2	6	5	5	4	4	3	4	2	1	4	6	1	6	0	3	1
	0	0	0	0	2	6	5	5	0	5	0	5	5	0	5	0	0	8	0
Surr_veget	S	S	S	S	S	S	S	W	W	W	W	W	W	W	W	W	W	S	S
Pool_lengt	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	7	7
	0	0	0	0	0	0	0	6	6	6	6	6	6	6	6	6	6	0	0
Pool_width	7	7	7	7	7	7	7	4	4	4	4	4	4	4	4	4	4	7	7
	0	0	0	0	0	0	0	9	9	9	9	9	9	9	9	9	9	0	0

Table number	1	2	3	4	6	7	8	18	13	20	11	12	14	17	15	19	16	9	5
Max_depth	5	5	5	5	5	5	5	9	9	9	9	9	9	9	9	9	9	5	5
	1	1	1	1	1	1	1	9	9	9	9	9	9	9	9	9	9	1	1
Cov_soil			2		1	2	1	2		1	1		2		1			1	
	1	5	5	2	5	0	0	0	5	0	2	9	0	5	0	5	2	0	2
Cov_crypt	0	0	0	0	0	0	0	0	0	0	8	1	2	3	0	1	1	0	0
Cov_drop	0	0	1	0	0	0	0	1	0	0	1	1	0	2	0	2	1	0	0
Cov_punch	0	0	0	0	0	0	0	4	5	0	3	3	3	2	1	2	0	0	0
Cov_throw	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Rele_lengt																	1		1
	3	3	3	3	3	3	3	5	3	3	5	5	5	5	5	5	0	3	0
	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	2	2	2	2	2	2	2	0	2	2	0	0	0	0	0	0	0	2	0
Rele_width																	1		1
	3	3	3	3	3	3	3	2	3	3	2	2	1	2	1	2	0	3	0
	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	2	2	2	2	2	2	2	0	2	2	0	0	0	0	0	0	0	2	0
Relative_elevation below the pool edge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+
	1	2	5	3	1	2	2	4	4	3	1	1	7	7	1	2	8	1	8
	7	0	0	5	8	3	0	3	3	7	2	9			1		2		3
Posit_pool	5	5	4	3	3	3	3	3	3	4	3	3	4	3	3	3	3	0	3
Phenology	3	4	3	4	4	4	4	2	2	4	4	4	2	4	4	4	4	4	4
Grazing	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Type_anim	-	-	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Pool_shape	1	1	1	1	1	1	1	7	7	7	7	7	7	7	7	7	7	1	1
Date_rel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Table number	1	2	3	4	6	7	8	18	13	20	11	12	14	17	15	19	16	9	5
Utm_base	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Utm_north	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	2	2	2	2	2	2	2	4	4	4	4	4	4	4	4	4	4	2	2
	9	9	9	9	9	9	9	0	0	0	0	0	0	0	0	0	0	9	9
	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	6	6
Utm_east	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	1	1	1	1	1	1	1	3	3	3	3	3	3	3	3	3	3	1	1
	9	9	9	9	9	9	9	7	7	7	7	7	7	7	7	7	7	9	9
	9	9	9	9	9	9	9	6	6	6	6	6	6	6	6	6	6	9	9
	4	4	4	4	4	4	4	6	6	6	6	6	6	6	6	6	6	4	4
Number of species			1								2	1	2	2	1	2	4	2	2
	6	5	0	5	7	9	4	8	7	6	5	8	2	2	8	8	8	0	3

Mentha pulegium	25	5	60	24	10	3	0.4	15	35	30	30	20	7	6	12	10	0.4
Eleocharis palustris	20		0.4	28	0.4	0.4	0.4	8	2	1	0.4		0.4	0.4	0.4		
Lasthenia glaberrima	40		1	45	8	4	20				2		0.4		0.4		
Plagiobothrys bracteatus	0.4										2	3	5	1	30	3	

Pleuropogon californicus v. davyi	3	90	1	1	35	60	70												
Lolium arundinaceum	2	0.4			5	3													
Isoetes howellii								23	40	40	0.4	4	0.4	3	2				
Gratiola ebracteata								15	5	8	3	3	1		3				
Downingia cuspidata									2	10	0.4	0.4	0.4		0.4				
Ranunculus pusillus									0.4	0.4	30	43	5	7					
Trifolium barbigerum											0.4	0.4	3	2	0.4	10	3		
Trifolium variegatum											0.4	0.4	12	2	3	15	5		
Anthoxanthum odoratum											0.1		1	0.4	0.4	25	30		
Lolium perenne s. multiflorum											0.4		0.4		0.4		0.4		
Montia fontana											0.4	0.4	0.4	0.4	0.4	0.4	0.4		
Callitriche marginata								0.4			0.4	0.4	0.4	0.4	0.4				
Eleocharis acicularis v. acicularis											10	10	2						
Crassula aquatica											0.4	0.4	0.4						
Veronica peregrina s. xalapensis											0.1	0.4	0.4						
Lythrum hyssopifolia											0.4	0.4	0.4	0.4		0.4	0.4		
Juncus bufonius											0.4	0.4				0.4	0.4		
Juncus tenuis													0.4	2		10	2	40	
Ranunculus californicus														2		3	2	20	
Geranium dissectum		0.4												5		3	0.4	0.4	
Cerastium glomeratum														0.4		0.4	0.4	0.4	0.4
Aira caryophyllea																0.4	0.4	0.4	0.4
Briza minor										0.1						0.4	0.4	0.4	0.4
Anagallis arvensis														0.4		0.4	3		0.4
Bromus hordeaceus																0.4	2		28
Trifolium subterraneum																0.4	0.4	0.4	3
Hypochaeris glabra																0.4	0.4		0.4
Linum bienne																0.4	0.1	0.4	
Trifolium dubium																1	15		4

Myosotis discolor				0.4		0.1	
Hordeum marinum s. gussonianum	1						0.4
Amaranthus species	0.4						
Callitriche heterophylla	2	2	1	2			
Croton setigerus	0.4						
Cuscuta howelliana	0.4	0.1					
Polygonum arenastrum	1						
Ranunculus lobbii	0.4						
Epilobium torreyi				0.4			
Glyceria occidentalis		0.1		2			
Centaurea solstitialis							3
Amsinckia menziesii v. intermedia							1
Avena barbata						1	0.4
Bromus diandrus							14
Calandrinia ciliata							0.4
Convolvulus arvensis							0.4
Dactylis glomerata							0.4
Erodium botrys						0.4	0.4
Erodium cicutarium							2
Lupinus bicolor						0.4	0.4
Plantago lanceolata							3
Rumex acetosella						0.4	0.4
Trifolium hirtum						0.4	3
Vulpia bromoides							32
Juncus patens	25	8					
Rumex pulcher	2	0.4			2	1	0.4
Carex athrostachya		0.4					
Convolvulus species		0.4					
Carex species				0.4			1
Danthonia californica						2	15
Holcus lanatus							1
Hypochaeris radicata						0.4	0.4
Lathyrus hirsutus							0.4
Leontodon taraxacoides							0.4
Luzula congesta							0.4
Plantago major							10

Sisyrinchium bellum					2	0.4
Beckmannia syzigachne						
Anagallis minima			2	0.4		
Cardamine oligosperma			0.1			
Geranium molle			0.1			0.1
Ranunculus aquatilis	2	1			2	15
Juncus effusus				18		
Rumex conglomeratus				1	2	0.4
Lotus unifoliolatus v. unifoliolatus					0.4	0.4
Zigadenus species					0.1	
Aphanes arvensis						0.4
Brodiaea species						0.4
Camissonia species						1
Cyperus species						0.4
Daucus pusillus						0.4
Dichelostemma capitatum						0.4
Linanthus bicolor						0.4
Lotus micranthus						3
Madia species						5
Nassella pulchra						5
Plagiobothrys fulvus						0.4
Sanicula bipinnatifida						0.4
Trifolium bifidum						0.4
Trifolium ciliolatum						0.4
Triteleia hyacinthina						0.1
Trifolium microdon						1 0.4
Triphysaria pusilla						0.1
Viola douglasii						0.1
Juncus xiphioides					30	
Medicago polymorpha					0.4	
Mimulus guttatus					0.4	1
Isoetes nuttallii						2
Isoetes orcuttii						0.4
Moenchia erecta						0.4
Myosotis species						1
Sagina species						0.4
Trifolium fucatum						0.4

Carex densa  
Deschampsia danthonioides  
Poa annua  
Trifolium willdenowii  
Vulpia microstachys