

# Appendix C – Compatibility Determinations

## **COMPATIBILITY DETERMINATION**

**Use:** Wildlife Observation and Photography on Interpretive Guided Tours

**Refuge Name:**

Hopper Mountain National Wildlife Refuge (NWR), Ventura County, near Fillmore California.  
*<http://www.fws.gov/hoppermountain/HopperMNWR/hoppermtNWR.html>*

**Establishing and Acquisition Authority:**

Hopper Mountain NWR was established in 1974. Legal authority includes the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543: 87 Statute 884), and the Fish and Wildlife Act of 1956 (16 U.S.C. 742f(b)(1)).

**Refuge Purpose(s):**

The U.S. Fish and Wildlife Service (USFWS or Service) acquired these lands "... to conserve (A) fish or wildlife which are listed as endangered species or threatened species ... or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543, as amended).

and

"... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ..." 16 U.S.C. Sec 742f(b)(1) (Fish and Wildlife Act of 1956).

**National Wildlife Refuge System Mission:**

"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd-ee]).

**Description of Use:**

The National Wildlife Refuge System Improvement Act of 1997 identifies environmental interpretation and wildlife observation and photography as well as hunting, fishing and environmental education as priority wildlife-dependent public uses for refuges. As three of the six priority public uses of the Refuge System, these uses are to be encouraged when compatible with the purposes of the refuges. Interpretation and wildlife observation and photography are considered simultaneously in this compatibility determination. The three wildlife-dependent public uses are part of the guided refuge tour program. These uses are described in the Draft Comprehensive Conservation Plan (CCP) and Environmental Assessment (EA) (USFWS 2012) and are incorporated by reference.

The guiding principles of the Refuge System's wildlife observation and wildlife photography programs (Service Manual 605 FW 4 and 5) are to:

- Provide safe, enjoyable, and accessible wildlife viewing opportunities and facilities.
- Promote visitor understanding of, and increase visitor appreciation for, America's natural resources.
- Provide opportunities for quality recreational and educational experiences consistent with criteria describing quality found in Service Manual 605 FW 1.6.
- Minimize conflicts with visitors participating in other compatible wildlife-dependent recreation activities.

The guiding principles of the Refuge System’s interpretive programs (605 FW 7 of the Service Manual) are to:

- Promote visitor understanding of, and increase appreciation for, America’s natural and cultural resources and conservation history by providing safe, informative, enjoyable, and accessible interpretive opportunities, products, and facilities.
- Develop a sense of stewardship leading to actions and attitudes that reflect interest and respect for wildlife resources, cultural resources, and the environment.
- Provide quality interpretive experiences that help people understand and appreciate the individual refuge and its role in the Refuge System.
- Provide opportunities for quality recreational and interpretive experiences consistent with criteria describing quality found in 605 FW 1.6.
- Assist refuge staff, volunteers, and community support groups in attaining knowledge, skills, and abilities in support of interpretation.
- Minimize conflicts with visitors participating in other compatible wildlife-dependent recreational activities.

Wildlife observation and photography interpretive guided tours will be led on Hopper Mountain NWR on a limited basis, by reservation, and on specified dates. Tour participants will have the opportunity to learn about the cultural history and biological resources of the refuge and California Condor Recovery Program (*Gymnogyps californianus*), and may participate in some stewardship activities. Participants must be in good physical condition due to the uneven and challenging terrain. Partner organizations educated in refuge rules and regulations (such as the Friends of California Condors) will be sought to lead tours on the refuge along with refuge staff. Tours will be led at least once per year. Tour sizes will be limited to a minimum of 5 persons and a maximum of 20 persons.

These two wildlife-dependent priority uses will provide opportunities for the public to observe wildlife habitats firsthand and learn about wildlife and wild lands in an unstructured environment. Photographers will gain opportunities to photograph wildlife and natural habitats. These opportunities can result in increased publicity and advocacy for U.S. Fish and Wildlife Service programs.

**Availability of Resources:**

Funding and annual costs required to administer and manage this proposed use as described above are expected to be minimal. Costs are primarily staff time for travel and guiding hikes, and gasoline for station vehicles. These are standard operating costs and are not typically attributed to costs for a specific public use. Annual law enforcement costs associated with this public use are estimated in the table below. There are no construction costs associated with this use. The use is dependent upon adequate funding and resources.

Item	One-Time Cost	Annual Costs
Refuge law enforcement (0.1 FTE)	-	\$9,000
Additional staff time (0.1 FTE)	\$7,500	\$7,500
<b>TOTAL</b>	<b>\$7,500</b>	<b>\$16,500</b>

**Anticipated Impacts of Use:**

Once considered “non-consumptive,” it is now recognized that wildlife observation and wildlife photography can negatively impact wildlife by altering wildlife behavior, reproduction, distribution, and habitat (Purdy et al. 1987, Knight and Cole 1995).

Purdy et al. (1987) and Pomerantz et al. (1988) described six categories of impacts to wildlife as a result of visitor activities. They are:

- 1) Direct mortality: immediate, on-site death of an animal.
- 2) Indirect mortality: eventual, premature death of an animal caused by an event or agent that predisposed the animal to death.
- 3) Lowered productivity: reduced fecundity rate, nesting success, or reduced survival rate of young before dispersal from nest or birth site.
- 4) Reduced use of refuge: wildlife not using the refuge as frequently or in the manner they normally would in the absence of visitor activity.
- 5) Reduced use of preferred habitat on the refuge: wildlife use is relegated to less suitable habitat on the refuge due to visitor activity.
- 6) Aberrant behavior/stress: wildlife demonstrating unusual behavior or signs of stress likely to result in reduced reproductive or survival rates.

Individual animals may be disturbed by human contact to varying degrees. Human activities on trails can result in direct effects on wildlife through harassment, a form of disturbance that can cause physiological effects, behavioral modifications, or death (Smith and Hunt 1995). Many studies have shown that birds can be impacted from human activities on trails when they are disturbed and flushed from feeding, resting, or nesting areas. Flushing, especially repetitive flushing, can strongly impact habitat use patterns of many bird species. Flushing from an area can cause birds to expend more energy, be deterred from using desirable habitat, affect resting or feeding patterns, and increase exposure to predation or cause birds to abandon sites with repeated disturbance (Smith and Hunt 1995). Migratory birds were observed to be more sensitive than resident species to disturbance (Klein 1989).

California condors could possibly be disturbed by human activity. Nest predation for songbirds (Miller et al. 1998) and raptors (Glinski 1976) tend to increase in areas more frequently visited by people. In addition, for many passerine species, primary song occurrence and consistency can be impacted by a single visitor (Gutzwiller et al. 1994). In areas where primary song was affected by disturbance, birds appeared to be reluctant to establish nesting territories (Reijnen and Foppen 1994).

Depending on the species (especially migrants vs. residents), some birds may habituate to some types of recreation disturbance and either are not disturbed or will immediately return after the initial disturbance (Hockin et al. 1992; Burger et al. 1995; Knight and Temple 1995; Madsen 1995; Fox and Madsen 1997).

Of the wildlife observation techniques, wildlife photographers tend to have the largest disturbance impacts (Klein 1993, Morton 1995, Dobb 1998). While wildlife observers frequently stop to view species, wildlife photographers are more likely to approach wildlife (Klein 1993). Even slow approach by wildlife photographers tends to have behavioral consequences to wildlife species (Klein 1993). Other impacts include the potential for photographers to remain close to wildlife for extended periods of time, in an attempt to habituate the wildlife subject to their presence (Dobb 1998) and the tendency of casual photographers, with low-power lenses, to get much closer to their subjects than other activities would require (Morton 1995), including wandering off trails. This usually results in increased disturbance to wildlife and habitat, including trampling of plants.

People can be vectors for invasive plants by moving seeds or other propagules from one area to another. Once established, invasive plants can out-compete native plants, thereby altering habitats and indirectly impacting wildlife. The threat of invasive plant establishment will always be an issue requiring annual monitoring and treatment when necessary. Refuge staff will work at educating the visiting public.

Refuge staff, in collaboration with volunteers, will monitor and evaluate the effects of these priority uses to discern if adverse effects to wildlife or habitats result from the uses. Temporary area closures and seasonal guidelines may be used to minimize impacts.

The Service has completed section 7 ESA compliance on the implementation of CCP activities.

**Public Review and Comment:**

Public review and comments were solicited in conjunction with distribution of the March 2012 Draft CCP/EA for the Hopper Mountain, Bitter Creek, and Blue Ridge NWRs. The Service's responses to comments received were included in the Final CCP/EA.

**Determination:**

Use is Not Compatible

Use is Compatible with the Following Stipulations

**Stipulations necessary to ensure compatibility:**

1. Public access will be restricted to trails, other designated facilities/areas, and appropriate times of year where the least disruption to wildlife (e.g., California condors) and their habitats will occur.
2. Tours will avoid sensitive areas, such as condor nest, feeding and trapping sites.
3. Refuge tours will have an established limit on number of participants.
4. Refuge tours will be led by refuge staff on units with sensitive habitat to prevent impacts, and partners/volunteers leading tours at Hopper Mountain NWR will be trained in refuge rules and regulations.
5. Regulations and wildlife friendly behavior (e.g., requirements to stay on designated trails, no dogs, etc.) will be described prior to organized tours.
6. Collection of plants, animals and other specimens, debris or artifacts will be prohibited unless the collection is part of a refuge-led activity.
7. Regulations will be enforced to ensure public safety and to prevent resource impacts.

**Justification:**

After assessing the potential impacts from the uses proposed for the refuge it was determined that allowing these uses will not materially interfere with or detract from the purposes for which the refuge was created or the mission of the National Wildlife Refuge System. Providing opportunities for interpretation and wildlife observation and photography will contribute toward fulfilling provisions of the National Wildlife Refuge System Administration Act, as amended in 1997. Interpretation and wildlife observation and photography provide an excellent forum for allowing the public access to and increasing understanding of the refuge's resources. These activities will allow visitors to experience and learn about native plant and wildlife species in the Hopper Mountain area, including California condors. The refuge will provide opportunities for wildlife enjoyment not normally available on adjacent private land. Refuge visitors will better understand the challenges facing our wildlife and wild land resources, what effects the public can have on wildlife resources, and learn more about the U.S. Fish and Wildlife Service's role in conservation. With the stipulations considered in this compatibility determination, interpretation and wildlife observation and photography will be compatible with refuge purposes and the Refuge System mission.

**Mandatory Re-Evaluation Date (2028):**

- Mandatory 15-year Re-Evaluation (for priority public uses)
- Mandatory 10-year Re-Evaluation (for all uses other than priority public uses)

**NEPA Compliance for Refuge Use Decision (check one below):**

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision


**References:**

- Burger, J., M. Gochfeld, and L. J. Niles. 1995. Ecotourism and birds in coastal New Jersey: Contrasting responses of birds, tourists, and managers. *Environmental Conservation* 22:56-65.
- Dobb, E. 1998. Reality check: the debate behind the lens. *Audubon*: Jan.-Feb.
- Fox, A. D., and J. Madsen. 1997. Behavioral and distributional effects of hunting disturbance on waterbirds in Europe: implications for refuge design. *The Journal of Applied Ecology* 34:1-13.
- Glinski, R. L. 1976. Birdwatching etiquette: the need for a developing philosophy. *Am. Bird* 30(3):655-657.
- Gutzwiller, K. J., R. T. Wiedenmann, K. L. Clements, and S. H. Anderson. 1994. Effects on human intrusion on song occurrence and singing consistency in subalpine birds. *Auk* 111:28-37.
- Hockin, D., M. Ounsted, M. Gorman, D. Hill, V. Keller, and M. A. Barker. 1992. Examination of the effects of disturbance on birds with reference to its importance in ecological assessments. *Journal of Environmental Management* 36:253-286.
- Klein, M. 1989. Effects of high levels of human visitation on foraging waterbirds at J. N. "Ding" Darling National Wildlife Refuge, Sanibel Florida. Masters thesis. Gainesville, Florida: University of Florida.
- Klein, M. L. 1993. Waterbird behavioral responses to human disturbances. *Wildl. Soc. Bull.* 21:31-39.
- Knight, R. L. and D. N. Cole. 1995. Wildlife responses to recreationists. Pages 71-79 in R. L. Knight and K. J. Gutzwiller, ed. *Wildlife and Recreationists: coexistence through management and research*. Island Press, Washington, D. C. 372pp.
- Knight, R. L. and S. A. Temple. 1995. Origin of wildlife responses to recreationists. In *Wildlife and recreation: coexistence through management and research*. R. L. Knight and K. J. Gutzwiller, eds. Island Press, Washington, D. C., pp 81-91.

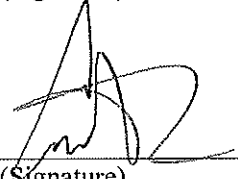
- Madsen, J. 1995. Impacts of disturbance on migratory waterfowl. Ibis 137 Supplemental: S67-S74.
- Miller, S. G., R. L. Knight, and C. K. Miller. 1998. Influence of recreational trails on breeding bird communities. Ecol. Appl. 8:162-169.
- Morton, J. M. 1995. Management of human disturbance and its effects on waterfowl. Pages F59-F86 in W. R. Whitman, T. Strange, L. Widjeskog, R. Whittemore, P. Kehoe, and L. Roberts (eds.). Waterfowl habitat restoration, enhancement and management in the Atlantic Flyway. Third Ed. Environmental Manage. Comm., Atlantic Flyway Council Techn. Sect., and Delaware Div. Fish and Wildl., Dover, DE. 1114pp.
- Pomerantz, G. A., D. J. Decker, G. R. Goff, and K. G. Purdy. 1988. Assessing impact of recreation on wildlife: a classification scheme. Wildl. Soc. Bull. 16:58-62.
- Purdy, K. G., G. R. Goff, D. J. Decker, G. A. Pomerantz, and N. A. Connelly. 1987. A guide to managing human activity on National Wildlife Refuges. Office of Information Transfer, U.S. Fish and Wildlife Service, Ft. Collins, CO. 57 pp.
- Reijnen, R. and R. Foppen. 1994. The effects of car traffic on breeding bird populations in woodland. I. Evidence of reduced habitat quality for willow warbler (*Pyloscopus trochilus*) breeding close to a highway. J. Appl. Ecol 31:85-94.
- Smith, L. and J. D. Hunt. 1995. Nature tourism: impacts and management. Pp. 203-219 in Knight, R. L.; Gutzwiller, K. J. (Wildlife and recreationists: coexistence through management and research, eds.). Island Press, Washington, D. C.

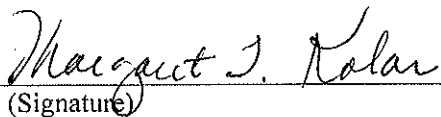
**Refuge Determination**

Prepared by:  6/25/13  
(Signature) (Date)

Refuge Manager/  
Project Leader  
Approval:  6/25/13  
(Signature) (Date)

**Concurrence**

Refuge Supervisor:  7/15/2013  
(Signature) (Date)

Assistant Regional  
Director, Refuges:  7/23/2013  
(Signature) (Date)

## **COMPATIBILITY DETERMINATION**

**Use:** Grazing

**Refuge Name:**

Hopper Mountain National Wildlife Refuge (NWR), Ventura County California  
<http://www.fws.gov/hoppermountain/HopperMNWR/hoppermtNWR.html>

**Establishing and Acquisition Authority:**

Hopper Mountain NWR was established in 1974. Legal authority includes the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543: 87 Statute 884), and the Fish and Wildlife Act of 1956 (16 U.S.C. § 742f(b)(1)).

**Refuge Purpose(s):**

The U.S. Fish and Wildlife Service (USFWS or Service) acquired these lands "... to conserve (A) fish or wildlife which are listed as endangered species or threatened species ... or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543, as amended).

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"... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ..." 16 U.S.C. Sec 742f(b)(1) (Fish and Wildlife Act of 1956).

**National Wildlife Refuge System Mission:**

"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd-ee]).

**Description of Use:**

Prescribed grazing will be used at Hopper Mountain NWR to manage vegetation to meet habitat objectives. Improving habitat through changing grassland structure and composition and also the reduction of annual grass residual dry matter (RDM), including thatch, are the primary goals for this program. Grazing will be conducted in accordance with an annual grazing plan that will outline the specific strategies and monitoring required to track accomplishments and adapt new or revised prescriptions to achieve the objectives. The annual grazing plan will include prescriptions for specified refuge cells (grazing units) including duration and dates. That plan is intended to be a dynamic document: initial stocking rates will be established using production estimates from similar ecological sites, then refined over time based upon information gained by monitoring.

The refuge proposes to implement prescribed livestock grazing as a tool to enhance grassland and forb species composition and diversity to achieve species habitat goals and objectives identified in the Final CCP (USFWS 2013). **Resource target** refers to a specific species or group of species; grazing prescriptions will be implemented primarily for the purpose of improving conditions (habitat quality) for resource targets. Desired habitat conditions associated with resource targets are referred to as **target conditions**. **Target conditions** would be defined and targets established under a monitoring program to determine when objectives have been reached based on annual conditions (such as when RDM has been reduced to a certain level by grazing as determined by the refuge manager).

The timeline for moving livestock on and off the refuge would not be tied to specific dates, but guided by the response of annual vegetation due to yearly variation in climate. Additionally, stocking rates and livestock types applied may vary depending on annual precipitation, slopes, and site conditions. The



Hopper Mountain NWR Complex will issue permits or agreements, such as an annual prescribed grazing plan associated with a Cooperative Land Management Agreement (CLMA) or Special Use Permit (SUP), for livestock grazing at Hopper Mountain NWR. Grazing cooperators will be selected based on their ability to meet the Service's habitat objectives for the particular management unit(s). Prospective cooperators will be evaluated based on a variety of factors such as past experience and performance with similar prescribed grazing efforts, availability of stock to meet grazing prescriptions and schedules, and in-kind work commitments. Each permit will identify the resource targets for specific areas, where grazing will be prescribed primarily to improve habitat conditions for resource targets. The permit will also include reporting requirements for livestock use, construction and maintenance of livestock infrastructure, and required response times for addition or removal of livestock to meet resource target conditions.

To ensure an equal distribution of livestock on grazing units, the refuge will utilize internal fencing. Fencing on the refuge would protect riparian areas, and livestock will be excluded from these areas. The use of temporary electric fence lines may be utilized where appropriate to maintain livestock within the treatment areas. The cooperator will be required to maintain all fencing and management of livestock. The Service will instruct the cooperator to rotate livestock among prescribed grazing units based on vegetation conditions as determined through monitoring.

Livestock distribution would be further managed by the strategic placement of water troughs, salt and mineral licks to meet the needs of the cooperator. These attractants would be placed in areas densely vegetated by annual grasses and at a minimum of 50 meters from riparian areas and designated by the refuge manager as sensitive or exclusion areas, such as cultural resource areas and black walnut woodlands. Specific locations will be stipulated in the annual grazing plan. If changes in the placement or use of these devices are warranted, the refuge manager will consult with the cooperator regarding new locations or notify the cooperator of any impacts from mineral or salt licks.

Enclosure fences would be used to provide control data to better evaluate the effectiveness of prescribed grazing on soil types, disturbance, and water absorption. The Service will compare sets of paired fenced and un-fenced monitoring plots to aid in determining the effectiveness of the prescribed livestock grazing in meeting the management objective. The overall comparative trend between prescribed treatment areas and ungrazed plots will be used by the Service to implement adaptive management.

The annual grazing plan has built-in flexibility due to the uncertainties of annual and seasonal precipitation, flooding, and temperatures, and their consequent effect on vegetation growth. This is to insure that expected conditions are met and that the vegetation is neither overgrazed nor undergrazed—both conditions result in degraded habitat. Included in the annual grazing plan is a project plan, which also specifies by unit: identified facilities and maintenance projects, materials, shared responsibilities, and special management problems and considerations. This is a refuge system management economic activity and its use helps the refuge achieve the purposes for which it was created and the mission of the Refuge System.

**Objectives for Grassland Management and Restoration:**

Within a year of implementation of prescribed grazing plan, we will conduct a baseline inventory of plant species in grassland habitats on the refuge to determine the existing composition and relative abundance.

Starting from implementation of the prescribed grazing plan, we will reduce and maintain biomass of residual dry matter (RDM; the amount of old plant material left on the ground at the beginning of a new growing season) in some areas to improve and maintain habitat for the special status species and secondarily to minimize hazardous fuel conditions as described in the Final CCP (USFWS 2013).

Grazing is intended as a tool to restore a healthy southern California grassland ecosystem by enhancing native plants and animals through reduction of non-native and invasive plants. This will maintain and possibly enhance biodiversity and genetic diversity.

In order to assess whether the objectives have been achieved, the Service will establish a detailed habitat management plan with monitoring objectives and protocols. The Service will review the monitoring results annually to determine the effectiveness of the treatment method in meeting the refuge’s habitat management goals and objectives in the Final CCP (USFWS 2013). The Service will use adaptive management to adjust the prescribed grazing strategy (e.g., number of AUMs, turn-in-date, length of grazing season) to ensure that the habitat objectives are being met. If the above objectives are being achieved, prescribed grazing would continue to be utilized as a tool to enhance habitat until: a) the mandatory compatibility re-evaluation date 10 years from the date of approval of this Determination, b) re-evaluation of the mandatory Comprehensive Conservation Plan, c) any unanticipated negative effects are detected by the monitoring program, d) major new information about the use of prescribed grazing strategies is found, or e) major changes to the program are proposed.

**Availability of Resources:**

Costs to implement the habitat management and restoration program include staff salaries, necessary facility maintenance and construction, supplies and contracted services. It is estimated that the refuge manager would be required to implement the grassland habitat management and restoration program, with approximately 25% of his/her duties directly and indirectly related to the grazing program. Additional support would be required by the wildlife biologists, GS-11 or GS-05-09, assigned to the Hopper Mountain NWR Complex, assisting with biological data collection with approximately 5% of his/her duties directly and indirectly related to the program. Initially, staff time would be spent developing a prescribed grazing plan, monitoring habitat conditions on refuge units open to grazing, developing and administering the permit or agreement, and monitoring livestock grazing operations. In future years, staff time would be spent monitoring habitat conditions, special status species, native species populations, vegetation changes (i.e., RDM), soil impacts, water quality and quantity, and the overall effectiveness of the grazing program in accomplishing refuge objectives. Additional management costs include law enforcement, vehicle use, and office supplies.

Item	One-Time Cost	Annual Costs
Refuge manager salary to administer the grazing program (0.25 FTE) (GS-11/5)	-	\$18,118
Wildlife biologist salary to assist with biological data collection (0.05 FTE) (GS-11/5)	-	\$3,624
Fuel and miscellaneous expenses (maximum)	-	\$10,000
<b>TOTAL</b>	-	\$31,742

Source: 2012 GSA General Schedule salary rates

The permit or agreement established between the refuge and the livestock operators will institute a share-in-kind program in which the livestock operators would maintain grazing facilities (e.g. fences, water lines) and perform habitat improvements as approved in advance, in writing, by the refuge manager (e.g. restore riparian areas, control invasive species) in exchange for the privilege to graze on the refuge. The rate charged, per AUM, would incorporate the re-evaluation findings of the previous year’s fair market value for comparable range based on analysis obtained from the California Agricultural Statistics Service, consistent with a reappraisal conducted every five years. Work performed by the livestock operators would be documented in quarterly reports by the operator.

Sufficient funding exists for the Service to implement the proposed targeted use. The use would be authorized on a share-in-kind basis.

**Anticipated Impacts of the Use:**

Prehistoric and historical grazers/browsers were an important part of the Californian landscape (Edwards 2007). Domestic livestock can be an appropriate tool for habitat management in grasslands (Barry 2003; Briske et al. 2011; Germano et al. 2012; Griggs 2000; Thomsen et al. 1993), and livestock grazing remains a tool for ecosystem restoration (Huntsinger et al. 2007, Papanastasis 2009). Published research evaluating the use of grazing as a conservation tool for native vegetation restoration and management reports mixed results for California (Kimball and Schiffman 2003, Huntsinger et al. 2007). “Grazing” is very poorly characterized in many studies, making results difficult to properly interpret (Huntsinger et al. 2007). In a meta-analysis of grazing studies in California’s Mediterranean-type grasslands, Stahlheber and D’Antonio (2013) reported that grazing often increased native grasses, but also non-native forbs, and sometimes increased native forbs. The results all appeared to be highly site-specific and dependent on weather patterns.

Habitat manipulation often positively impacts one species (or group), while negatively impacting other species. Thus, characterizing the effects of grazing depends on a narrow frame of reference and is likely to be very site-specific (Jackson and Bartolome 2007).

Cattle are generalist herbivores that prefer grasses like those dominating the California annual-type grassland (Van Dyne and Heady 1965). As a result, some wildflowers (also referred to as forbs and legumes) may benefit from the reduction of non-native annual grass biomass, including active growing plants and standing dead plant material and thatch (Huenneke et al. 1990).

Implementation of grazing for habitat enhancement requires clear goals, adaptive management, and effective monitoring. There are many uncertainties associated with vegetation management in xeric Mediterranean climates, meaning that costly site-specific research studies are not effective. An exhaustive research effort may be inadequate because of site and time specific responses (Herrick et al. 2012), refuge managers will therefore implement adaptive management and long-term monitoring of RDM and refuge management targets (i.e., endangered and threatened species, species of concern, migratory birds, special status plants), which will be incorporated into adaptive refuge management activities under dynamic natural and logistical conditions.

Grazing on the refuge may also have beneficial and adverse effects on the endangered California condor’s (*Gymnogyps californianus*) use of the area and its critical habitat on the refuge. Carrion from domestic livestock are known to be a food source of condors (Meretsky et al. 2000, Brandt and Massey 2009), but the human activity associated with grazing may disturb condors while feeding or while in a flight pen.

The Service has completed section 7 ESA compliance on the implementation of CCP activities.

**Public Review and Comment:**

Public review and comments were solicited in conjunction with distribution of the March 2012 Draft CCP/EA for the Hopper Mountain, Bitter Creek, and Blue Ridge NWRs. The Service’s responses to comments received were included in the Final CCP/EA.

**Determination:**

The grazing program as described is determined to be compatible. The refuge manager and biologist would ensure the grazing program and associated projects contribute to the enhancement, protection, conservation, and management of native wildlife populations and their habitats thereby helping the refuge

fulfill the purposes, for which it was established, the mission of the National Wildlife Refuge System, and the need to maintain ecological integrity, diversity, and environmental health.

Use is Not Compatible

Use is Compatible with the Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

1. Refuge managers will implement long-term monitoring of RDM and refuge resource targets (i.e., endangered and threatened species, species of concern, migratory birds, special status plants), which can be used to adapt refuge management activities to dynamic natural and logistical conditions.
2. Evaluation of the need and methods for vegetation management, including use of grazing, will be determined during annual reviews and articulated in Annual Habitat Work Plans (Plan) for each refuge unit. Special considerations for each unit, such as, but not limited to, cultural or natural resources, including listed and candidate species, will be identified in each Plan.
3. All grazing will be conducted in accordance with the stipulations identified in the agreement or permit that authorizes grazing privileges for a cooperator. Stipulations will include timing, location(s), stocking densities, access, geographic origin of livestock (to reduce the risk of introducing invasive plants), and other pertinent details. Cooperators will be responsible for all facility maintenance as stipulated in the agreement/permit. All refuge rules and regulations shall be followed by the livestock grazing cooperator unless otherwise approved in writing by the refuge manager.
4. If adverse effects of grazing are detected and cannot be eliminated or mitigated to sufficiently protect natural and cultural resources, the Service may discontinue grazing activities with reasonable notice to cooperators.
5. The Service will set and enforce limits (as needed) on numbers of vehicles, people, livestock (including type), supplemental feed, and equipment used for grazing operations.
6. Human activity shall not be allowed around condor baiting stations while condors are present or when feeding stations are baited. While the grazing animals are not a concern, any human activity related to the grazing should be restricted so as not to disturb these condor management areas.

**Justification:**

The program as described is determined to be compatible. Based upon impacts described in the Comprehensive Conservation Plan and Environmental Assessment (USFWS 2013), it is determined that grazing within Hopper Mountain NWR as described herein, will not materially interfere with or detract from the purposes for which the refuges were established or the mission of the Refuge System. As prescribed, livestock grazing is expected to directly benefit and support refuge goals, objectives and management plans and activities. Wildlife, plants and their habitat will improve through vegetation management, which will result in short-term and long-term reductions of non-native invasive plant species, increases in native plants, increases in biomass, improved foraging conditions for migratory birds and local deer herds, and long-term improved nesting conditions. Consequently, the livestock grazing program is expected to increase or maintain biological integrity, diversity and environmental health. The Service has concluded that grazing will not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of Hopper Mountain NWR.

**Mandatory Re-Evaluation Date (2023):**

Mandatory 15-year Re-Evaluation (for priority public uses)

Mandatory 10-year Re-Evaluation (for all uses other than priority public uses)

**NEPA Compliance for Refuge Use Decision** (check one below):

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

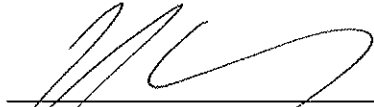
**References:**

- Barry, S. 2003. Using planned grazing to manage for native grasslands. Pages 1–10, in Section 14, Grazing. Techniques and Strategies for Using Native Grass and Graminoids in Revegetation and Restoration. California Native Grass Association.
- Brandt, Joseph and Blake Massey. 2009. Recent Use of Domestic Ungulates as a Non-proffered Food Source in Reintroduced Population of California Condors: Implications and Outlook. Poster presented at the 3<sup>rd</sup> International Symposium on Management of Animal Carcasses, Tissue and Related Byproducts, University of California, Davis, July 21-23, 2009. Hopper Mountain National Wildlife Refuge Complex. U.S. Fish and Wildlife Service.
- Briske, D.D., J.D. Derner, and D.G. Milchunas. 2011. An evidence-based assessment of prescribed grazing practices. Pp. 21-74 in: Briske, D.D. (ed.) Conservation benefits of rangeland practices. USDA NRCS.
- Edwards, S. W. 2007. Rancholabrean mammals of California and their relevance for understanding modern plant ecology. Pp. 48-52. In: Stromberg, M.R. et al. California grasslands: ecology and management. UC Press.
- Germano, D.J., G.B. Rathbun, and L.R. Saslaw. 2012. Effects of grazing and invasive grasses on desert vertebrates in California. *J. Wildl. Manage.* 76:670-682.
- Griggs, F.T. 2000. Vina Plains Preserve: eighteen years of adaptive management. *Fremontia* 27(4) & 18(1): 48–51.
- Herrick, J.E., M. Duniway, D.A. Pike, B.T. Bestelmeyer, S.A. Wills, J.R. Brown, J.W. Karl, K.M. Havstad. 2012. A holistic strategy for adaptive land management. *Journal of Soil Water Cons.* 67(4):105A-113A.
- Huenneke, L., S. Hamburg, R. Koide, P. Vitousek, and H. Mooney. 1990. Effects of soil resources on plant invasion and community structure in Californian serpentine grassland. *Ecology* 71:478–491.
- Huntsinger, L., James W. Bartolome and Carla M. D’Antonio. 2007. Grazing management on California’s Mediterranean grasslands. Pp. 233-253 In: Stromberg, M.R. et al. California grasslands: ecology and management. UC Press.
- Jackson, R.D. and J.W. Bartolome. 2007. Grazing ecology of California grasslands. Pp. 197-206 In: Stromberg, M.R. et al. California grasslands: ecology and management. UC Press.
- Kimball, S. and P.M. Schiffman. 2003. Differing effects of cattle grazing on native and alien plants. *Conservation Biology* 17(6): 1681–1693.

- Meretsky, V. J., N. F. R. Snyder, S. R. Beissinger, D. A. Clendenen, and J. W. Wiley. 2000. Demography of the California Condor: implications for reestablishment. *Conservation Biology* 14:957-967.
- Papanastasis, V.P. 2009. Restoration of degraded grazing lands through grazing management: can it work? *Restoration Ecology* 17(4): 441–445.
- Stahlheber, K.A. and C.D. D’Antonio. 2013. Managing plant composition with livestock: a meta-analysis of grazing in California’s Mediterranean grasslands. *Biological Conservation*.
- Thomsen, C.D., W.A. Williams, M. Vayssières, F.L. Bell, and M.R. George. 1993. Controlled grazing on annual grassland decreases yellow starthistle. *California Agriculture* 47:36–40.
- USFWS (U.S. Fish and Wildlife Service). 2013. Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges, Final Comprehensive Conservation Plan/Environmental Assessment (CCP/EA). Prepared by Hopper Mountain National Wildlife Refuge Complex, Ventura, CA and Pacific Southwest Region, Sacramento, CA.
- Van Dyne, G.M. and H.F. Heady. 1965. Botanical composition of sheep and cattle diets on a mature annual range. *Hilgardia* 36:465-492.

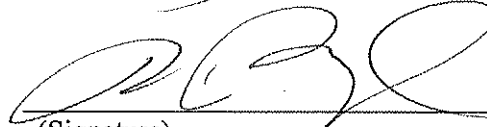
**Refuge Determination**

Prepared by:

  
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(Signature)

6/28/13  
(Date)

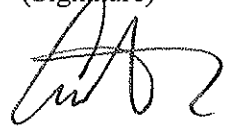
Refuge Manager/  
Project Leader  
Approval:

  
\_\_\_\_\_  
(Signature)

6/28/13  
(Date)

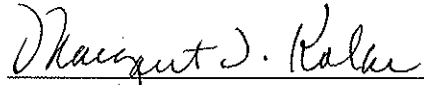
**Concurrence**

Refuge Supervisor:

  
\_\_\_\_\_  
(Signature)

7/16/2013  
(Date)

Assistant Regional  
Director, Refuges:

  
\_\_\_\_\_  
(Signature)

7/23/2013  
(Date)

## **COMPATIBILITY DETERMINATION**

**Use:** Plant gathering

**Refuge Name:**

Hopper Mountain National Wildlife Refuge (NWR), Ventura County, California.

<http://www.fws.gov/hoppermountain/HopperMNWR/hoppermtNWR.html>

**Establishing and Acquisition Authority:**

Hopper Mountain NWR was established in 1974. Legal authority includes the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543: 87 Statute 884), and the Fish and Wildlife Act of 1956 (16 U.S.C. § 742f(b)(1))

**Refuge Purpose(s):**

The U.S. Fish and Wildlife Service (USFWS or Service) acquired these lands "... to conserve (A) fish or wildlife which are listed as endangered species or threatened species ... or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543, as amended).

and

"... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ..." 16 U.S.C. Sec 742f(b)(1) (Fish and Wildlife Act of 1956).

**National Wildlife Refuge System Mission:**

"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd-ee]).

**Description of Use:**

Gathering of plants on Hopper Mountain NWR by local Native American tribal members has occurred historically and has been a periodic use, usually once a year by a group of 4 people. Plants, specifically hemp dogbane (*Apocynum cannabinum*), are collected for a variety of uses, including ceremonial and artistic purposes such as basket weaving. The amount of plant material being harvested is typically small and is not expected to increase. The use of refuge lands for plant gathering is important to Native American cultural groups. A Special Use Permit (SUP) will be issued for all approved plant gathering/collection activities. SUPs will contain specific terms and conditions the gatherer(s) must follow relative to activity, location, duration, seasonality, etc., to ensure continued compatibility.

Limited plant gathering activities may be considered by the refuge manager on Hopper Mountain NWR upon request depending on plant population sizes and distribution. Qualified botanists, such as botanists from the University of California-Santa Barbara who have experience collecting plants on the refuge for cultural purposes and who are educated in refuge rules and regulations, may be sought to assist with plant gathering activities along with refuge staff.

**Availability of Resources:**

Funding and annual costs required to administer and manage plant gathering activities as described above are expected to be minimal and will be available in the existing budget.



**Anticipated Impacts of Use:**

Anticipated impacts to habitat and wildlife associated with plant gathering on the refuge are expected to be minimal. The amount of plant material being harvested is very small in comparison to the material growing on the refuge (harvests shall be less than 1 cubic yard of plant material or less than 300 square feet on less than 1 percent of the refuge). The Service anticipates that plant gathering will have an insignificant impact on marsh habitat at the man-made wetland. Cuttings from perennial plant species are typically requested, which result in no plant mortality. No special status species will be gathered. The level of disturbance to wildlife is also minor and long-term effects would be negligible because conditions of SUPs would ensure that impacts, such as disturbance to wildlife and habitats, are avoided or minimized. Areas used will be closely monitored to evaluate the impacts on the resource. If adverse impacts appear, the activity may be moved to secondary locations or eliminated entirely. While the activity of gathering may have short-term impacts on individual plants and wildlife, no adverse long-term impacts on wildlife or plant populations are anticipated. This activity should not result in short- or long-term impacts that adversely affect the purposes of the refuge or the mission of the National Wildlife Refuge System. Plant gathering on the refuge has been designed to avoid or minimize impacts anticipated to the refuge's resources.

The Service has completed section 7 ESA compliance on the implementation of CCP activities.

**Public Review and Comment:**

Public review and comments were solicited in conjunction with distribution of the March 2012 Draft CCP/EA for the Hopper Mountain, Bitter Creek, and Blue Ridge NWRs. The Service's responses to comments received were included in the Final CCP/EA.

**Determination:**

Use is Not Compatible

Use is Compatible with the Following Stipulations

**Stipulations necessary to ensure compatibility:**

1. A special use permit will be issued for approved plant gathering activities. SUPs will contain specific terms and conditions the gatherer(s) must follow relative to activity, location, duration, seasonality, etc., to ensure continued compatibility. All refuge rules and regulations must be followed, unless otherwise excepted in writing by refuge management.
2. Areas used will be closely monitored to evaluate the impacts on the resource. If adverse impacts appear, the activity may be moved to secondary locations or eliminated.
3. Plant gathering will have a limited number of participants.
4. Regulations will be enforced to ensure public safety and to prevent adverse effects to resources.

**Justification:**

Although plant gathering is not a wildlife-dependent recreational use, it is an activity that contributes to environmental education and awareness, and to maintenance of cultural ties to the land. The stipulations outlined above should minimize potential impacts relative to wildlife/human interactions. The Service has concluded that implementing plant gathering for cultural purposes will not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the refuge.

**Mandatory Re-Evaluation Date (2023):**

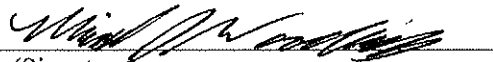
- Mandatory 15-year Re-Evaluation (for priority public uses)
- Mandatory 10-year Re-Evaluation (for all uses other than priority public uses)

**NEPA Compliance for Refuge Use Decision (check one below):**

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

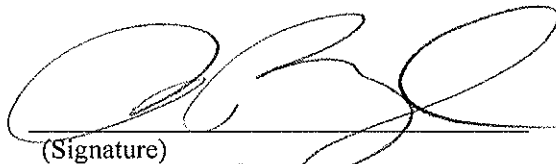
**Refuge Determination**

Prepared by:

  
(Signature)

6/25/13  
(Date)


Refuge Manager/  
Project Leader  
Approval:

  
(Signature)

6/25/13  
(Date)

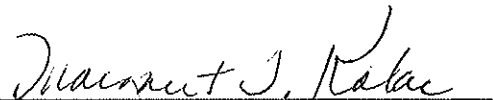
**Concurrence**

Refuge Supervisor:

  
(Signature)

7/16/2013  
(Date)

Assistant Regional  
Director, Refuges:

  
(Signature)

7/23/2013  
(Date)

## **COMPATIBILITY DETERMINATION**

**Use:** Research

**Refuge Name:** Hopper Mountain National Wildlife Refuge, Ventura County, California.  
*<http://www.fws.gov/hoppermountain/HopperMNWR/hoppermtNWR.html>*

### **Establishing and Acquisition Authority:**

Hopper Mountain National Wildlife Refuge was established in 1974. Legal authority includes the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543: 87 Statute 884), and the Fish and Wildlife Act of 1956 (16 U.S.C. § 742f(b)(1))

### **Refuge Purpose(s):**

The U.S. Fish and Wildlife Service (USFWS or Service) acquired these lands "... to conserve (A) fish or wildlife which are listed as endangered species or threatened species ... or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543, as amended).

and

"... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ..." 16 U.S.C. Sec 742f(b)(1) (Fish and Wildlife Act of 1956).

### **National Wildlife Refuge System Mission:**

"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd-ee]).

### **Description of Use:**

Two provisions of the National Wildlife Refuge Improvement Act are to "maintain biological integrity, diversity and environmental health" and to conduct "inventory and monitoring." Research investigations are designed to address these provisions by answering specific management questions. These include, but are not limited to, evaluation of vegetation and wildlife response to habitat management techniques, wildlife and plant population monitoring, documentation of seasonal wildlife movements and habitat use, wildlife disease investigations, and development of invasive species management techniques. Pertinent results from research investigations are incorporated into management plans and actions, and help strengthen the decision-making process.

The refuge proposes to give priority to studies that contribute to the enhancement, protection, preservation, and management of native refuge plant and wildlife populations and their habitats. Research applicants are required to submit a proposal that outlines: (1) objectives of the study; (2) justification for the study; (3) detailed methodology and schedule; (4) potential impacts on refuge wildlife or habitat, including disturbance (short and long term), injury, or mortality (this includes a description of measures the researcher will take to reduce disturbance or impacts); (5) research personnel required; (6) status of necessary permits; (7) costs to refuge, if any; and (8) progress reports and end products (i.e., reports, thesis, dissertations, publications). Research proposals are reviewed by refuge staff, and if approved, a Special Use Permit (SUP) is issued by the refuge manager to formally authorize any project. Each SUP will include case-specific stipulations and will be reviewed annually.

Evaluation criteria will include, but not be limited to, the following:

- Research that will contribute to specific refuge management issues will be given higher priority over other research requests.

- Research that will conflict with other ongoing research, monitoring, or management programs will not be approved.
- Research projects that can be accomplished off-refuge are less likely to be approved.
- Research that causes undue disturbance or is intrusive will likely not be approved. Level and type of disturbance will be carefully evaluated when considering a request. Suggestions may be made to adjust the location, timing, scope, number of permittees, study methods, number of study sites, etc.
- If staffing or logistics make it impossible for the refuge to monitor researcher activity in a sensitive area, the research request may be denied.
- The length of the project will be considered and agreed upon before approval. Projects will be reviewed annually.

**Availability of Resources:**

Some staff time would be required to review research requests and manage research activities. However, refuge staff would not be expected to commit weekly staff time to managing this use. Adequate funding and staff exist to manage research activities at Hopper Mountain NWR.

**Anticipated Impacts of Use:**

Conducting management-oriented research will benefit refuge fish, wildlife, plant populations, and their habitat. Monitoring and research investigations will be designed to answer habitat or population management questions, thereby contributing to adaptive management of the refuge. Natural resources inventory, monitoring and research are necessary tools towards maintaining biological integrity, diversity and environmental health. Information gained from quality research will improve habitat and wildlife populations.

Some negative direct and indirect effects would occur through disturbance, which is expected with some research activities, especially where researchers are entering sensitive habitat areas. Researcher disturbance would include actions like altering wildlife behavior and habitat, going off designated trails, collecting soil, plant and animal samples, trampling of plants and animals, introduction of invasive organisms (e.g., non-native weeds), or trapping and handling wildlife. However, most of these effects would be short-term because only the minimum of samples (e.g., water, soils, vegetative litter, plants, macroinvertebrates) required for identification and/or experimentation and statistical analysis would be permitted and captured and marked wildlife would be released. Long-term effects would be negligible because refuge evaluation of research proposals and conditions of SUPs would ensure that impacts, such as disturbance and introduction of invasive organisms, to wildlife and habitats are avoided or minimized. Refuge staff would ensure research projects contribute to the enhancement, protection, preservation, and management of native refuge wildlife populations and their habitats, thereby helping the refuge fulfill the purposes for which it was established and the mission of the National Wildlife Refuge System.

**Public Review and Comment:**

Public review and comments were solicited in conjunction with distribution of the March 2012 Draft CCP/EA for the Hopper Mountain, Bitter Creek, and Blue Ridge NWRs. The Service's responses to comments received were included in the Final CCP/EA.

**Determination:**

This program as described is determined to be compatible. Potential impacts of research activities on refuge resources will be minimized because sufficient restrictions and safeguards would be included in the SUP, and research activities will be monitored by the refuge manager. The refuge manager would ensure that proposed monitoring and research investigations would contribute to the enhancement, protection, conservation, and management of native refuge wildlife populations and their habitats thereby

helping the refuge fulfill the purposes for which it was established, the mission of the National Wildlife Refuge System, and the need to maintain ecological integrity, diversity, and environmental health.

Use is Not Compatible

Use is Compatible with the Following Stipulations

**Stipulations necessary to ensure compatibility:**

The criteria for evaluating a research proposal, outlined in the Description of Use section above, will be used when determining whether a proposed study will be approved on the refuge.

1. If proposed research methods are evaluated and determined to have potential adverse impacts on refuge wildlife or habitat, then the refuge staff would determine the utility and need of such research to conservation and management of refuge wildlife and habitat.
2. If the need was demonstrated by the research permittee and accepted by the refuge, then measures to minimize potential impacts (e.g., reduce the numbers of researchers entering an area, restrict research in specified areas) would be developed and included as part of the study design and SUP. SUPs will contain specific terms and conditions the researcher(s) must follow relative to activity, location, duration, seasonality, etc. to ensure continued compatibility.
3. All refuge rules and regulations must be followed unless otherwise accepted in writing by refuge management.
4. Prior to initiating research activities, the researcher is responsible for securing all required permits and completing all environmental compliance requirements. For example, if the proposed research activity may affect listed species, the researcher is responsible for ensuring compliance with section 10 of the Endangered Species Act.
5. Refuge staff will monitor researcher activities for potential impacts to the refuge and for compliance with conditions on the SUPs.
6. Research activities will be modified to avoid harm to sensitive wildlife and habitat when unforeseen impacts arise.
7. The refuge manager may determine that previously approved research and SUPs be terminated due to observed impacts.
8. The refuge manager will also have the ability to cancel an SUP if the researcher is out of compliance with the conditions of the SUP.

**Justification:**

Wildlife habitat research and monitoring are needed to understand impacts of all management activities on the refuge. After assessing the potential impacts from the uses proposed for the refuge, we have found that allowing these uses would not materially interfere with or detract from the purposes for which the refuge was established or the mission of the Refuge System. In fact, well-designed research investigations will directly benefit and support refuge goals, objectives and management plans and activities. Wildlife and plants and their habitat will improve through the application of knowledge gained from monitoring and research. Biological integrity, diversity and environmental health would benefit from scientific research conducted on natural resources at the refuge. The wildlife-dependent, priority public uses (wildlife viewing and photography, environmental education and interpretation) could also benefit.

**Mandatory Re-Evaluation Date (2023):**

- Mandatory 15-year Re-Evaluation (for priority public uses)
- Mandatory 10-year Re-Evaluation (for all uses other than priority public uses)

**NEPA Compliance for Refuge Use Decision (check one below):**

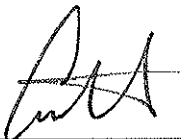
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- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

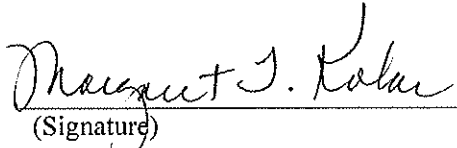
**Refuge Determination**

Prepared by:  6/25/13  
(Signature) (Date)

Refuge Manager/  
Project Leader  
Approval:  6/25/13  
(Signature) (Date)

**Concurrence**

Refuge Supervisor:  7/16/2013  
(Signature) (Date)

Assistant Regional  
Director, Refuges:  7/23/2013  
(Signature) (Date)

## **COMPATIBILITY DETERMINATION**

**Use:** Interpretation

**Refuge Name:**

Bitter Creek National Wildlife Refuge, Kern County, California.

<http://www.fws.gov/hoppermountain/BitterCreekNWR/BittercreekNWR.html>

**Establishing and Acquisition Authority:**

Bitter Creek National Wildlife Refuge was established in 1985. Legal authority includes the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended.

**Refuge Purpose(s):**

The U.S. Fish and Wildlife Service (USFWS or Service) acquired these lands "... to conserve (A) fish or wildlife which are listed as endangered species or threatened species ... or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543, as amended).

**National Wildlife Refuge System Mission:**

"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd-ee]).

**Description of Use:**

The National Wildlife Refuge System Improvement Act of 1997 identifies interpretation as well as environmental education, hunting, fishing, wildlife observation, and photography as priority wildlife-dependent public uses for refuges. As one of the six priority public uses of the Refuge System, this use is to be encouraged when compatible with the purposes of the refuges. Many elements of interpretation are also similar to opportunities provided in the wildlife observation and photography programs. These uses are identified and discussed in detail in the Draft Comprehensive Conservation Plan (CCP) and Environmental Assessment (EA) which is incorporated by reference.

The guiding principles of the Refuge System's interpretive programs (605 FW 7 of the Service Manual) are to:

- Promote visitor understanding of, and increase appreciation for, America's natural and cultural resources and conservation history by providing safe, informative, enjoyable, and accessible interpretive opportunities, products, and facilities;
- Develop a sense of stewardship leading to actions and attitudes that reflect interest and respect for wildlife resources, cultural resources, and the environment;
- Provide quality interpretive experiences that help people understand and appreciate the individual refuge and its role in the Refuge System;
- Provide opportunities for quality recreational and interpretive experiences consistent with criteria describing quality found in 605 FW 1.6;
- Assist refuge staff, volunteers, and community support groups in attaining knowledge, skills, and abilities in support of interpretation; and
- Minimize conflicts with visitors participating in other compatible wildlife-dependent recreational activities.

The Refuge would develop on-site interpretative signs and conduct interpretive tours to provide more opportunities for participants of all ages to learn about the Refuge, National Wildlife Refuge System, California condors (*Gymnogyps californianus*) and local wildlife populations and habitats.

The Refuge would construct a trail on the refuge lands off of Klipstein Canyon Road and develop a self-guided interpretive infrastructure using interpretive panels at the trailhead and points of interest (e.g., restoration sites, wildlife viewing areas). A general information kiosk would be installed at the start of the trail, providing Refuge information (e.g., map of the area, rules and regulations). In order to provide an interpretive experience for the portions of the Refuge closed to the public, a visitor contact station will be installed at the old Cliff Hudson home site where the administrative building and parking area will be located and interpretive/information panels will be installed at the condor observation point near the upper refuge sign off Cerro Noroeste. In addition to installing a visitor contact station at the old Cliff Hudson home site, old dilapidated structures would be removed and some cultural/historic structures would be restored for interpretation.

Staff-guided interpretive walks on parts of the Refuge would be led at least one time per year; the Refuge is otherwise closed to public use. Partner organizations, such as the Friends of California Condors Wild and Free, educated in Refuge rules and regulations, would be sought to assist in leading these tours.

Elements required for conducting the interpretive program include:

- Develop and install general information kiosk and interpretive panels required for the self guided interpretive trail off Klipstein Canyon Road.
- Develop and install interpretive signage at the old Cliff Hudson home site and condor observation point near the upper refuge sign off Cerro Noroeste Road.
- Develop a safe pull-off area on Cerro Noroeste Road for the condor observation point.
- Create parking area off Klipstein Canyon Road for trail users.

**Availability of Resources:**

Additional funds would be required to fully implement the interpretive trails, signs, and parking infrastructure. Funding will be sought through the Service budget process. Other sources may be sought through partnerships, grants, and additional refuge operations funding to support a safe and quality program as described above. Maintenance of the additional infrastructure will require additional staff time for mowing, trail, kiosk and sign repair, and trash collection throughout the year.

The following funding/annual costs (based on FY 2010 costs) would be required to administer and manage interpretation activities as described above:

Item	One-Time Cost	Annual Costs
Remove dilapidated structures and restore some cultural/historic structures at the old Cliff Hudson home site	\$3,000	\$500
Provide bilingual visitor contact station at old Cliff Hudson home site	\$270,000	\$2,500
Create and install parking area and self-guided interpretive infrastructure along trail at Klipstein Canyon Road	\$30,000	\$500
Install bilingual information signage at condor observation point near upper refuge sign off Cerro Noroeste Road	\$30,000	\$500
Additional staff time (0.1 FTE)	-	\$7,500
Refuge law enforcement officer (0.1 FTE)	-	\$9,000
<b>TOTAL</b>	<b>\$333,000</b>	<b>\$20,500</b>



### **Anticipated Impacts of Use:**

Visitor interpretative infrastructure includes installation of visitor contact station, interpretive trail at Klipstein Canyon Road, and condor observation point. The Service anticipates that construction and maintenance of trails and parking lots will have minor, localized effects on soils and vegetation. The majority of the improvements would be sited in areas already disturbed or vegetated with non-native species. Adverse effects include an increased potential for erosion, soil compaction (Liddle 1975), reduced seed emergence (Cole and Landres 1995), alteration of vegetative structure and composition, and sediment loading (Cole and Marion 1988) at the installation sites. However, these potentially adverse temporary effects during installation will be mitigated with best management construction practices (see Appendix 1 to the EA).

Ongoing human use of the visitor contact station, interpretive trail at Klipstein Canyon Road, and condor observation point may have the following temporary effects on wildlife. The presence of humans will disturb wildlife causing temporary displacement without long-term effects on populations. Some species will avoid the areas people frequent, while others will seemingly be unaffected by the presence of humans. The response of wildlife to human activities includes: site departure (Owen 1973, Burger 1981, Henson and Grant 1991, Klein 1993), use of suboptimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior (Burger 1981, Morton et al. 1989, Havera et al. 1992, Klein 1993), and increase in energy expenditure (Morton et al. 1989, Belanger and Bedard 1990). The location of recreational activities impacts species in different ways. Miller et al. (1998) found that nesting success was lower near recreational trails, where human activity was common, than at greater distances from the trails. A number of species have shown greater reactions when pedestrian use occurred off trail (Miller et al. 1998).

For songbirds, Gutzwiller et al. (1997) found that singing behavior of some species was altered with low levels of human intrusion. Pedestrian travel can impact normal behavioral activities, including feeding, reproductive, and social behavior. Studies have shown that ducks and shorebirds are sensitive to pedestrian activity (Burger 1981, 1986). In areas where human activity is common, birds tolerated closer approaches than in areas receiving less activity.

Education helps make visitors aware that their actions can have negative effects on birds, and will increase the likelihood that visitors will abide by restrictions on their actions. For example, Klein (1993) demonstrated that visitors who had spoken with refuge staff or volunteers were less likely to disturb birds. Increased surveillance and imposed fines may also help reduce visitor caused disturbance (Knight and Gutzwiller 1995). Monitoring is recommended to adjust management techniques over time, particularly because it is often difficult to generalize about the impacts of specific types of recreation in different environments. Local and site-specific knowledge is necessary to determine effects on birds and to develop effective management strategies (Hockin et al. 1992; Hill et al. 1997). Informed management decisions coupled with sufficient public education could do much to mitigate disturbance effects of wildlife-dependent recreations (Purdy et al. 1987).

Interpretation activities generally support a refuge's purposes and impacts can largely be minimized (Goff et al. 1988). The minor resource impacts attributed to these activities are generally outweighed by the benefits gained by educating present and future generations about refuge resources. Interpretation activities are public use management tools used to develop a resource protection ethic within society. This tool allows us to educate refuge visitors about endangered and threatened species management, wildlife management and ecological principles and communities. A secondary benefit of interpretation is that it instills an "ownership" or "stewardship" ethic in visitors and most likely reduces vandalism, littering and poaching. It also strengthens U.S. Fish and Wildlife Service visibility in the local community.

In the past, human/condor interactions have been a major concern of the recovery effort. Captive reared birds released into the wild were thought to be prone to human oriented behaviors which can increase the likelihood of injury or harm (Meretsky et al. 2000). As the population has become older and more established in the wild these behaviors have become less frequent but can still occur where condors and human activity come in close proximity to one another (Cade et al 2004). In order to avoid interaction between humans and free flying condors large portions of the refuge will remain closed or have very limited guided public use. The interpretive trail located on Klipstein Canyon is not anticipated to impact or disturb condor use of the refuge nor should it impede condor management activities. The trail will be sited in a low lying area where condors are not known to regularly occur. The trail is located far from any sensitive management areas and avoids ridges or high points which eliminate the chances of disturbing condors and avoids the risk of human condor interactions. Traffic on the trail is not anticipated to drastically increase overall human activity on the refuge and would likely be less than many other areas within the condor's range where hiking trails exist and human activities occurs at much higher levels without a problem, such as Pinnacles National Monument, a release site for condors in central California.

The refuge observation point/overlook which is to be sited near the southern boundary sign Cerro Noroeste Road is located far from any condor sensitive areas, such as traditional roosts or feeding stations which eliminates the chances of disturbing condors. However, it does pose an increased chance for condors and humans to interactions to occur as condors are known to fly above this area from time to time. This risk can be minimized greatly by ensuring condors are not given areas where they are able to perch on or near the overlook's structures. The site location is already without any natural perches and by not creating man made perches where condors and humans could come into close proximity the risk of deleterious interactions can be greatly minimized.

The visitor contact station is sited where there are currently existing structures and is not anticipated to disturb condors.

The Service has completed section 7 ESA compliance on the implementation of CCP activities.

**Public Review and Comment:**

Public review and comments were solicited in conjunction with distribution of the March 2012 Draft CCP/EA for the Hopper Mountain, Bitter Creek, and Blue Ridge NWRs. The Service's responses to comments received were included in the Final CCP/EA.

**Determination** (check one below):

Use is Not Compatible

Use is Compatible with the Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

In order to allow public access to the Refuge for interpretation, the following measures will be taken.

1. Interpretation would only be allowed between sunrise and sunset, unless it is part of a refuge-led activity.
2. Public access would be restricted to trails, other designated facilities/areas, and appropriate times of year where the least disruption to wildlife and their habitats would occur.
3. Guided hikes would be led by Refuge staff and/or partners trained by Refuge staff to conduct activities in accordance with Refuge regulations and rules.

4. Guided hikes will be arranged in advance and will have an established limit on number of participants.
5. Regulations and wildlife friendly behavior (e.g., requirements to stay on designated trails, no dogs, etc.) would be posted at the general information kiosk and described in brochures.
6. Maps and visitor use information would also be available at the Refuge Headquarters and the Complex website.
7. Collection of plants, animals and other specimens, debris or artifacts would be prohibited unless the collection is part of a refuge-led activity.
8. Regulations would be enforced to ensure public safety and to prevent resource impacts.

**Justification:**

After assessing the potential impacts from the uses proposed for the Refuge it was determined that allowing these uses would not materially interfere with or detract from the purposes for which the Refuge was created or the mission of the National Wildlife Refuge System. Interpretive programs would provide opportunities for the visiting public to learn about and experience native plants and wildlife in their natural habitat. The Refuge can also educate the public about its role within the U.S. Fish and Wildlife Service and the National Wildlife Refuge System, developing better community awareness, volunteer involvement and advocacy. The Service also has the opportunity to provide the community educational information on habitat restoration, federally listed species, migratory birds and wetland conservation on the Bitter Creek National Wildlife Refuge. Interpretation promotes awareness and knowledge of Refuge resources, and would be balanced to ensure that wildlife species receive priority consideration when evaluating public access opportunities.

**Mandatory Re-Evaluation Date (2028):**

- Mandatory 15-year Re-Evaluation (for priority public uses)
- Mandatory 10-year Re-Evaluation (for all uses other than priority public uses)

**NEPA Compliance for Refuge Use Decision (check one below):**

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

**References:**

- Belanger, L., and J. Bedard. 1990. Energetic cost of man-induced disturbance to staging snow geese. *Journal of Wildlife Management* 54:36.
- Burger, J. 1981. The effect of human activity on birds at a coastal bay. *Biol. Cons.* 21:231-241.
- Burger, J. 1986. The effect of human activity on shorebirds in two coastal bays in northeastern United States. *Biological Conservation* 13:123-130.

- Cade, T., Osborn, S. A. H., Hunt, W. G., and Woods, C. P. 2004. Commentary on released California Condors *Gymnogyps californianus* in Arizona. Chancellor, R. D. and B-U. Meyburg. Raptors Worldwide: Proceedings of the 6th World Conference on Birds of Prey and Owls. Berlin: World Working Group for Birds of Prey. 2006. 11–24.
- Cole, D. N. and P. B. Landres. 1995. Indirect effects of recreation on wildlife. Pages 183-201 in R. L. Knight and K. J. Gutzwiller, ed. *Wildlife and Recreationists: coexistence through management and research*, Island Press, Washington, D. C. 372pp.
- Cole, D. N. and J. L. Marion. 1988. Recreation impacts in some riparian forests of the eastern United States. *Env. Manage.* 12:99-107.
- Erwin, R. M. 1980. Breeding habitat by colonially nesting water birds in 2 mid-Atlantic U.S. regions under different regimes of human disturbance. *Biological Conservation.* 18:39-51.
- Goff, G.R., D.J. Decker and G. Pomerantz. 1988. A diagnostic tool for analyzing visitor impacts on wildlife refuges: A basis for a systematic approach to visitor management. *Trans. Northeast Sect. Wildl. Soc.* 45:82.
- Gutzwiller, K.J., R.T. Wiedenmann, and K.L. Clements. 1997. Does human intrusion alter the seasonal timing of avian song during breeding periods? *Auk.* 114:55-65.
- Havera, S.P., L.R. Boens, M.M. Georgi, and R.T. Shealy. 1992. Human disturbance of waterfowl on Keokuk Pool, Mississippi River. *Wildlife Society Bulletin.* 20:290-298.
- Henson, P.T., and A. Grant. 1991. The effects of human disturbance on trumpeter swan breeding behavior. *Wildlife Society Bulletin.* 19:248-257.
- Hill, D., D. Hockin, D. Price, G. Tucker, R. Morris, and J. Treweek. 1997. Bird disturbance: improving the quality and utility of disturbance research. *Journal of Applied Ecology* 34:275-288.
- Hockin, D., M. Ounsted, M. Gorman, D. Hill, V. Keller, and M. A. Barker. 1992. Examination of the effects of disturbance on birds with reference to its importance in ecological assessments. *Journal of Environmental Management* 36:253-286.
- Klein, M. L. 1993. Waterbird behavioral responses to human disturbances. *Wildl. Soc. Bull.* 21:31-39.
- Knight, R.L., and K. J. Gutzwiller, ed. 1995. *Wildlife and Recreationists: coexistence through management and research.* Island Press, Washington, D. C. 372 pp.
- Liddle, M. J. 1975. A selective review of the ecological effects on human trampling on natural ecosystems. *Biol. Conserv.* 7:17-36.
- Meretsky, V. J., Snyder, N. F. R., Beissinger, S. R., Clendenen, D. A. and Wiley, J. W.(2000), *Demography of the California Condor: Implications for Reestablishment.* *Conservation Biology,* 14: 957–967.
- Miller, S. G., R. L. Knight, and C. K. Miller. 1998. Influence of recreational trails on breeding bird communities. *Ecol. Appl.* 8:162-169.

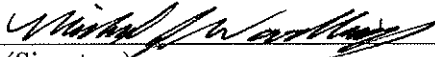
Morton, J.M., A.C. Fowler, and R.L. Kirkpatrick. 1989. Time and energy budgets of American black ducks in winter. *Journal of Wildlife Management*. 53:401-410.

Owen, M. 1973. The management of grassland areas for wintering geese. *Wildfowl* 24:123- 130.

Purdy, K. G., G. R. Goft, D. J. Decker, G. A. Pomerantz, and N. A. Connelly. 1987. A guide to managing human activity on National Wildlife Refuges. Office of Information Transfer, U.S. Fish and Wildlife Service, Ft. Collins, CO. 57 pp.


Williams, G.J., and E. Forbes. 1980. The habitat and dietary preferences of dark-bellied Brant geese and widgeon in relation to agricultural management. *Wildfowl*. 31:151-157.

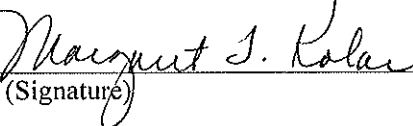
**Refuge Determination**

Prepared by:  6/25/13  
(Signature) (Date)

Refuge Manager/  
Project Leader  
Approval:  6/25/13  
(Signature) (Date)

**Concurrence**

Refuge Supervisor:  7/16/2013  
(Signature) (Date)

Assistant Regional  
Director, Refuges:  7/23/2013  
(Signature) (Date)

## **COMPATIBILITY DETERMINATION**

**Use:** Wildlife Observation and Photography

**Refuge Name:**

Bitter Creek National Wildlife Refuge, Kern County, California.

<http://www.fws.gov/hoppermountain/BitterCreekNWR/BittercreekNWR.html>

**Establishing and Acquisition Authority:**

Bitter Creek National Wildlife Refuge was established in 1985. Legal authority includes the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended.

**Refuge Purpose(s):**

The U.S. Fish and Wildlife Service (USFWS or Service) acquired these lands "... to conserve (A) fish or wildlife which are listed as endangered species or threatened species ... or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543, as amended).

**National Wildlife Refuge System Mission:**

"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd-ee]).

**Description of Use:**

The National Wildlife Refuge System Improvement Act of 1997 identifies wildlife observation and photography as well as hunting, fishing, interpretation, and environmental education as priority wildlife-dependent public uses for refuges. As two of the six priority public uses of the Refuge System, these uses are to be encouraged when compatible with the purposes of the refuges. Wildlife observation and photography are considered simultaneously in this compatibility determination. Many elements of the wildlife observation and photography programs are also similar to opportunities provided in the interpretation program. These uses are described in the Draft Comprehensive Conservation Plan (CCP) and Environmental Assessment (EA) and are incorporated by reference.

The guiding principles of the Refuge System's wildlife observation and wildlife photography programs (Service Manual 605 FW 4 and 5) are to:

- Provide safe, enjoyable, and accessible wildlife viewing opportunities and facilities.
- Promote visitor understanding of, and increase visitor appreciation for, America's natural resources.
- Provide opportunities for quality recreational and educational experiences consistent with criteria describing quality found in Service Manual 605 FW 1.6.
- Minimize conflicts with visitors participating in other compatible wildlife-dependent recreation activities.

Most areas of Bitter Creek National Wildlife Refuge are closed to the public for wildlife observation and photography. The Refuge plans to develop and construct a self-guided interpretive trail off Klipstein Canyon Road. This area is optimum for wildlife observation and photography activities, as no California condors (*Gymnogyps californianus*) are known to roost or feed in the area and it has easy access for the public.

Several of the elements required to support these programs (e.g., construct parking area, trail system and general information kiosks at the Cliff Hudson home site and the upper Refuge sign off Cerro Noroeste Road) are the same as for the interpretation program. These elements are discussed in further detail and broken down by cost in the Refuge’s Compatibility Determination for Interpretation.

Regularly scheduled wildlife observation and photography tours would be led at the upper Refuge sign and other closed units of the Refuge, as appropriate, at least once a year. Partner organizations, such as the Friends of California Condors Wild and Free, educated in Refuge rules and regulations, would be sought to lead tours on closed sections of the Refuge in coordination with Refuge staff, to protect sensitive habitat.

These two priority uses will provide opportunities for the public to observe wildlife habitats firsthand and learn about wildlife and wild lands in an unstructured environment. Photographers will gain opportunities to photograph wildlife and natural habitats. These opportunities can result in increased publicity and advocacy for Service programs.

**Availability of Resources:**

Additional funds would be required to provide wildlife observation and photography opportunities. Funding will be sought through the Service budget process. Other sources may be sought through partnerships, grants, and additional refuge operations funding to support a safe and quality program as described above. Maintenance of the additional infrastructure will require additional staff time for mowing, trail, kiosk and sign repair, and trash collection throughout the year. Staff time is also needed to develop materials and infrastructure to facilitate safe and informative visitor experiences.

The following funding/annual costs (based on FY 2010 costs) would be required to administer and manage wildlife observation and photography activities as described above.

<b>Item</b>	<b>One-Time Cost</b>	<b>Annual Costs</b>
Refuge law enforcement officer (0.1 FTE)	-	\$9,000
Additional staff time (0.1 FTE)	\$7,500	\$7,500
<b>TOTAL</b>	<b>\$7,500</b>	<b>\$16,500</b>

**Anticipated Impacts of Use:**

Once considered “non-consumptive,” it is now recognized that wildlife observation and wildlife photography can negatively impact wildlife by altering wildlife behavior, reproduction, distribution, and habitat (Purdy et al. 1987, Knight and Cole 1995).

Purdy et al. (1987) and Pomerantz et al. (1988) described six categories of impacts to wildlife as a result of visitor activities. They are:

- 1) Direct mortality: immediate, on-site death of an animal;
- 2) Indirect mortality: eventual, premature death of an animal caused by an event or agent that predisposed the animal to death;
- 3) Lowered productivity: reduced fecundity rate, nesting success, or reduced survival rate of young before dispersal from nest or birth site;
- 4) Reduced use of refuge: wildlife not using the refuge as frequently or in the manner they normally would in the absence of visitor activity;
- 5) Reduced use of preferred habitat on the refuge: wildlife use is relegated to less suitable habitat on the refuge due to visitor activity; and
- 6) Aberrant behavior/stress: wildlife demonstrating unusual behavior or signs of stress likely to result in reduced reproductive or survival rates.

Individual animals may be disturbed by human contact to varying degrees. Human activities on trails can result in direct effects on wildlife through harassment, a form of disturbance that can cause physiological effects, behavioral modifications, or death (Smith and Hunt 1995). Many studies have shown that birds can be impacted from human activities on trails when they are disturbed and flushed from feeding, resting, or nesting areas. Flushing, especially repetitive flushing, can strongly impact habitat use patterns of many bird species. Flushing from an area can cause birds to expend more energy, be deterred from using desirable habitat, affect resting or feeding patterns, and increase exposure to predation or cause birds to abandon sites with repeated disturbance (Smith and Hunt 1995). Migratory birds were observed to be more sensitive than resident species to disturbance (Klein 1989).

Nest predation for songbirds (Miller et al. 1998), raptors (Glinski 1976), colonial nesting species (Buckley and Buckley 1976), and waterfowl (Boyle and Samson 1985) tends to increase in areas more frequently visited by people. In addition, for many passerine species, primary song occurrence and consistency can be impacted by a single visitor (Gutzwiller et al. 1994). In areas where primary song was affected by disturbance, birds appeared to be reluctant to establish nesting territories (Reijnen and Foppen 1994).

Depending on the species (especially migrants vs. residents), some birds may habituate to some types of recreation disturbance and either are not disturbed or will immediately return after the initial disturbance (Hockin et al. 1992; Burger et al. 1995; Knight and Temple 1995; Madsen 1995; Fox and Madsen 1997).

Of the wildlife observation techniques, wildlife photographers tend to have the largest disturbance impacts (Klein 1993, Morton 1995, Dobb 1998). While wildlife observers frequently stop to view species, wildlife photographers are more likely to approach wildlife (Klein 1993). Even slow approach by wildlife photographers tends to have behavioral consequences to wildlife species (Klein 1993). Other impacts include the potential for photographers to remain close to wildlife for extended periods of time, an attempt to habituate the wildlife subject to their presence (Dobb 1998) and the tendency of casual photographers, with low-power lenses, to get much closer to their subjects than other activities would require (Morton 1995), including wandering off trails. This usually results in increased disturbance to wildlife and habitat, including trampling of plants.

In the past, human/condor interactions have been a major concern of the recovery effort. Captive reared birds released into the wild were thought to be prone to human oriented behaviors which can increase the likelihood of injury or harm (Meretsky et al. 2000). As the population has become older and more established in the wild, these behaviors have become less frequent but can still occur where condors and human activity come in close proximity to one another (Cade et al. 2004). In order to avoid interaction between humans and free flying condors large portions of the refuge will remain closed or have very limited guided public use. The interpretive trail located off Klipstein Canyon Road is not anticipated to impact or disturb condor use of the refuge nor should it impede condor management activities. The trail will be sited in a low lying area where condors are not known to regularly occur. The trail is located far from any sensitive management areas and avoids ridges or high points, which minimizes the chances of disturbing condors and the risk of human/condor interactions. Traffic on the trail is not anticipated to drastically increase overall human activity on the refuge and would likely be less than many other areas within the condor's range where hiking trails exist and human activities occurs at much higher levels without a problem, such as Pinnacles National Monument, a release site for condors in central California.

The visitor contact station/overlook, which is to be sited near the southern boundary sign on Cerro Noroeste Road, is located away from condor sensitive areas, such as traditional roosts or feeding stations which minimizes the chances of disturbing condors. However, it does pose an increased chance for condors and humans to interact, as condors are known to fly over this area from time to time. This risk can be minimized greatly by ensuring condors are not given areas where they are able to perch on or near



the overlook's structures. The site location is already without any natural perches and by not creating man made perches where condors and humans could come into close proximity, the risk of deleterious interactions can be greatly minimized.

People can be vectors for invasive plants by moving seeds or other propagules from one area to another. Once established, invasive plants can out-compete native plants, thereby altering habitats and indirectly impacting wildlife. The threat of invasive plant establishment will always be an issue requiring annual monitoring and treatment when necessary. Refuge staff will work at eradicating invasive plants and educating the visiting public.

Refuge staff, in collaboration with volunteers and researchers, will monitor and evaluate the effects of these priority uses to discern if adverse effects to wildlife or habitats result from the uses. Temporary area closures and seasonal guidelines may be used to minimize impacts.

The Service has completed section 7 ESA compliance on the implementation of CCP activities.

**Public Review and Comment:**

Public review and comments were solicited in conjunction with distribution of the March 2012 Draft CCP/EA for the Hopper Mountain, Bitter Creek, and Blue Ridge NWRs. The Service's responses to comments received were included in the Final CCP/EA.

**Determination:**

Use is Not Compatible

Use is Compatible with the Following Stipulations

**Stipulations necessary to ensure compatibility:**

1. Wildlife observation and photography would only be allowed between sunrise and sunset, unless they are part of a refuge-led activity.
2. Public access would be restricted to trails, other designated facilities/areas, and appropriate times of year where the least disruption to wildlife and their habitats would occur.
3. Refuge tours will have an established limit on number of participants.
4. Refuge tours will be led by Refuge staff and partner organizations trained in Refuge rules and regulations on Units with sensitive habitat to prevent impacts.
5. Regulations and wildlife friendly behavior (e.g., requirements to stay on designated trails, no dogs, etc.) would be posted at the general information kiosk and described in brochures.
6. Maps and visitor use information would also be available at the Refuge Headquarters and the Complex website.
7. Collection of plants, animals and other specimens, debris or artifacts would be prohibited unless the collection is part of a refuge-led activity.
8. Regulations would be enforced to ensure public safety and to prevent resource impacts.

**Justification:**

After assessing the potential impacts from the uses proposed for the Refuge, it was determined that allowing these uses would not materially interfere with or detract from the purposes for which the Refuge was created or the mission of the National Wildlife Refuge System. Providing opportunities for wildlife observation and photography would contribute toward fulfilling provisions of the National Wildlife Refuge System Administration Act, as amended in 1997. Wildlife observation and photography provide an excellent forum for allowing public access and increasing understanding of the Refuge's resources.

These activities would allow visitors to experience and learn about native wildlife and plant species on Bitter Creek National Wildlife Refuge. The Refuge will provide opportunities for wildlife enjoyment not usually available on adjacent private land. Refuge visitors will better understand the challenges facing our wildlife and wild land resources, what effects the public can have on wildlife resources, and learn more about the U.S. Fish and Wildlife Service's role in conservation. With the stipulations considered in this compatibility determination, wildlife observation and photography would be compatible with Refuge purposes and the Refuge System mission.

**Mandatory Re-Evaluation Date (2027):**

- Mandatory 15-year Re-Evaluation (for priority public uses)  
 Mandatory 10-year Re-Evaluation (for all uses other than priority public uses)

**NEPA Compliance for Refuge Use Decision (check one below):**

- Categorical Exclusion without Environmental Action Statement  
 Categorical Exclusion and Environmental Action Statement  
 Environmental Assessment and Finding of No Significant Impact  
 Environmental Impact Statement and Record of Decision

**References:**

- Boyle, S. A. and F. B. Samson. 1985. Effects of non-consumptive recreation on wildlife: a review. *Wildl. Soc. Bull.* 13:110-116.
- Buckley, P. A. and F. G. Buckley. 1976. Guidelines for protection and management of colonially nesting waterbirds. North Atlantic Regional Office, National Park Service, Boston, MA. 52 pp.
- Burger, J. 1981. The effect of human activity on birds at a coastal bay. *Biological Conservation.* 21:231-241.
- Burger, J. 1986. The effect of human activity on shorebirds in two coastal bays in northeastern United States. *Biological Conservation* 13:123-130.
- Burger, J. and M. Gochfeld. 1991. Human distance and birds: tolerance and response distances of resident and migrant species in India. *Environ. Conserv.* 18:158-165.
- Burger, J., M. Gochfeld, and L. J. Niles. 1995. Ecotourism and birds in coastal New Jersey: Contrasting responses of birds, tourists, and managers. *Environmental Conservation* 22:56-65.

- Cade, T., Osborn, S. A. H., Hunt, W. G., and Woods, C. P. 2004. Commentary on released California Condors *Gymnogyps californianus* in Arizona. Chancellor, R. D. and B-U. Meyburg. Raptors Worldwide: Proceedings of the 6th World Conference on Birds of Prey and Owls. Berlin: World Working Group for Birds of Prey. 2006. 11–24.
- Dobb, E. 1998. Reality check: the debate behind the lens. Audubon: Jan.-Feb.
- Fox, A. D., and J. Madsen. 1997. Behavioral and distributional effects of hunting disturbance on waterbirds in Europe: implications for refuge design. *The Journal of Applied Ecology* 34:1-13.
- Glinski, R. L. 1976. Birdwatching etiquette: the need for a developing philosophy. *Am. Bird* 30(3):655-657.
- Gutzwiller, K. J., R. T. Wiedenmann, K. L. Clements, and S. H. Anderson. 1994. Effects on human intrusion on song occurrence and singing consistency in subalpine birds. *Auk* 111:28-37.
- Hockin, D., M. Ounsted, M. Gorman, D. Hill, V. Keller, and M. A. Barker. 1992. Examination of the effects of disturbance on birds with reference to its importance in ecological assessments. *Journal of Environmental Management* 36:253-286.
- Klein, M. 1989. Effects of high levels of human visitation on foraging waterbirds at J. N. "Ding" Darling National Wildlife Refuge, Sanibel Florida. Masters thesis. Gainesville, Florida: University of Florida.
- Klein, M. L. 1993. Waterbird behavioral responses to human disturbances. *Wildl. Soc. Bull.* 21:31-39.
- Knight, R. L. and D. N. Cole. 1995. Wildlife responses to recreationists. Pages 71-79 in R. L. Knight and K. J. Gutzwiller, ed. *Wildlife and Recreationists: coexistence through management and research*. Island Press, Washington, D. C. 372pp.
- Knight, R. L. and S. A. Temple. 1995. Origin of wildlife responses to recreationists. In *Wildlife and recreation: coexistence through management and research*. R. L. Knight and K. J. Gutzwiller, eds. Island Press, Washington, D. C., pp 81-91.
- Madsen, J. 1995. Impacts of disturbance on migratory waterfowl. *Ibis* 137 Supplemental: S67-S74.
- Meretsky, V. J., Snyder, N. F. R., Beissinger, S. R., Clendenen, D. A. and Wiley, J. W.(2000), *Demography of the California Condor: Implications for Reestablishment*. *Conservation Biology*, 14: 957–967.
- Miller, S. G., R. L. Knight, and C. K. Miller. 1998. Influence of recreational trails on breeding bird communities. *Ecol. Appl.* 8:162-169.
- Morton, J. M. 1995. Management of human disturbance and its effects on waterfowl. Pages F59-F86 in W. R. Whitman, T. Strange, L. Widjeskog, R. Whittemore, P. Kehoe, and L. Roberts (eds.). *Waterfowl habitat restoration, enhancement and management in the Atlantic Flyway*. Third Ed. Environmental Manage. Comm., Atlantic Flyway Council Techn. Sect., and Delaware Div. Fish and Wildl., Dover, DE. 1114pp.
- Pomerantz, G. A., D. J. Decker, G. R. Goff, and K. G. Purdy. 1988. Assessing impact of recreation on wildlife: a classification scheme. *Wildl. Soc. Bull.* 16:58-62.

Purdy, K. G., G. R. Goff, D. J. Decker, G. A. Pomerantz, and N. A. Connelly. 1987. A guide to managing human activity on National Wildlife Refuges. Office of Information Transfer, U.S. Fish and Wildlife Service, Ft. Collins, CO. 57 pp.

Reijnen, R. and R. Foppen. 1994. The effects of car traffic on breeding bird populations in woodland. I. Evidence of reduced habitat quality for willow warbler (*Pyloscopus trochilus*) breeding close to a highway. *J. Appl. Ecol* 31:85-94.

Retallick, R.W.R., H. McCallum, and R. Speare. 2004. Endemic infection of the amphibian chytrid fungus in a frog community post-decline. *PLoS Biol* 2(11): e351. doi:10.1371/journal.pbio.0020351.

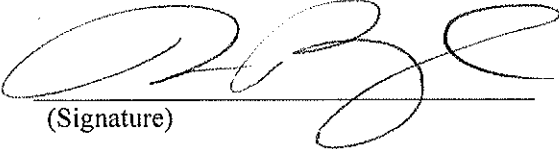
Smith, L. and J. D. Hunt. 1995. Nature tourism: impacts and management. Pp. 203-219 in Knight, R. L.; Gutzwiller, K. J. (Wildlife and recreationists: coexistence through management and research, eds.). Island Press, Washington, D. C.

U.S. Fish and Wildlife Service. 2008. Connecting People with Nature Action Plan, Sharing the Spark. California Nevada Region 8. Sacramento, CA. 42 pp.

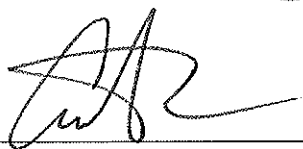
Woodhams, D.C., R.A. Alford, and G. Marantelli. 2003. Emerging disease of amphibians cured by elevated body temperature. *Dis Aquat Org* 55: 65-67.

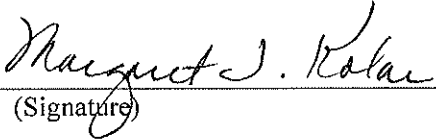
**Refuge Determination**

Prepared by:  6/25/13  
(Signature) (Date)

Refuge Manager/  
Project Leader  
Approval:  6/25/13  
(Signature) (Date)

**Concurrence**

Refuge Supervisor:  7/16/2013  
(Signature) (Date)

Assistant Regional  
Director, Refuges:  7/23/2013  
(Signature) (Date)

## **COMPATIBILITY DETERMINATION**

**Use:** Grazing

**Refuge Name:**

Bitter Creek National Wildlife Refuge (NWR), Kern County, California.

<http://www.fws.gov/hoppermountain/BitterCreekNWR/BittercreekNWR.html>

**Establishing and Acquisition Authority:**

Bitter Creek NWR was established in 1985. Legal authority includes the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended.

**Refuge Purposes:**

The U.S. Fish and Wildlife Service (USFWS or Service) acquired these lands "... to conserve (A) fish or wildlife which are listed as endangered species or threatened species ... or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543, as amended).

The primary purpose for the establishment of the refuge was to preserve essential foraging and roosting habitat for the California condor (*Gymnogyps californianus*), an endangered species that received a priority objective from the Service in 1975. The refuge contains essential foraging habitat for the California condor (Biological Assessment for creation of the Bitter Creek NWR, USFWS 1984).

**National Wildlife Refuge System Mission:**

"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd-ee]).

**Description of Use:**

Prescribed grazing will be used at Bitter Creek NWR to manage vegetation to meet habitat objectives. Improving habitat through changing grassland structure and composition and also the reduction of annual grass residual dry matter (RDM), including thatch, are the primary goals for this program. Grazing will be conducted in accordance with the *Bitter Creek National Wildlife Refuge Prescribed Grazing Plan*. The grazing plan outlines the specific strategies and monitoring required to track accomplishments and adapt new or revised prescriptions to achieve the objectives. It includes prescriptions for specified refuge cells (grazing units) including duration and dates. That plan is intended to be a dynamic document: initial stocking rates will be established using production estimates from similar ecological sites, then refined over time based upon information gained by monitoring.

**Resource target** refers to a specific species or group of species; grazing prescriptions will be implemented primarily for the purpose of improving conditions (habitat quality) for resource targets. Desired habitat conditions associated with resource targets are referred to as **target conditions**.

An open grassland vegetation structure of low herbaceous height and cover with patches of bare ground, and areas without thick non-native grass thatch appear to influence the presence of San Joaquin Valley recovery species such as San Joaquin kit fox (*Vulpes macrotis mutica*), giant kangaroo rat (*Dipodomys ingens*), and blunt-nosed leopard lizard (*Gambelia sila*). Open grass-dominated landscapes with livestock grazing producing the target RDM levels listed below are all highly compatible with preferred Condor habitat requirements (USFWS 1998). Grazing also influences vegetation composition and the abundance of native plants, although results can be highly site-specific and temporally variable (Stahlheber and D'Antonio 2013). Because the amount of bare ground, herbaceous plant height, standing plant "thatch"

and RDM are highly correlated in San Joaquin Valley grasslands (Germano et al. 2012), RDM will be used as the primary metric to measure habitat structure and manage livestock grazing. In addition, RDM and grass height classes will also be used as measures to assess migratory bird resource target conditions.

Four **target conditions** have been identified for the selected resource targets. Target conditions overlap for certain resources. These include:

**1) Very Low RDM/Short Grass Height (bare ground is associated with very low RDM)**

Primary Resource Targets—San Joaquin Valley recovery vertebrate species (USFWS 1998): San Joaquin kit fox; giant kangaroo rat; blunt-nosed leopard lizard; short-nosed kangaroo rat (*Dipodomys nitratooides brevinasus*); Nelson’s antelope squirrel (*Ammospermophilus nelsoni*).

Other Resource Targets—Surrogate species for San Joaquin Valley recovery vertebrates: Heermann’s kangaroo rat (*Dipodomys heermanni*), which likely occurs at lower elevations; and perhaps, agile kangaroo rat (*Dipodomys agilis*), which possibly occurs at higher elevations, west of Cerro Noroeste Road. Reduction of exotic grasses.

**2) Low RDM/Short Grass Height**

Resource Targets—Species of concern: burrowing owl (*Athene cunicularia hypugea*); Blainville’s (coast) horned lizard (*Phrynosoma coronatum blainvillii*).

Other Resource targets—Migratory birds: California horned lark (*Eremophila alpestris*); foraging habitat for breeding and wintering raptors; foraging habitat for tricolored blackbird (*Agelaius tricolor*).

Other Resource targets—Reduction of exotic grasses, possible increase of native plants.

**3) Moderate RDM/Medium Grass Height**

Resource targets—Migratory birds: savannah sparrow (*Passerculus sandwichensis*); foraging habitat for breeding and wintering raptors. Possible increase in *Eremalche parryi* subsp. *kernensis* a native plant species of special concern and host plant for Kern primrose sphinx moth (*Euproserpinus euterpe*).

Other Resource targets—Reduction of exotic grasses, possible increase of native plants.

**4) High RDM/Tall Grass Height**

Resource targets—Breeding migratory birds: northern harrier (*Circus cyaneus*); grasshopper sparrow (*Ammodramus savannarum*).

Resource targets – Possible enhancement of plant species of special concern *Caulanthus coulteri* var. *lemmonii*.

The grazing prescriptions for each target condition are identified in the *Bitter Creek National Wildlife Refuge Prescribed Grazing Plan* and will also be identified in an annual habitat work plan for each unit.

Hopper Mountain NWR Complex will issue permits or agreements, such as Special Use Permits (SUP) or Cooperative Land Management Agreements (CLMA), for livestock grazing at Bitter Creek NWR. Grazing cooperators will be selected based on their ability to meet the Service’s habitat objectives for the particular management unit(s). Prospective cooperators will be evaluated based on a variety of factors such as past experience and performance with similar prescribed grazing efforts, availability of stock to meet grazing prescriptions and schedules, and in-kind work commitments. Each permit will identify the resource targets for specific areas, where grazing will be prescribed primarily to improve

habitat conditions for resource targets. The permit will also include reporting requirements for livestock use, construction and maintenance of livestock infrastructure, and required response times for addition or removal of livestock to meet resource target conditions.

Inventory and monitoring surveys will be completed to determine baseline conditions, effects of grazing prescriptions, and to mark achievements and identify problems so that prescriptions can be modified to adapt to site specific conditions resulting from the grazing prescription and also to adapt to a dynamic climate and environment. The refuge will implement various levels of monitoring based on staff and partnership resources. This is a refuge system management economic activity and its use helps the refuge achieve the purposes for which it was created and the mission of the Refuge System.

**Availability of Resources:**

The grazing program is administered by refuge staff that will identify the desired objectives of the program, prepare permits and/or agreements, and coordinate with cooperators as well as monitor compliance. Cooperators are generally responsible for the cost of installation and/or maintenance of all range improvements associated with program activities. Refuge operational funds are currently available through the Service budget process to administer this program. The primary expenses for the refuge to conduct the program are staff time (writing permits/agreements, working with cooperators, biological monitoring, mapping, reporting, and fuel for site visits and measuring [GPS] treated areas). An on-site scientist will be required to fully implement all monitoring objectives identified in the Prescribed Grazing Plan and CCP.

Item	One-Time Cost	Annual Costs
Refuge manager to administer the grazing program (0.50 FTE) (GS-11/5)	-	\$36,236
On-site biologist (or other scientist) to monitor objectives (0.40 FTE) (GS-11/5)	-	\$28,989
Fuel and miscellaneous expenses (maximum)	-	\$10,000
<b>TOTAL</b>	-	\$75,225

Source: 2012 GSA General Schedule salary rates

**Anticipated Impacts of the Use:**

Prehistoric and historical grazers/browsers were an important part of the Californian landscape (Edwards 2007). Domestic livestock can be an appropriate tool for habitat management in grasslands (Barry 2003; Briske et al. 2011; Germano et al. 2012; Griggs 2000; Thomsen et al. 1993), and livestock grazing remains a tool for ecosystem restoration (Huntsinger et al. 2007, Papanastasis 2009). Published research evaluating the use of grazing as a conservation tool for native vegetation restoration and management reports mixed results for California (Kimball and Schiffman 2003, Huntsinger et al. 2007). “Grazing” is very poorly characterized in many studies, making results difficult to properly interpret (Huntsinger et al. 2007). In a meta-analysis of grazing studies in California’s Mediterranean-type grasslands, Stahlheber and D’Antonio (2013) reported that grazing often increased native grasses, but also non-native forbs, and sometimes increased native forbs. The results all appeared to be highly site-specific and dependent on weather patterns.

Published research includes results with conservation benefits from grazing (Germano et al. 2012; Knopf and Rupert 1995), but work specific to the San Joaquin Valley is scarce. In the Temblor Range, Jackson and Bartolome (2002) found that RDM influenced plant species competition, including abundance of the native *Lotus wrangelianus* (synonym *Acmispon wrangelianus*) with lower RDM, but only in some years; exotic grasses tended to be more abundant with higher RDM levels.

Special status plants are known to occur at Bitter Creek (see *Bitter Creek National Wildlife Refuge Prescribed Grazing Plan*). The effects of grazing on two taxa (*Astragalus hornii* var. *hornii* and *Monardella linoides* subsp. *oblonga*) are unknown and the effects on three taxa (*Caulanthus californica*, *Caulanthus coulteri* var. *lemmonii*, and *Eriogonum temblorense*) are possibly detrimental. Grazing effects on two taxa (*Eremalche parryi* subsp. *kernensis* and *Monolopia congdonii*) may be beneficial for establishment, but detrimental to mature plants (USFWS 1998). Habitat manipulation often positively impacts one species (or group), while negatively impacting other species. Thus, characterizing the effects of grazing depends on a narrow frame of reference and is likely to be very site-specific (Jackson and Bartolome 2007).

Cattle are the livestock of choice for managing grasslands at Bitter Creek NWR because of historic precedence, availability, and the way cattle graze. Cattle are generalist herbivores that prefer grasses like those dominating the California annual-type grassland (Van Dyne and Heady 1965), including several dominant species at Bitter Creek NWR. As a result, some wildflowers (also referred to as forbs and legumes) may benefit from the reduction of non-native annual grass biomass, including active growing plants and standing dead plant material and thatch (Huenneke et al. 1990). Other domestic livestock like sheep and goats would require additional infrastructure, including fences that are more restrictive of native ungulate movements (Bush 2006, Yoakum 1980, Huntsinger et al. 2007). The difficulty in controlling distribution and numbers of wild ungulates makes their use in prescribed grazing impractical (Huntsinger et al. 2007).

Implementation of grazing for habitat enhancement requires clear goals, adaptive management, and effective monitoring. There are many uncertainties associated with vegetation management in xeric Mediterranean climates, meaning that costly site-specific research studies are not effective. An exhaustive research effort may be inadequate because of site and time specific responses (Herrick et al. 2012), refuge managers will therefore implement adaptive management and long-term monitoring of RDM and refuge management targets (i.e., endangered and threatened species, species of concern, migratory birds, special status plants), which will be incorporated into adaptive refuge management activities under dynamic natural and logistical conditions.

Grazing on the refuge may also have beneficial and adverse effects on the endangered California condor's use of the area and its critical habitat on the refuge. Carrion from domestic livestock are known to be a food source of condors (Meretsky et al. 2000, Brandt and Massey 2009), but the human activity associated with grazing may disturb condors while feeding or while in a flight pen.

The Final Environmental Assessment on the Final CCP for Hopper Mountain, Bitter Creek and Blue Ridge NWRs is incorporated by reference (USFWS 2013).

The Service has completed section 7 ESA compliance on the implementation of CCP activities.

**Public Review and Comment:**

Public review and comments were solicited in conjunction with distribution of the March 2012 Draft CCP/EA for the Hopper Mountain, Bitter Creek, and Blue Ridge NWRs. The Service's responses to comments received were included in the Final CCP/EA.

**Determination:**

The grazing program as described is determined to be compatible. Potential negative impacts of grazing activities on refuge resources will be minimized through limiting grazing to targeted resource prescriptions, grazing permit restrictions and adaptive management techniques based on monitoring of both residual dry matter and refuge resource targets. Refuge staff will ensure the grazing program and associated habitat management projects contribute to the enhancement, protection, conservation, and



management of native wildlife and plant populations and their habitats, thereby helping the refuge fulfill the purposes for which it was established, the mission of the National Wildlife Refuge System, and the need to maintain ecological integrity, diversity, and environmental health.

Use is Not Compatible

Use is Compatible with the Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

1. Refuge managers will implement long-term monitoring of RDM and refuge resource targets (i.e., endangered and threatened species, species of concern, migratory birds, special status plants), which can be used to adapt refuge management activities to dynamic natural and logistical conditions.
2. Evaluation of the need and methods for vegetation management, including use of grazing, will be determined during annual reviews and articulated in Annual Habitat Work Plans (Plan) for each refuge unit. Special considerations for each unit, such as, but not limited to, cultural or natural resources, including listed and candidate species, will be identified in each Plan.
3. All grazing will be conducted in accordance with the stipulations identified in the agreement or permit that authorizes grazing privileges for a cooperator. Stipulations will include timing, location(s), stocking densities, access, geographic origin of livestock (to reduce the risk of introducing invasive plants), and other pertinent details. Cooperators will be responsible for all facility maintenance as stipulated in the permit/agreement. All refuge rules and regulations shall be followed by the livestock grazing cooperator unless otherwise approved in writing by the refuge manager.
4. If adverse effects of grazing are detected and cannot be eliminated or mitigated to sufficiently protect natural and cultural resources, the Service may discontinue grazing activities with reasonable notice to cooperators.
5. The Service will set and enforce limits (as needed) on numbers of vehicles, people, livestock (including type), supplemental feed, and equipment used for grazing operations.
6. Human activity shall not be allowed around condor baiting stations while condors are present or when feeding stations are baited. While the grazing animals are not a concern, any human activity related to the grazing should be restricted so as not to disturb these condor management areas.

**Justification:**

The grazing program as described is determined to be compatible. As described, prescribed grazing supports the purposes of Bitter Creek NWR and the mission of the National Wildlife Refuge System by maintaining and/or improving grassland communities for the benefit of endangered species, migratory birds, and San Joaquin Valley special status plants and animals. The proposed use will not materially interfere with or detract from the refuge or Refuge System purposes and mission. Prescribed grazing can be a valuable management tool for providing long-term habitat improvements to grassland habitat that otherwise might degrade through natural succession. Grazing can reduce residual dry matter and create habitat conditions more favorable to the San Joaquin Valley special status and other species. Overall, livestock grazing, when guided by an adaptive management program based on annual monitoring, is expected to directly support refuge habitat goals and objectives articulated in the Comprehensive Conservation Plan. The Service has concluded that grazing will not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of Bitter Creek NWR.

**Mandatory Re-Evaluation Date (2023):**

- Mandatory 15-year Re-Evaluation (for priority public uses)
- Mandatory 10-year Re-Evaluation (for all uses other than priority public uses)

**NEPA Compliance for Refuge Use Decision (check one below):**

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

**References Cited:**

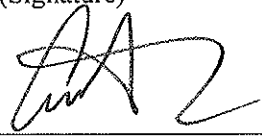
- Barry, S. 2003. Using planned grazing to manage for native grasslands. Pages 1–10, in Section 14, Grazing. Techniques and Strategies for Using Native Grass and Graminoids in Revegetation and Restoration. California Native Grass Association.
- Brandt, Joseph and Blake Massey. 2009. Recent Use of Domestic Ungulates as a Non-proffered Food Source in Reintroduced Population of California Condors: Implications and Outlook. Poster presented at the 3<sup>rd</sup> International Symposium on Management of Animal Carcasses, Tissue and Related Byproducts, University of California, Davis, July 21-23, 2009. Hopper Mountain National Wildlife Refuge Complex. U.S. Fish and Wildlife Service.
- Briske, D.D., J.D. Derner, and D.G. Milchunas. 2011. An evidence-based assessment of prescribed grazing practices. Pp. 21-74 in: Briske, D.D. (ed.) Conservation benefits of rangeland practices. USDA NRCS.
- Bush, L. 2006. Grazing handbook: a guide for resource managers in Coastal California. Sotoyome RCD, Santa Rosa.
- Edwards, S. W. 2007. Rancholabrean mammals of California and their relevance for understanding modern plant ecology. Pp. 48-52. In: Stromberg, M.R. et al. California grasslands: ecology and management. UC Press.
- Germano, D.J., G.B. Rathbun, and L.R. Saslaw. 2012. Effects of grazing and invasive grasses on desert vertebrates in California. *J. Wildl. Manage.* 76:670-682.
- Griggs, F.T. 2000. Vina Plains Preserve: eighteen years of adaptive management. *Fremontia* 27(4) & 18(1): 48–51.
- Herrick, J.E., M. Duniway, D.A. Pike, B.T. Bestelmeyer, S.A. Wills, J.R. Brown, J.W. Karl, K.M. Havstad. 2012. A holistic strategy for adaptive land management. *Journal of Soil Water Cons.* 67(4):105A-113A.
- Huenneke, L., S. Hamburg, R. Koide, P. Vitousek, and H. Mooney. 1990. Effects of soil resources on plant invasion and community structure in Californian serpentine grassland. *Ecology* 71:478–491.

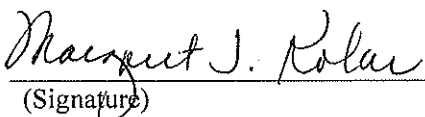
- Huntsinger, L., James W. Bartolome and Carla M. D'Antonio. 2007. Grazing management on California's Mediterranean grasslands. Pp. 233-253 In: Stromberg, M.R. et al. California grasslands: ecology and management. UC Press.
- Jackson, R.D. and J.W. Bartolome. 2002. A state-transition approach to understanding nonequilibrium plant community dynamics of California grasslands. *Plant Ecology*. 162:49-65.
- Jackson, R.D. and J.W. Bartolome. 2007. Grazing ecology of California grasslands. Pp. 197-206 In: Stromberg, M.R. et al. California grasslands: ecology and management. UC Press.
- Kimball, S. and P.M. Schiffman. 2003. Differing effects of cattle grazing on native and alien plants. *Conservation Biology* 17(6): 1681-1693.
- Knopf, F.L. and J.R. Rupert. 1995. Habits and habitats of mountain plovers in California. *The Condor* 97:743-751.
- Meretsky, V. J., N. F. R. Snyder, S. R. Beissinger, D. A. Clendenen, and J. W. Wiley. 2000. Demography of the California Condor: implications for reestablishment. *Conservation Biology* 14:957-967.
- Papanastasis, V.P. 2009. Restoration of degraded grazing lands through grazing management: can it work? *Restoration Ecology* 17(4): 441-445.
- Stahlheber, K.A. and C.D. D'Antonio. 2013. Managing plant composition with livestock: a meta-analysis of grazing in California's Mediterranean grasslands. *Biological Conservation*.
- Thomsen, C.D., W.A. Williams, M. Vayssières, F.L. Bell, and M.R. George. 1993. Controlled grazing on annual grassland decreases yellow starthistle. *California Agriculture* 47:36-40.
- USFWS (U.S. Fish and Wildlife Service). 1984. Biological Assessment for creation of the Bitter Creek NWR, USFWS 1984.
- USFWS (U.S. Fish and Wildlife Service). 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. U.S. Fish and Wildlife Service, Region 1, Portland, OR.
- USFWS (U.S. Fish and Wildlife Service). 2013. Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges, Final Comprehensive Conservation Plan/Environmental Assessment (CCP/EA). Prepared by Hopper Mountain National Wildlife Refuge Complex, Ventura, CA and Pacific Southwest Region, Sacramento, CA.
- Van Dyne, G.M. and H.F. Heady. 1965. Botanical composition of sheep and cattle diets on a mature annual range. *Hilgardia* 36:465-492.
- Yoakum, J.D. 1980. Habitat management guidelines for the American pronghorn antelope. USDI BLM Tech. Note 347. Denver Service Center.

**Refuge Determination**

Prepared by:  6/25/13  
(Signature) (Date)

Refuge Manager/  
Project Leader  
Approval:  6/25/13  
(Signature) (Date)

**Concurrence**  
Refuge Supervisor:  7/10/2013  
(Signature) (Date)

Assistant Regional  
Director, Refuges:  7/23/2013  
(Signature) (Date)

## **COMPATIBILITY DETERMINATION**

**Use:** Research

**Refuge Name:**

Bitter Creek National Wildlife Refuge (NWR), Kern County, California.

<http://www.fws.gov/hoppermountain/BitterCreekNWR/BittercreekNWR.html>

**Establishing and Acquisition Authority:**

Bitter Creek NWR was established in 1985. Legal authority includes the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended.

**Refuge Purpose(s):**

The U.S. Fish and Wildlife Service (USFWS) acquired these lands "... to conserve (A) fish or wildlife which are listed as endangered species or threatened species ... or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973, 16 U.S.C. § 1531-1543, as amended).

The primary purpose for the establishment of the Refuge was to preserve essential foraging and roosting habitat for the California condor (*Gymnogyps californianus*), an endangered species that received a priority objective from the USFWS in 1975. The Refuge contains essential foraging habitat for the California condor.

**National Wildlife Refuge System Mission:**

"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd-ee]).

**Description of Use:**

Two provisions of the National Wildlife Refuge Improvement Act are to "maintain biological integrity, diversity and environmental health" and to conduct "inventory and monitoring." Research investigations are designed to address these provisions by answering specific management questions. These include, but are not limited to, evaluation of vegetation and wildlife response to habitat management techniques, wildlife and plant population monitoring, documentation of seasonal wildlife movements and habitat use, wildlife disease investigations, and development of invasive species management techniques. Pertinent results from research investigations are incorporated into management plans and actions, and help strengthen the decision-making process.

The Refuge proposes to give priority to studies that contribute to the enhancement, protection, preservation, and management of native Refuge plant and wildlife populations and their habitats. Research applicants are required to submit a proposal that outlines: (1) objectives of the study; (2) justification for the study; (3) detailed methodology and schedule; (4) potential impacts on Refuge wildlife or habitat, including disturbance (short and long term), injury, or mortality (this includes a description of measures the researcher will take to reduce disturbance or impacts); (5) research personnel required; (6) status of necessary permits; (7) costs to Refuge, if any; and (8) progress reports and end products (i.e., reports, thesis, dissertations, publications). Research proposals are reviewed by Refuge staff, and if approved, a Special Use Permit (SUP) is issued by the refuge manager to formally authorize any project. Each SUP will include case-specific stipulations and will be reviewed annually.

Evaluation criteria will include, but not be limited to, the following:

- Research that will contribute to specific refuge management issues will be given higher priority over other research requests.
- Research that will conflict with other ongoing research, monitoring, or management programs will not be approved.
- Research projects that can be accomplished off-refuge are less likely to be approved.
- Research that causes undue disturbance or is intrusive will likely not be approved. Level and type of disturbance will be carefully evaluated when considering a request. Suggestions may be made to adjust the location, timing, scope, number of permittees, study methods, number of study sites, etc.
- If staffing or logistics make it impossible for the Refuge to monitor researcher activity in a sensitive area, the research request may be denied.
- The length of the project will be considered and agreed upon before approval. Projects will be reviewed annually.

**Availability of Resources:**

Some staff time would be required to review research requests and manage research activities. However, Refuge staff would not be expected to commit weekly staff time to managing this use. Adequate funding and staff exist to manage research activities at Bitter Creek NWR.

**Anticipated Impacts of Use:**

Conducting management-oriented research will benefit Refuge wildlife and plant populations, and their habitat. Monitoring and research investigations will be designed to answer habitat or population management questions, thereby contributing to adaptive management of the Refuge. Natural resources inventory, monitoring and research are necessary tools towards maintaining biological integrity, diversity and environmental health. Information gained from quality research will improve habitat and wildlife populations.

Some negative direct and indirect effects would occur through disturbance, which is expected with some research activities, especially where researchers are entering sensitive habitat areas. Researcher disturbance would include actions like altering wildlife behavior and habitat, going off designated trails, collecting soil, plant and animal samples, trampling of plants and animals, introduction of invasive organisms (e.g., non-native weeds), or trapping and handling wildlife. However, most of these effects would be short-term because only the minimum of samples (e.g., water, soils, vegetative litter, plants, and macroinvertebrates) required for identification and/or experimentation and statistical analysis would be permitted and captured and marked wildlife would be released. Long-term effects would be negligible because Refuge evaluation of research proposals and conditions of SUPs would ensure that impacts, such as disturbance and introduction of invasive organisms, to wildlife and habitats are avoided or minimized. Refuge staff would ensure research projects contribute to the enhancement, protection, preservation, and management of native Refuge wildlife populations and their habitats, thereby helping the Refuge fulfill the purposes for which it was established and the mission of the National Wildlife Refuge System.

**Public Review and Comment:**

Public review and comments were solicited in conjunction with distribution of the March 2012 Draft CCP/EA for the Hopper Mountain, Bitter Creek, and Blue Ridge NWRs. The Service's responses to comments received were included in the Final CCP/EA.

**Determination:**

This program as described is determined to be compatible. Potential impacts of research activities on Refuge resources will be minimized because sufficient restrictions and safeguards would be included in

the SUP, and research activities will be monitored by the refuge manager. The refuge manager would ensure that proposed monitoring and research investigations would contribute to the enhancement, protection, conservation, and management of native Refuge wildlife populations and their habitats thereby helping the Refuge fulfill the purposes for which it was established, the mission of the National Wildlife Refuge System, and the need to maintain ecological integrity, diversity, and environmental health.

Use is Not Compatible

Use is Compatible with the Following Stipulations

**Stipulations necessary to ensure compatibility:**

The criteria for evaluating a research proposal, outlined in the Description of Use section above, will be used when determining whether a proposed study will be approved on the Refuge.

1. If proposed research methods are evaluated and determined to have potential adverse impacts on Refuge wildlife or habitat, then the Refuge staff would determine the utility and need of such research to conservation and management of Refuge wildlife and habitat.
2. If the need was demonstrated by the research permittee and accepted by the Refuge, then measures to minimize potential impacts (e.g., reduce the numbers of researchers entering an area, restrict research in specified areas) would be developed and included as part of the study design and SUP. SUPs will contain specific terms and conditions the researcher(s) must follow relative to activity, location, duration, seasonality, etc. to ensure continued compatibility.
3. All Refuge rules and regulations must be followed unless otherwise accepted in writing by Refuge management.
4. Prior to initiating research activities, the researcher is responsible for securing all required permits and completing all environmental compliance requirements. For example, if the proposed research activity may affect listed species, the researcher is responsible for ensuring compliance with section 10 of the Endangered Species Act.
5. Refuge staff will monitor researcher activities for potential impacts to the Refuge and for compliance with conditions on the SUPs.
6. Research activities will be modified to avoid harm to sensitive wildlife and habitat when unforeseen impacts arise.
7. The refuge manager may determine that previously approved research and SUPs be terminated due to observed impacts.
8. The refuge manager will also have the ability to cancel an SUP if the researcher is out of compliance with the conditions of the SUP.

**Justification:**

This program as described is determined to be compatible. The Refuge has a biological program that encourages outside experts to conduct research that contributes to management needs. These include, but are not limited to, California condor research, evaluation of vegetation and wildlife response to habitat management techniques, wildlife and plant population monitoring, documentation of seasonal wildlife movements and habitat use, wildlife disease investigations, and development of invasive species management techniques. To support these programs it is necessary to permit research and monitoring on the Refuge that may be beyond current staffing levels, expertise, and funding. Research and monitoring permitted on the Refuge are those that are geared toward improving management or monitoring capabilities. Research and monitoring are appropriate tools to gain additional knowledge for managing the Refuge. This use is also consistent with the goals and objectives prescribed with the comprehensive conservation plan for the Refuge, as well as recovery plans for the California condor, giant kangaroo rat (*Dipodomys ingens*), San Joaquin kit fox (*Vulpes macrotis mutica*), and blunt-nosed leopard lizard (*Gambelia [=Crotaphytus] sila*). Surveys and monitoring for the species of interest like tricolored blackbirds (*Agelaius tricolor*), burrowing owls (*Athene cunicularia hypugaea*),

pronghorn (*Antilocapra americana*) and tule elk (*Cervus elaphus nannodes*) would help to improve overall management knowledge. Also, determining all plant and animal species that occur on the Refuge would provide a starting point from which to fulfill our Refuge mission.

Potential impacts of research activities on Refuge resources will be minimized because sufficient restrictions would be included and will be monitored by the refuge manager and biologist. The refuge manager will also ensure the research program and associated projects contribute to the enhancement, protection, conservation, and management of native wildlife populations and their habitats, thereby helping the Refuge fulfill the purposes for which it was established, the mission of the National Wildlife Refuge System, and the need to maintain ecological integrity, diversity, and environmental health.

**Mandatory Re-Evaluation Date (2023):**


- Mandatory 15-year Re-Evaluation (for priority public uses)
- Mandatory 10-year Re-Evaluation (for all uses other than priority public uses)

**NEPA Compliance for Refuge Use Decision (check one below):**

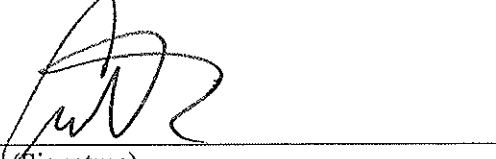
- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

**Refuge Determination**

Prepared by:  6/25/13  
 (Signature) (Date)

Refuge Manager/  
 Project Leader  
 Approval:  6/25/13  
 (Signature) (Date)

**Concurrence**

Refuge Supervisor:  7/16/2013  
 (Signature) (Date)

Assistant Regional  
 Director, Refuges: Margaret J. Kalar 7/23/2013  
 (Signature) (Date)



## **COMPATIBILITY DETERMINATION**

**Use:** Interpretation

**Refuge Name:** Blue Ridge National Wildlife Refuge (NWR), Tulare County, California.

*<http://www.fws.gov/hoppermountain/BlueRidge/BlueRidgeNWR.html>*

**Establishing and Acquisition Authority:**

Blue Ridge NWR was established in 1982. Legal authority includes the Endangered Species Act of 1973 (16 U.S.C. 1531-1543; 87 Statute 884), as amended.

**Refuge Purpose(s):**

The U.S. Fish and Wildlife Service (USFWS or Service) acquired these lands "... to conserve (A) fish or wildlife which are listed as endangered species or threatened species ... or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543, as amended).

**National Wildlife Refuge System Mission:**

"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd-ee]).

**Description of Use:**

The National Wildlife Refuge System Improvement Act of 1997 identifies interpretation as well as environmental education, hunting, fishing, wildlife observation, and photography as priority wildlife-dependent public uses for refuges. As one of the six priority public uses of the Refuge System, this use is to be encouraged when compatible with the purposes of the refuges. Many elements of interpretation are also similar to opportunities provided in the wildlife observation and photography programs. These uses are identified and discussed in detail in the Draft Comprehensive Conservation Plan (CCP) and Environmental Assessment (EA) which is incorporated by reference.

The guiding principles of the Refuge System's interpretive programs (605 FW 7 of the Service Manual) are to:

- Promote visitor understanding of, and increase appreciation for, America's natural and cultural resources and conservation history by providing safe, informative, enjoyable, and accessible interpretive opportunities, products, and facilities;
- Develop a sense of stewardship leading to actions and attitudes that reflect interest and respect for wildlife resources, cultural resources, and the environment;
- Provide quality interpretive experiences that help people understand and appreciate the individual refuge and its role in the Refuge System;
- Provide opportunities for quality recreational and interpretive experiences consistent with criteria describing quality found in 605 FW 1.6;
- Assist refuge staff, volunteers, and community support groups in attaining knowledge, skills, and abilities in support of interpretation; and
- Minimize conflicts with visitors participating in other compatible wildlife-dependent recreational activities.

The Refuge would develop on-site interpretative signs to provide more opportunities for participants of all ages to learn about the Refuge, National Wildlife Refuge System, U.S. Fish and Wildlife Service, California condors (*Gymnogyps californianus*) and local wildlife populations and habitats.

Using existing trails and fire roads, the Refuge proposes to develop a self-guided interpretive infrastructure using interpretive panels at the trailhead and points of interest (e.g., restoration sites, wildlife viewing areas, and the Refuge entrance). A general information kiosk would be installed at the Refuge entrance, providing Refuge information (e.g., map of the area, rules and regulations). A small area for parking vehicles off the roadways would be established at trailheads.

Elements required for conducting the interpretive program include:

- Develop and install general information kiosk at the Refuge entrance.
- Develop and install interpretive/information panels at trailheads.
- Create safe off-roadway parking at trailheads for trail users.

**Availability of Resources:**

Additional funds would be required to fully implement the interpretive trails, signs, and parking infrastructure. Funding will be sought through the Service budget process. Other sources may be sought through partnerships, grants, and additional refuge operations funding to support a safe and quality program as described above. Maintenance of the additional infrastructure will require additional staff time for trail, kiosk and sign repair, and trash collection throughout the year. A refuge law enforcement officer would be needed to ensure safety and compliance for Refuge visitors.

The following funding/annual costs (based on FY 2010 costs) would be required to administer and manage interpretation activities as described above:

Item	One-Time Cost	Annual Costs
Install bilingual information kiosk at Refuge entrance	\$30,000	\$500
Additional staff time (0.1 FTE)	\$7,500	\$7,500
Refuge law enforcement officer (0.1 FTE)	-	\$9,000
<b>TOTAL</b>	<b>\$37,500</b>	<b>\$17,000</b>

**Anticipated Impacts of Use:**

The presence of humans will disturb wildlife causing temporary displacement without long-term effects on populations. Some species will avoid the areas people frequent, while others will seemingly be unaffected by the presence of humans. The response of wildlife to human activities includes: site departure (Owen 1973, Burger 1981, Henson and Grant 1991, Klein 1993), use of suboptimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior (Burger 1981, Morton et al. 1989, Havera et al. 1992, Klein 1993), and increase in energy expenditure (Morton et al. 1989, Belanger and Bedard 1990). The location of recreational activities impacts species in different ways. Miller et al. (1998) found that nesting success was lower near recreational trails, where human activity was common, than at greater distances from the trails. A number of species have shown greater reactions when pedestrian use occurred off trail (Miller et al. 1998).

For songbirds, Gutzwiller et al. (1997) found that singing behavior of some species was altered with low levels of human intrusion. Pedestrian travel can impact normal behavioral activities, including feeding, reproductive, and social behavior. Studies have shown that ducks and shorebirds are sensitive to pedestrian activity (Burger 1981, 1986). In areas where human activity is common, birds tolerated closer approaches than in areas receiving less activity.

In the past, human/condor interactions have been a major concern of the recovery effort. Captive reared birds released into the wild were thought to be prone to human oriented behaviors which can increase the likelihood of injury or harm (Meretsky et al. 2000). As the population has become older and more established in the wild these behaviors have become less frequent but can still occur where condors and human activity come in close proximity to one another (Cade et al. 2004). To avoid interaction between humans and free flying condors, trails will not be sited within 1000 meters of any historic roost locations. The Refuge lacks any sensitive management areas such as flight pens or feeding sites and disturbance of condor management activities is not a concern. Traffic on the trail is anticipated to be less than many other areas within the condor's range where hiking trails exist and human activities occur at much higher levels without a problem, such as Pinnacles National Monument, a release site for condors in central California.

Education helps make visitors aware that their actions can have negative impacts on birds, and will increase the likelihood that visitors will abide by restrictions on their actions. For example, Klein (1993) demonstrated that visitors who had spoken with refuge staff or volunteers were less likely to disturb birds. Increased surveillance and imposed fines may also help reduce visitor caused disturbance (Knight and Gutzwiller 1995). Monitoring is recommended to adjust management techniques over time, particularly because it is often difficult to generalize about the impacts of specific types of recreation in different environments. Local and site-specific knowledge is necessary to determine effects on birds and to develop effective management strategies (Hockin et al. 1992, Hill et al. 1997). Informed management decisions coupled with sufficient public education could do much to mitigate disturbance effects of wildlife-dependent recreations (Purdy et al. 1987).

The construction and maintenance of trails and parking lots will have minor impacts on soils and vegetation around the trails. This could include an increased potential for erosion, soil compaction (Liddle 1975), reduced seed emergence (Cole and Landres 1995), alteration of vegetative structure and composition, and sediment loading (Cole and Marion 1988).

Interpretation activities generally support a refuge's purposes and impacts can largely be minimized (Goff et al. 1988). The minor resource impacts attributed to these activities are generally outweighed by the benefits gained by educating present and future generations about refuge resources. Interpretation activities are public use management tools used to develop a resource protection ethic within society. This tool allows us to educate refuge visitors about endangered and threatened species management, wildlife management and ecological principles and communities. A secondary benefit of interpretation is that it instills an "ownership" or "stewardship" ethic in visitors and most likely reduces vandalism, littering and poaching. It also strengthens U.S. Fish and Wildlife Service visibility in the local community.

The Service has completed section 7 ESA compliance on the implementation of CCP activities.

**Public Review and Comment:**

Public review and comments were solicited in conjunction with distribution of the March 2012 Draft CCP/EA for the Hopper Mountain, Bitter Creek, and Blue Ridge NWRs. The Service's responses to comments received were included in the Final CCP/EA.

**Determination** (check one below):

Use is Not Compatible

Use is Compatible with the Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

To allow public access to the Refuge for interpretation, the following measures will be taken:

1. Interpretation would only be allowed between sunrise and sunset, unless it is part of a refuge-led activity.
2. Public access would be restricted to trails, other designated facilities/areas, and appropriate times of year where the least disruption to wildlife and their habitats would occur.
3. Regulations and wildlife friendly behavior (e.g., requirements to stay on designated trails, no dogs, etc.) would be posted at the general information kiosk and described in brochures.
4. Maps and visitor use information would also be available at the Refuge Headquarters and the Complex website.
5. Collection of plants, animals and other specimens, debris or artifacts would be prohibited unless the collection is part of a refuge-led activity.
6. Regulations would be enforced to ensure public safety and to prevent resource impacts.
7. Trails should not be within 1,000 meters of historic condor roost trees.

**Justification:**

After assessing the potential impacts from the uses proposed for the Refuge it was determined that allowing these uses would not materially interfere with or detract from the purposes for which the Refuge was created or the mission of the National Wildlife Refuge System. Interpretive programs would provide opportunities for the visiting public to learn about and experience native plants and wildlife in their natural habitat. The Refuge can also educate the public about its role within the U.S. Fish and Wildlife Service and the National Wildlife Refuge System, developing better community awareness, volunteer involvement and advocacy. The Blue Ridge NWR also has the opportunity to provide the community educational information on habitat restoration, federally listed species, migratory birds and wetland conservation on the Refuge. Interpretation promotes awareness and knowledge of Refuge resources, and would be balanced to ensure that wildlife species receive priority consideration when evaluating public access opportunities.

**Mandatory Re-Evaluation Date (2028):**

- Mandatory 15-year Re-Evaluation (for priority public uses)
- Mandatory 10-year Re-Evaluation (for all uses other than priority public uses)

**NEPA Compliance for Refuge Use Decision (check one below):**

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

**References:**

- Belanger, L., and J. Bedard. 1990. Energetic cost of man-induced disturbance to staging snow geese. *Journal of Wildlife Management* 54:36.
- Burger, J. 1981. The effect of human activity on birds at a coastal bay. *Biol. Cons.* 21:231-241.
- Burger, J. 1986. The effect of human activity on shorebirds in two coastal bays in northeastern United States. *Biological Conservation* 13:123-130.
- Cade, T., Osborn, S. A. H., Hunt, W. G., and Woods, C. P. 2004. Commentary on released California Condors *Gymnogyps californianus* in Arizona. Chancellor, R. D. and B-U. Meyburg. *Raptors Worldwide: Proceedings of the 6th World Conference on Birds of Prey and Owls*. Berlin: World Working Group for Birds of Prey. 2006. 11–24.
- Cole, D. N. and P. B. Landres. 1995. Indirect effects of recreation on wildlife. Pages 183-201 in R. L. Knight and K. J. Gutzwiller, ed. *Wildlife and Recreationists: coexistence through management and research*, Island Press, Washington, D. C. 372pp.
- Cole, D. N. and J. L. Marion. 1988. Recreation impacts in some riparian forests of the eastern United States. *Env. Manage.* 12:99-107.
- Erwin, R. M. 1980. Breeding habitat by colonially nesting water birds in 2 mid-Atlantic U.S. regions under different regimes of human disturbance. *Biological Conservation*. 18:39-51.
- Goff, G.R., D.J. Decker and G. Pomerantz. 1988. A diagnostic tool for analyzing visitor impacts on wildlife refuges: A basis for a systematic approach to visitor management. *Trans. Northeast Sect. Wildl. Soc.* 45:82.
- Gutzwiller, K.J., R.T. Wiedenmann, and K.L. Clements. 1997. Does human intrusion alter the seasonal timing of avian song during breeding periods? *Auk*. 114:55-65.
- Havera, S.P., L.R. Boens, M.M. Georgi, and R.T. Shealy. 1992. Human disturbance of waterfowl on Keokuk Pool, Mississippi River. *Wildlife Society Bulletin*. 20:290-298.
- Henson, P.T., and A. Grant. 1991. The effects of human disturbance on trumpeter swan breeding behavior. *Wildlife Society Bulletin*. 19:248-257.
- Hill, D., D. Hockin, D. Price, G. Tucker, R. Morris, and J. Treweek. 1997. Bird disturbance: improving the quality and utility of disturbance research. *Journal of Applied Ecology* 34:275-288.
- Hockin, D., M. Ounsted, M. Gorman, D. Hill, V. Keller, and M. A. Barker. 1992. Examination of the effects of disturbance on birds with reference to its importance in ecological assessments. *Journal of Environmental Management* 36:253-286.
- Klein, M. L. 1993. Waterbird behavioral responses to human disturbances. *Wildl. Soc. Bull.* 21:31-39.
- Knight, R.L., and K. J. Gutzwiller, ed. 1995. *Wildlife and Recreationists: coexistence through management and research*. Island Press, Washington, D. C. 372 pp.

Liddle, M. J. 1975. A selective review of the ecological effects on human trampling on natural ecosystems. Biol. Conserv. 7:17-36.

Meretsky, V. J., Snyder, N. F. R., Beissinger, S. R., Clendenen, D. A. and Wiley, J. W.(2000), Demography of the California Condor: Implications for Reestablishment. Conservation Biology, 14: 957-967.

Miller, S. G., R. L. Knight, and C. K. Miller. 1998. Influence of recreational trails on breeding bird communities. Ecol. Appl. 8:162-169.

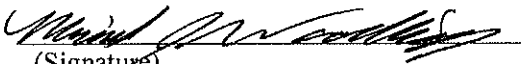
Morton, J.M., A.C. Fowler, and R.L. Kirkpatrick. 1989. Time and energy budgets of American black ducks in winter. Journal of Wildlife Management. 53:401-410.


Owen, M. 1973. The management of grassland areas for wintering geese. Wildfowl 24:123- 130

Purdy, K. G., G. R. Goff, D. J. Decker, G. A. Pomerantz, and N. A. Connelly. 1987. A guide to managing human activity on National Wildlife Refuges. Office of Information Transfer, U.S. Fish and Wildlife Service, Ft. Collins, CO. 57 pp.

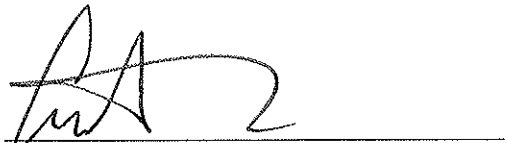
Williams, G.J., and E. Forbes. 1980. The habitat and dietary preferences of dark-bellied Brant geese and widgeon in relation to agricultural management. Wildfowl. 31:151-157.

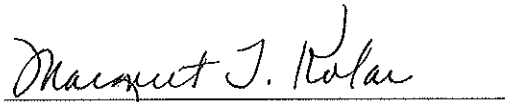
**Refuge Determination**

Prepared by:  6/25/13  
(Signature) (Date)

Refuge Manager/  
Project Leader  
Approval:  6/25/13  
(Signature) (Date)

**Concurrence**

Refuge Supervisor:  7/16/2013  
(Signature) (Date)

Assistant Regional  
Director, Refuges:  7/23/2013  
(Signature) (Date)

## **COMPATIBILITY DETERMINATION**

**Use:** Wildlife Observation and Photography

**Refuge Name:**

Blue Ridge National Wildlife Refuge (NWR), Tulare County, California.

<http://www.fws.gov/hoppermountain/BlueRidge/BlueRidgeNWR.html>

**Establishing and Acquisition Authority:**

Blue Ridge NWR was established in 1982. Legal authority includes the Endangered Species Act of 1973 (16 U.S.C. 1531-1543; 87 Statute 884), as amended.

**Refuge Purpose(s):**

The U.S. Fish and Wildlife Service (USFWS or Service) acquired these lands "... to conserve (A) fish or wildlife which are listed as endangered species or threatened species ... or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543, as amended).

**National Wildlife Refuge System Mission:**

"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd-ee]).

**Description of Use:**

The National Wildlife Refuge System Improvement Act of 1997 identifies wildlife observation and photography as well as hunting, fishing, interpretation, and environmental education as priority wildlife-dependent public uses for refuges. As two of the six priority public uses of the Refuge System, these uses are to be encouraged when compatible with the purposes of the refuges. Wildlife observation and photography are considered simultaneously in this compatibility determination. Many elements of the wildlife observation and photography programs are also similar to opportunities provided in the interpretation program. These uses are described in the Draft Comprehensive Conservation Plan (CCP) and Environmental Assessment (EA) and are incorporated by reference.

The guiding principles of the Refuge System's wildlife observation and wildlife photography programs (Service Manual 605 FW 4 and 5) are to:

- Provide safe, enjoyable, and accessible wildlife viewing opportunities and facilities.
- Promote visitor understanding of, and increase visitor appreciation for, America's natural resources.
- Provide opportunities for quality recreational and educational experiences consistent with criteria describing quality found in Service Manual 605 FW 1.6.
- Minimize conflicts with visitors participating in other compatible wildlife-dependent recreation activities.

With implementation of the approved Final CCP, areas of Blue Ridge NWR will be open public use for wildlife observation and photography. The Service plans to develop and construct self-guided interpretive trails using existing trails and fire roads. This area is important for wildlife observation and photography activities, as it provides the public with a place to learn about California condors (*Gymnogyps californianus*), the Recovery Program, Blue Ridge NWR, the National Wildlife Refuge System and U.S. Fish and Wildlife Service.

Several of the elements required to support these programs (e.g., construct parking area, trail system and general information kiosks at trailheads and the Refuge entrance) are the same as for the interpretation program. These elements are discussed in further detail and broken down by cost in the Interpretation Compatibility Determination.

These two priority uses will provide opportunities for the public to observe wildlife habitats firsthand and learn about wildlife and wild lands in an unstructured environment. Photographers will gain opportunities to photograph wildlife and natural habitats. These opportunities can result in increased publicity and advocacy for Service programs.

**Availability of Resources:**

Additional funds would be required to provide wildlife observation and photography opportunities. Funding will be sought through the Service budget process. Other sources may be sought through partnerships, grants, and additional refuge operations funding to support a safe and quality program as described above. Maintenance of the additional infrastructure will require additional staff time for trail, kiosk and sign repair and trash collection throughout the year. Staff time is also needed to develop materials and infrastructure to facilitate safe and informative visitor experiences. Refuge law enforcement (shared with the other three refuges in the Refuge Complex) would be needed to protect infrastructure and provide a safe visitor experience.

The following funding/annual costs (based on FY 2010 costs) would be required to administer and manage wildlife observation and photography activities as described above:

Item	One-Time Cost	Annual Costs
Refuge law enforcement officer (0.1 FTE)	-	\$9,000
Additional staff time (0.1 FTE)	\$7,500	\$7,500
<b>TOTAL</b>	\$7,500	\$16,500

**Anticipated Impacts of Use:**

Once considered “non-consumptive,” it is now recognized that wildlife observation and wildlife photography can negatively impact wildlife by altering wildlife behavior, reproduction, distribution, and habitat (Purdy et al. 1987, Knight and Cole 1995).

Purdy et al. (1987) and Pomerantz et al. (1988) described six categories of impacts to wildlife as a result of visitor activities. They are:

1. Direct mortality: immediate, on-site death of an animal;
2. Indirect mortality: eventual, premature death of an animal caused by an event or agent that predisposed the animal to death;
3. Lowered productivity: reduced fecundity rate, nesting success, or reduced survival rate of young before dispersal from nest or birth site;
4. Reduced use of refuge: wildlife not using the refuge as frequently or in the manner they normally would in the absence of visitor activity;
5. Reduced use of preferred habitat on the refuge: wildlife use is relegated to less suitable habitat on the refuge due to visitor activity; and
6. Aberrant behavior/stress: wildlife demonstrating unusual behavior or signs of stress likely to result in reduced reproductive or survival rates.

Individual animals may be disturbed by human contact to varying degrees. Human activities on trails can result in direct effects on wildlife through harassment, a form of disturbance that can cause physiological effects, behavioral modifications, or death (Smith and Hunt 1995). Many studies have shown that birds



can be impacted from human activities on trails when they are disturbed and flushed from feeding, resting, or nesting areas. Flushing, especially repetitive flushing, can strongly impact habitat use patterns of many bird species. Flushing from an area can cause birds to expend more energy, be deterred from using desirable habitat, affect resting or feeding patterns, and increase exposure to predation or cause birds to abandon sites with repeated disturbance (Smith and Hunt 1995). Migratory birds were observed to be more sensitive than resident species to disturbance (Klein 1989).

Nest predation for songbirds (Miller et al. 1998), raptors (Glinski 1976), colonial nesting species (Buckley and Buckley 1976), and waterfowl (Boyle and Samson 1985) tends to increase in areas more frequently visited by people. In addition, for many passerine species, primary song occurrence and consistency can be impacted by a single visitor (Gutzwiller et al. 1994). In areas where primary song was affected by disturbance, birds appeared to be reluctant to establish nesting territories (Reijnen and Foppen 1994).

Depending on the species (especially migrants vs. residents), some birds may habituate to some types of recreation disturbance and either are not disturbed or will immediately return after the initial disturbance (Hockin et al. 1992; Burger et al. 1995; Knight and Temple 1995; Madsen 1995; Fox and Madsen 1997).

In the past, human condor interactions have been a major concern of the recovery effort. Captive reared birds released into the wild were thought to be prone to human oriented behaviors which can increase the likelihood of injury or harm (Meretsky et al. 2000). As the population has become older and more established in the wild these behaviors have become less frequent but can still occur where condors and human activity come in close proximity to one another (Cade et al. 2004). To avoid interaction between humans and free flying condors, trails will not be sited within 1,000 meters of any historic roost locations. The refuge lacks any sensitive management areas such as flight pens or feeding sites and disturbance of condor management activities is not a concern. Traffic on the trail is anticipated to be less than many other areas within the condor's range where hiking trails exist and human activities occur at much higher levels without a problem, such as Pinnacles National Monument, a release site for condors in central California.

Of the wildlife observation techniques, wildlife photographers tend to have the largest disturbance impacts (Klein 1993, Morton 1995, Dobb 1998). While wildlife observers frequently stop to view species, wildlife photographers are more likely to approach wildlife (Klein 1993). Even slow approach by wildlife photographers tends to have behavioral consequences to wildlife species (Klein 1993). Other impacts include the potential for photographers to remain close to wildlife for extended periods of time, in an attempt to habituate the wildlife subject to their presence (Dobb 1998) and the tendency of casual photographers, with low-power lenses, to get much closer to their subjects than other activities would require (Morton 1995), including wandering off trails. This usually results in increased disturbance to wildlife and habitat, including trampling of plants.

People can be vectors for invasive plants by moving seeds or other propagules from one area to another. Once established, invasive plants can out-compete native plants, thereby altering habitats and indirectly impacting wildlife. The threat of invasive plant establishment will always be an issue requiring annual monitoring and treatment when necessary. Refuge staff will work at eradicating invasive plants and educating the visiting public.

Refuge staff, in collaboration with volunteers and researchers, will monitor and evaluate the effects of these priority uses to discern if adverse effects to wildlife or habitats result from the uses. Temporary area closures and seasonal guidelines may be used to minimize impacts.

The Service has completed section 7 ESA compliance on the implementation of CCP activities.

**Public Review and Comment:**

Public review and comments were solicited in conjunction with distribution of the March 2012 Draft CCP/EA for the Hopper Mountain, Bitter Creek, and Blue Ridge NWRs. The Service's responses to comments received were included in the Final CCP/EA.

**Determination:**

Use is Not Compatible

Use is Compatible with the Following Stipulations

**Stipulations necessary to ensure compatibility:**

1. Wildlife observation and photography would only be allowed between sunrise and sunset, unless they are part of a refuge-led activity.
2. Public access would be restricted to trails, other designated facilities/areas, and appropriate times of year where the least disruption to wildlife and their habitats would occur.
3. Trails would avoid sensitive condor roosting and nesting areas.
4. Regulations and wildlife friendly behavior (e.g., requirements to stay on designated trails, no dogs, etc.) would be posted at the general information kiosk and described in brochures.
5. Maps and visitor use information would also be available at the Refuge Headquarters and the Refuge Complex website.
6. Collection of plants, animals and other specimens, debris or artifacts would be prohibited unless the collection is part of a refuge-led activity.
7. Regulations would be enforced to ensure public safety and to prevent resource impacts.
8. Trails should not be within 1,000 meters of historic condor roost trees.

**Justification:**

After assessing the potential impacts from the uses proposed for the Refuge, it was determined that allowing these uses would not materially interfere with or detract from the purposes for which the Refuge was created or the mission of the National Wildlife Refuge System. Providing opportunities for wildlife observation and photography would contribute toward fulfilling provisions of the National Wildlife Refuge System Administration Act, as amended in 1997. Wildlife observation and photography provide an excellent forum for allowing public access and increasing understanding of the Refuge's resources. These activities would allow visitors to experience and learn about native wildlife and plant species on Blue Ridge NWR. The Refuge will provide opportunities for wildlife enjoyment not usually available on adjacent private land. Refuge visitors will better understand the challenges facing our wildlife and wild land resources, what effects the public can have on wildlife resources, and learn more about the U.S. Fish and Wildlife Service's role in conservation. With the stipulations considered in this compatibility determination, wildlife observation and photography would be compatible with Refuge purposes and the System mission.

**Mandatory Re-Evaluation Date (2028):**

Mandatory 15-year Re-Evaluation (for priority public uses)

Mandatory 10-year Re-Evaluation (for all uses other than priority public uses)

**NEPA Compliance for Refuge Use Decision** (check one below):

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

**References:**

- Boyle, S. A. and F. B. Samson. 1985. Effects of non-consumptive recreation on wildlife: a review. *Wildl. Soc. Bull.* 13:110-116.
- Buckley, P. A. and F. G. Buckley. 1976. Guidelines for protection and management of colonially nesting waterbirds. North Atlantic Regional Office, National Park Service, Boston, MA. 52 pp.
- Burger, J., M. Gochfeld, and L. J. Niles. 1995. Ecotourism and birds in coastal New Jersey: Contrasting responses of birds, tourists, and managers. *Environmental Conservation* 22:56-65.
- Cade, T., Osborn, S. A. H., Hunt, W. G., and Woods, C. P. 2004. Commentary on released California Condors *Gymnogyps californianus* in Arizona. Chancellor, R. D. and B-U. Meyburg. *Raptors Worldwide: Proceedings of the 6th World Conference on Birds of Prey and Owls*. Berlin: World Working Group for Birds of Prey. 2006. 11-24.
- Dobb, E. 1998. Reality check: the debate behind the lens. *Audubon*: Jan.-Feb.
- Fox, A. D., and J. Madsen. 1997. Behavioral and distributional effects of hunting disturbance on waterbirds in Europe: implications for refuge design. *The Journal of Applied Ecology* 34:1-13.
- Glinski, R. L. 1976. Birdwatching etiquette: the need for a developing philosophy. *Am. Bird* 30(3):655-657.
- Gutzwiller, K. J., R. T. Wiedenmann, K. L. Clements, and S. H. Anderson. 1994. Effects on human intrusion on song occurrence and singing consistency in subalpine birds. *Auk* 111:28-37.
- Hockin, D., M. Ounsted, M. Gorman, D. Hill, V. Keller, and M. A. Barker. 1992. Examination of the effects of disturbance on birds with reference to its importance in ecological assessments. *Journal of Environmental Management* 36:253-286.
- Klein, M. 1989. Effects of high levels of human visitation on foraging waterbirds at J. N. "Ding" Darling National Wildlife Refuge, Sanibel Florida. Masters thesis. Gainesville, Florida: University of Florida.
- Klein, M. L. 1993. Waterbird behavioral responses to human disturbances. *Wildl. Soc. Bull.* 21:31-39.
- Knight, R. L. and D. N. Cole. 1995. Wildlife responses to recreationists. Pages 71-79 in R. L. Knight and K. J. Gutzwiller, ed. *Wildlife and Recreationists: coexistence through management and research*. Island Press, Washington, D. C. 372pp.

Knight, R. L. and S. A. Temple. 1995. Origin of wildlife responses to recreationists. In *Wildlife and recreation: coexistence through management and research*. R. L. Knight and K. J. Gutzwiller, eds. Island Press, Washington, D. C., pp 81-91.

Madsen, J. 1995. Impacts of disturbance on migratory waterfowl. *Ibis* 137 Supplemental: S67-S74.

Meretsky, V. J., Snyder, N. F. R., Beissinger, S. R., Clendenen, D. A. and Wiley, J. W.(2000), *Demography of the California Condor: Implications for Reestablishment*. *Conservation Biology*, 14: 957-967.

Miller, S. G., R. L. Knight, and C. K. Miller. 1998. Influence of recreational trails on breeding bird communities. *Ecol. Appl.* 8:162-169.

Morton, J. M. 1995. Management of human disturbance and its effects on waterfowl. Pages F59-F86 in W. R. Whitman, T. Strange, L. Widjeskog, R. Whittemore, P. Kehoe, and L. Roberts (eds.). *Waterfowl habitat restoration, enhancement and management in the Atlantic Flyway*. Third Ed. Environmental Manage. Comm., Atlantic Flyway Council Techn. Sect., and Delaware Div. Fish and Wildl., Dover, DE. 1114pp.

Pomerantz, G. A., D. J. Decker, G. R. Goff, and K. G. Purdy. 1988. Assessing impact of recreation on wildlife: a classification scheme. *Wildl. Soc. Bull.* 16:58-62.

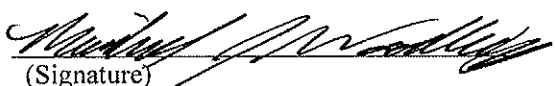
Purdy, K. G., G. R. Goff, D. J. Decker, G. A. Pomerantz, and N. A. Connelly. 1987. A guide to managing human activity on National Wildlife Refuges. Office of Information Transfer, U.S. Fish and Wildlife Service, Ft. Collins, CO. 57 pp.

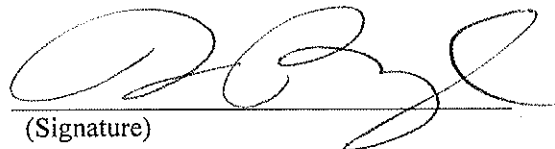
Reijnen, R. and R. Foppen. 1994. The effects of car traffic on breeding bird populations in woodland. I. Evidence of reduced habitat quality for willow warbler (*Pyloscopus trochilus*) breeding close to a highway. *J. Appl. Ecol* 31:85-94.

Smith, L. and J. D. Hunt. 1995. Nature tourism: impacts and management. Pp. 203-219 in Knight, R. L.; Gutzwiller, K. J. (*Wildlife and recreationists: coexistence through management and research*, eds.) Island Press, Washington, D. C.

Woodhams, D.C., R.A. Alford, and G. Marantelli. 2003. Emerging disease of amphibians cured by elevated body temperature. *Dis Aquat Org* 55: 65-67.


**Refuge Determination**

Prepared by:  6/25/13  
(Signature) (Date)

Refuge Manager/  
Project Leader  
Approval:  6/25/13  
(Signature) (Date)

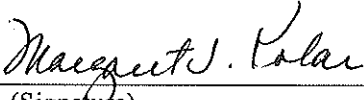
**Concurrence**

Refuge Supervisor:

  
\_\_\_\_\_  
(Signature)

7/16/2013  
(Date)

Assistant Regional  
Director, Refuges:

  
\_\_\_\_\_  
(Signature)

7/23/2013  
(Date)

## **COMPATIBILITY DETERMINATION**

**Use:** Research

**Refuge Name:**

Blue Ridge National Wildlife Refuge, Tulare County, California.

*<http://www.fws.gov/hoppermountain/BlueRidge/BlueRidgeNWR.html>*

**Establishing and Acquisition Authority:**

Blue Ridge National Wildlife Refuge was established in 1982. Legal authority includes the Endangered Species Act of 1973 (16 U.S.C. 1531-1543: 87 Statute 884), as amended.

**Refuge Purpose(s):**

The U.S. Fish and Wildlife Service (USFWS or Service) acquired these lands "... to conserve (A) fish or wildlife which are listed as endangered species or threatened species ... or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543, as amended).

**National Wildlife Refuge System Mission:**

"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd-ee]).

**Description of Use:**

Two provisions of the National Wildlife Refuge Improvement Act are to "maintain biological integrity, diversity and environmental health" and to conduct "inventory and monitoring." Research investigations are designed to address these provisions by answering specific management questions. These include, but are not limited to, evaluation of vegetation and wildlife response to habitat management techniques, wildlife and plant population monitoring, documentation of seasonal wildlife movements and habitat use, wildlife disease investigations, and development of invasive species management techniques. Pertinent results from research investigations are incorporated into management plans and actions, and help strengthen the decision-making process.

The Refuge proposes to give priority to studies that contribute to the enhancement, protection, preservation, and management of native Refuge plant and wildlife populations and their habitats. Research applicants are required to submit a proposal that outlines: (1) objectives of the study; (2) justification for the study; (3) detailed methodology and schedule; (4) potential impacts on Refuge wildlife or habitat, including disturbance (short and long term), injury, or mortality (this includes a description of measures the researcher will take to reduce disturbance or impacts); (5) research personnel required; (6) status of necessary permits; (7) costs to Refuge, if any; and (8) progress reports and end products (i.e., reports, thesis, dissertations, publications). Research proposals are reviewed by Refuge staff, and if approved, a Special Use Permit (SUP) is issued by the refuge manager to formally authorize any project. Each SUP will include case-specific stipulations and will be reviewed annually.

Evaluation criteria will include, but not be limited to, the following:

- Research that will contribute to specific refuge management issues will be given higher priority over other research requests.
- Research that will conflict with other ongoing research, monitoring, or management programs will not be approved.
- Research projects that can be accomplished off-refuge are less likely to be approved.

- Research that causes undue disturbance or is intrusive will likely not be approved. Level and type of disturbance will be carefully evaluated when considering a request. Suggestions may be made to adjust the location, timing, scope, number of permittees, study methods, number of study sites, etc.
- If staffing or logistics make it impossible for the Refuge to monitor researcher activity in a sensitive area, the research request may be denied.
- The length of the project will be considered and agreed upon before approval. Projects will be reviewed annually.

**Availability of Resources:**

Some staff time would be required to review research requests and manage research activities. However, Refuge staff would not be expected to commit weekly staff time to managing this use. Adequate funding and staff exist to manage research proposals on Blue Ridge NWR.

**Anticipated Impacts of Use:**

Conducting management-oriented research will benefit Refuge wildlife and plant populations and their habitat. Monitoring and research investigations will be designed to answer habitat or population management questions, thereby contributing to adaptive management of the Refuge. Natural resources inventory, monitoring and research are necessary tools towards maintaining biological integrity, diversity and environmental health. Information gained from quality research will improve habitat and wildlife populations.

Some negative direct and indirect effects would occur through disturbance, which is expected with some research activities, especially where researchers are entering sensitive habitat areas. Researcher disturbance would include actions like altering wildlife behavior and habitat, going off designated trails, collecting soil, plant and animal samples, trampling of plants and animals, introduction of invasive organisms (e.g., non-native weeds), or trapping and handling wildlife. However, most of these effects would be short-term because only the minimum of samples (e.g., water, soils, vegetative litter, plants, macroinvertebrates) required for identification and/or experimentation and statistical analysis would be permitted and captured and marked wildlife would be released. Long-term effects would be negligible because Refuge evaluation of research proposals and conditions of SUPs would ensure that impacts, such as disturbance and introduction of invasive organisms, to wildlife and habitats are avoided or minimized. Refuge staff would ensure research projects contribute to the enhancement, protection, preservation, and management of native Refuge wildlife populations and their habitats thereby helping the Refuge fulfill the purposes for which it was established and the mission of the National Wildlife Refuge System.

**Public Review and Comment:**

Public review and comments were solicited in conjunction with distribution of the March 2012 Draft CCP/EA for the Hopper Mountain, Bitter Creek, and Blue Ridge NWRs. The Service's responses to comments received were included in the Final CCP/EA.

**Determination:**

This program as described is determined to be compatible. Potential impacts of research activities on Refuge resources will be minimized because sufficient restrictions and safeguards would be included in the SUP, and research activities will be monitored by the refuge manager. The refuge manager would ensure proposed monitoring and research investigations would contribute to the enhancement, protection, conservation, and management of native Refuge wildlife populations and their habitats thereby helping the Refuge fulfill the purposes for which it was established, the mission of the National Wildlife Refuge System, and the need to maintain ecological integrity, diversity, and environmental health.

\_\_\_\_\_ Use is Not Compatible

X Use is Compatible with the Following Stipulations

**Stipulations necessary to ensure compatibility:**

The criteria for evaluating a research proposal, outlined in the Description of Use section above, will be used when determining whether a proposed study will be approved on the Refuge.

1. If proposed research methods are evaluated and determined to have potential adverse impacts on Refuge wildlife or habitat, then the Refuge staff would determine the utility and need of such research to conservation and management of Refuge wildlife and habitat.
2. If the need was demonstrated by the research permittee and accepted by the Refuge, then measures to minimize potential impacts (e.g., reduce the numbers of researchers entering an area, restrict research in specified areas) would be developed and included as part of the study design and on the SUP. SUPs will contain specific terms and conditions the researcher(s) must follow relative to activity, location, duration, seasonality, etc., to ensure continued compatibility.
3. All Refuge rules and regulations must be followed unless otherwise accepted in writing by Refuge management.
4. Prior to initiating research activities, the researcher is responsible for securing all required permits and completing all environmental compliance requirements. For example, if the proposed research activity may affect listed species, the researcher is responsible for ensuring compliance with section 10 of the Endangered Species Act.
5. Refuge staff will monitor researcher activities for potential impacts to the Refuge and for compliance with conditions on the SUPs.
6. Research activities will be modified to avoid harm to sensitive wildlife and habitat when unforeseen impacts arise.
7. The refuge manager may determine that previously approved research and SUPs be terminated due to observed impacts.
8. The refuge manager will also have the ability to cancel an SUP if the researcher is out of compliance with the conditions of the SUP.

**Justification:**

This program as described is determined to be compatible. Wildlife habitat research and monitoring are needed to understand impacts of all management activities on the Refuge. After assessing the potential impacts from the uses proposed for the Refuge, we have found that allowing these uses would not materially interfere with or detract from the purposes for which the Refuge was established or the mission of the Refuge System. In fact, well-designed research investigations will directly benefit and support refuge goals, objectives and management plans and activities. Wildlife and plants and their habitat will improve through the application of knowledge gained from monitoring and research. Biological integrity, diversity and environmental health would benefit from scientific research conducted on natural resources at the Refuge. The wildlife-dependent, priority public uses (wildlife viewing and photography, environmental education and interpretation) could also benefit.

**Mandatory Re-Evaluation Date (2023):**

\_\_\_\_\_ Mandatory 15-year Re-Evaluation (for priority public uses)

X Mandatory 10-year Re-Evaluation (for all uses other than priority public uses)

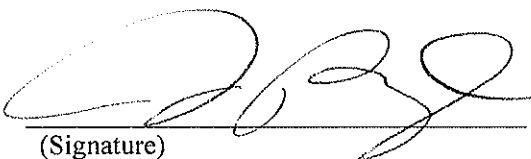


**NEPA Compliance for Refuge Use Decision** (check one below):

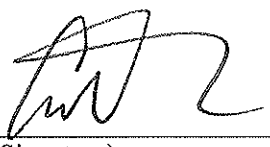
- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

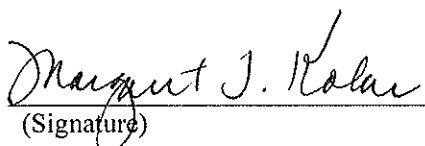
**Refuge Determination**

Prepared by:  6/25/13  
(Signature) (Date)

Refuge Manager/  
Project Leader  
Approval:  6/25/13  
(Signature) (Date)

**Concurrence**

Refuge Supervisor:  7/16/2013  
(Signature) (Date)

Assistant Regional  
Director, Refuges:  7/23/13  
(Signature) (Date)

# Appendix D – Monitoring

# APPENDIX D – Monitoring

## Hopper Mountain and Bitter Creek National Wildlife Refuges

**Table D-1. Hopper Mountain National Wildlife Refuge Complex, On-Refuge Condor Monitoring Activities**

Year	Daily Telemetry	Seasonal Releases	Nest Searching	Nest Observations	Nest Entries	Supplemental Feeding	Feeding Observations	Seasonal Trapping	GPS Transmitter Location DATA
1992	HM	HM				HM	HM	HM	
1993*	HM					HM	HM	HM	
2000	HM	HM				HM	HM	HM	
2001	HM	HM	HM	HM	HM	HM	HM	HM	
2002	HM	HM	HM	HM	HM	HM	HM	HM	
2003	HM	HM	HM	HM	HM	HM	HM	HM	
2004	HM	HM	HM	HM	HM	HM	HM	HM	
2005	HM, BC		HM	HM	HM	HM, BC	HM, BC	HM	HM,BC
2006	HM, BC	BC	HM	HM	HM	HM, BC	HM, BC	HM	HM,BC
2007	HM, BC	BC	HM	HM	HM	HM, BC	HM, BC	HM,BC	HM,BC
2008	HM, BC	BC	HM	HM	HM	HM, BC	HM, BC	HM,BC	HM,BC
2009	HM, BC	BC	HM	HM	HM	HM, BC	HM, BC	HM,BC	HM,BC
2010	HM, BC	BC	HM	HM	HM	HM, BC	HM, BC	HM, BC	HM, BC
2011	HM, BC	BC	HM, BC	HM, BC	HM, BC	HM, BC	HM, BC	HM, BC	HM, BC
2012	HM, BC	BC	HM, BC	HM, BC	HM, BC	HM, BC	HM, BC	HM, BC	HM, BC

HM = Hopper Mountain NWR

BC = Bitter Creek NWR

\*Data for 1994-1999 is unavailable.

**Table D-2. Hopper Mountain NWR****Bird Surveys**

<b>Survey Subject and Source</b>	<b>Year(s)</b>
1. Trends and characteristics of the migratory and non-migratory avian community of 1993 on Hopper Mountain NWR, by NWR staff, volunteers, and USFWS Portland Office	1993
2. Trends and characteristics of the migratory and non-migratory avian community of 1994 on Hopper Mountain NWR	1994
3. Neotropical migratory and non-migratory landbird use of riparian walnut/oak forests at Hopper Mountain NWR: 1993, 1994, 1995 monitoring results, by John Elliott, Greg Austin, Greg Brown, Chris Barr, and Shannon Smith	1993, 1994, 1995
4. Monitoring avian productivity and survivorship, Hopper Mountain NWR Complex, 1996 report. By Gerard Phillips, Dawn Fallacara, and Shawn Goodchild	1996
5. Monitoring avian productivity and survivorship at Hopper Mountain NWR: Annual Report 1997 and Summary 1993-1997 by Gwen Baluss, Chris Barr, Mike Barth, Dylan Drummond, Carey Goss, Debora Guillot, Steve Kirkland, Cindy Newton, and Martin Ruane	1997/1993-1997

**Table D-3. Bitter Creek NWR****Plant and Wildlife Surveys**

<b>Survey Subject and Source</b>	<b>Year(s)</b>
1. Burrowing owl surveys The Institute for Bird Populations, Bitter Creek NWR staff	2006
2. Incidental wildlife observations Kern NWR Complex staff, Hopper Mountain NWR Complex staff, volunteers	1990-1994, 1996, 2004, 2012-2013
3. Bitter Creek NWR reptile and amphibian list (rare and endangered) Kern NWR Complex	1994
4. Kit fox sightings and observations 1982-2009 Kern NWR Complex and Hopper Mountain NWR Complex staff	1982-2009
5. Small mammal trapping The American Society of Mammalogists, Bitter Creek NWR staff	2006-2007
6. Tri-colored blackbird survey Audubon Society of California, Bitter Creek NWR staff, UC Davis	2006-2011
7. Tule elk survey Bitter Creek NWR staff	2008-present
8. Wildlife location list Kern NWR and Bitter Creek NWR staff	1991-2008
9. Bitter Creek NWR plant surveys Botanist, Restoration Ecologist Pamela De Vries, (2009-2010 Botanist LeRoy Gross)	2009-present
10. Bitter Creek NWR plant survey N. Misa Werner	1997
11. Residual dry matter sampling – October Hopper Mountain NWR Complex staff, Cal Poly San Luis Obispo	2012
12. Small mammal trapping – October-November California State University Stanislaus, USFWS Endangered Species Recovery Program, USFWS staff	2012
13. Winter bird survey – January, 1-day volunteer event Volunteers, Bitter Creek NWR staff	2013
14. Incidental wildlife observations; Bitter Creek NWR kit fox sighting, March 6, 2013 USFWS California Condor Recovery Program, wildlife refuge specialist	2013

# Appendix E – Plants and Wildlife

# Appendix E – Plants and Wildlife

## Hopper Mountain NWR Plant Lists

**Table E-1. Hopper Mountain NWR – Plants**

Hopper Mountain NWR		
Scientific Name	Common Name	Family
<i>Acer macrophyllum</i>	big-leaved maple	Sapindaceae [Aceraceae]
<i>Acmispon brachycarpus</i> [ <i>Lotus humistratus</i> ]	short-podded lotus	Fabaceae
<i>Acmispon glaber</i> var. <i>glaber</i> [ <i>Lotus scoparius</i> var. <i>scoparius</i> ]	typical California broom	Fabaceae
<i>Acmispon maritimus</i> var. <i>maritimus</i> [ <i>Lotus salsuginosus</i> var. <i>salsuginosus</i> ]	typical coastal lotus	Fabaceae
<i>Acourtia microcephala</i> [ <i>Perezia microcephala</i> ]	sacapellote	Asteraceae
<i>Adenostoma fasciculatum</i>	common chamise	Rosaceae
<i>Adiantum capillus-veneris</i>	southern maiden-hair	Pteridaceae
<i>Adiantum jordanii</i>	California maiden-hair	Pteridaceae
<i>Agoseris grandiflora</i>	grassland agoseris	Asteraceae
<i>Allophyllum glutinosum</i>	sticky allophyllum	Polemoniaceae
<i>Amorpha californica</i> var. <i>californica</i>	typical California false indigo	Fabaceae
<i>Amsinckia intermedia</i> [ <i>Amsinckia menziesii</i> var. <i>intermedia</i> ]	common rancher's fireweed	Boraginaceae
<i>Amsinckia menziesii</i>	Menzies's fiddleneck	Boraginaceae
<i>Antirrhinum multiflorum</i>	multiflowered snapdragon	Plantaginaceae [Scrophulariaceae]
<i>Apocynum cannabinum</i>	hemp dogbane	Apocynaceae
<i>Arctostaphylos glandulosa</i> subsp. <i>mollis</i>	Western Transverse Range manzanita	Ericaceae
<i>Arctostaphylos glauca</i>	big-berry manzanita	Ericaceae
<i>Artemisia californica</i>	California sagebrush	Asteraceae
<i>Artemisia douglasii</i>	Douglas's sagewort	Asteraceae
<i>Asclepias californicus</i>	California milkweed	Apocynaceae [Asclepiadaceae]
<i>Asclepias fascicularis</i>	narrow-leaf milkweed	Apocynaceae [Asclepiadaceae]
<i>Astragalus filipes</i>	stipate milkvetch	Fabaceae
<i>Astragalus trichopodus</i> var. <i>phoxus</i>	Antisell's milkvetch	Fabaceae
<i>Avena barbata</i>	slender wild oat	Poaceae
<i>Avena fatua</i>	common wild oat	Poaceae
<i>Baccharis pilularis</i>	chaparral coyote-brush	Asteraceae
<i>Baccharis salicifolia</i> subsp. <i>salicifolia</i>	typical mule-fat	Asteraceae
<i>Bloomeria crocea</i>	crocea bloomeria	Themidaceae [Liliaceae]
<i>Boechera</i>	boechera	Brassicaceae
<i>Brassica nigra</i>	common black mustard	Brassicaceae
<i>Brickellia nevini</i>	Nevin's brickellia	Asteraceae
<i>Bromus carinatus</i> var. <i>carinatus</i>	typical California brome	Poaceae
<i>Bromus diandrus</i>	ripgut grass	Poaceae
<i>Bromus hordeaceus</i> [ <i>Bromus mollis</i> ]	soft chess	Poaceae
<i>Bromus madritensis</i> subsp. <i>rubens</i> [ <i>Bromus rubens</i> ]	red brome	Poaceae
<i>Bromus pseudolaevipes</i>	coast range brome	Poaceae
<i>Bromus sterilis</i>	poverty cheat	Poaceae
<i>California macrophylla</i> [ <i>Erodium macrophyllum</i> ]	California filaree	Geraniaceae
<i>Calochortus clavatus</i> var. <i>clavatus</i>	typical club-haired mariposa lily	Liliaceae
<i>Calochortus clavatus</i> var. <i>pallidus</i>	pale-yellow mariposa lily	Liliaceae

Appendix E - Plants and Wildlife

<b>Hopper Mountain NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Calochortus venustus</i>	Venus mariposa lily	Liliaceae
<i>Carduus pycnocephalus</i>	Italian thistle	Asteraceae
<i>Calystegia malacophylla</i>	wooly morning glory	Convolvulaceae
<i>Calystegia</i> sp.	morning glory	Convolvulaceae
<i>Castilleja affinis</i> var. <i>affinis</i>	common coastal paintbrush	Orobanchaceae [Scrophulariaceae]
<i>Castilleja exserta</i> subsp. <i>exserta</i>	typical purple owl's-clover	Orobanchaceae [Scrophulariaceae]
<i>Castilleja foliolosa</i>	chaparral paintbrush	Orobanchaceae [Scrophulariaceae]
<i>Caulanthus coulteri</i>	Coulter's caulanthus	Brassicaceae
<i>Caulanthus lasiophyllus</i> [ <i>Guillenia lasiophylla</i> ]	California mustard	Brassicaceae
<i>Ceanothus leucodermis</i>	chaparral white-thorn	Rhamnaceae
<i>Ceanothus oliganthus</i> var. <i>oliganthus</i>	explorer's-bush	Rhamnaceae
<i>Ceanothus thyrsiflorus</i>	blue-blossom ceanothus	Rhamnaceae
<i>Centaurea melitensis</i>	Tocalote	Asteraceae
<i>Cerastium glomeratum</i>	clammy mouse-eared chickweed	Caryophyllaceae
<i>Cercis occidentalis</i>	western redbud	Fabaceae
<i>Cercocarpus betuloides</i> var. <i>betuloides</i>	typical birch-leaved cercocarpus	Rosaceae
<i>Chaenactis glabriuscula</i> var. <i>glabriuscula</i>	typical yellow pincushion	Asteraceae
<i>Chenopodium californicum</i>	California chenopodium	Chenopodiaceae
<i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i>	typical wavy-leaved soap-plant	Agavaceae [Liliaceae]
<i>Chorizanthe staticoides</i>	statice chorizanthe	Polygonaceae
<i>Chorizanthe xanti</i> var. <i>xanti</i>	typical Xantus's chorizanthe	Polygonaceae
<i>Cirsium occidentale</i>	western thistle	Asteraceae
<i>Cirsium vulgare</i>	bull thistle	Asteraceae
<i>Citrus</i> sp.	citrus (cultivated)	Rutaceae
<i>Clarkia botatae</i>	punchbowl clarkia	Onagraceae
<i>Clarkia cylindrica</i>	speckled clarkia	Onagraceae
<i>Clarkia purpurea</i> subsp. <i>quadrivulnera</i>	four-spotted clarkia	Onagraceae
<i>Clarkia speciosa</i> subsp. <i>speciosa</i>	typical redspot clarkia	Onagraceae
<i>Clarkia unguiculata</i>	elegant clarkia	Onagraceae
<i>Claytonia exigua</i> subsp. <i>exigua</i>	typical serpentine spring beauty	Montiaceae [Portulacaceae]
<i>Claytonia perfoliata</i> subsp. <i>perfoliata</i>	typical miner's lettuce	Montiaceae [Portulacaceae]
<i>Clematis lasiantha</i>	chaparral clematis	Ranunculaceae
<i>Clematis ligusticifolia</i>	eastern white clematis	Ranunculaceae
<i>Collinsia heterophylla</i>	purple-and-white collinsia	Plantaginaceae
<i>Corethrogyne filaginifolia</i> [ <i>Lessingia filaginifolia</i> var. <i>filaginifolia</i> ]	common corethrogyne	Asteraceae
<i>Croton setigerus</i> [ <i>Eremocarpus setigerus</i> ]	turkey-mullein	Euphorbiaceae
<i>Cryptantha corollata</i>	Coast Range cryptantha	Boraginaceae
<i>Cryptantha intermedia</i>	intermediate cryptantha	Boraginaceae
<i>Cryptantha micromeres</i>	minute-flowered cryptantha	Boraginaceae
<i>Cryptantha microstachys</i>	Tejon cryptantha	Boraginaceae
<i>Cryptantha muricata</i>	muricate cryptantha	Boraginaceae
<i>Cryptantha nevadensis</i> var. <i>rigida</i>	rigid cryptantha	Boraginaceae
<i>Cryptantha oxygona</i>	sharp-nut cryptantha	Boraginaceae
<i>Cucurbita foetidissima</i>	foetid gourd	Cucurbitaceae
<i>Cynodon dactylon</i>	bermuda grass	Poaceae
<i>Datisca glomerata</i>	Durango root	Datisceae
<i>Daucus pusillus</i>	rattlesnake carrot	Apiaceae
<i>Deinandra fasciculata</i> [ <i>Hemizonia fasciculata</i> ]	fascicled tarplant	Asteraceae
<i>Delphinium parishii</i>	Parish's delphinium	Ranunculaceae

<b>Hopper Mountain NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Delphinium parryi</i> subsp. <i>parryi</i>	typical San Bernardino larkspur	Ranunculaceae
<i>Dendromecon rigida</i>	stiff bush-poppy	Papaveraceae
<i>Descurainia pinnata</i> subsp. <i>glabra</i>	smooth western tansy-mustard	Brassicaceae
<i>Dichelostemma capitatum</i> [ <i>Dichelostemma pulchellum</i> ]	capitate blue-dicks	Themidiaceae [Liliaceae]
<i>Dryopteris arguta</i>	coastal wood-fern	Dryopteridaceae
<i>Dudleya cymosa</i>	canyon dudleya	Crassulaceae
<i>Dudleya lanceolata</i>	lanceolate dudleya	Crassulaceae
<i>Eleocharis montevidensis</i>	Montevideo spike-rush	Cyperaceae
<i>Elymus glaucus</i> subsp. <i>glaucus</i>	typical blue wild rye	Poaceae
<i>Elymus condensatus</i> [ <i>Leymus condensatus</i> ]	California giant wild-rye	Poaceae
<i>Emmenanthe penduliflora</i> var. <i>penduliflora</i>	yellow-flowered whispering bells	Boraginaceae [Hydrophyllaceae]
<i>Epilobium canum</i> [ <i>Zauschneria cana</i> ; <i>Zauschneria cana</i> ]	California zauschneria	Onagraceae
<i>Epilobium ciliatum</i> subsp. <i>ciliatum</i> [ <i>Epilobium adenocaulum</i> ]	typical fringed willow herb	Onagraceae
<i>Epipactis gigantea</i>	stream epipactis	Orchidaceae
<i>Equisetum telmateia</i> subsp. <i>braunii</i>	Braun's giant horsetail	Equisetaceae
<i>Eremothera boothii</i> subsp. <i>decorticans</i> [ <i>Camissonia boothii</i> subsp. <i>decorticans</i> ]	reddish shredding primrose	Onagraceae
<i>Ericameria cuneata</i>	wedge-leaved goldenbush	Asteraceae
<i>Ericameria linearifolia</i> [ <i>Haplopappus linearifolius</i> ]	linear-leaved goldenbush	Asteraceae
<i>Erigeron bonariensis</i> [ <i>Conyza bonariensis</i> ]	Buenos Aires conyza	Asteraceae
<i>Erigeron canadensis</i> [ <i>Conyza canadensis</i> ]	Canadian horseweed	Asteraceae
<i>Erigeron foliosus</i>	foliose daisy	Asteraceae
<i>Eriodictyon crassifolium</i> var. <i>nigrescens</i>	bicolored yerba santa	Boraginaceae [Hydrophyllaceae]
<i>Eriogonum cithariforme</i>	cithara eriogonum	Polygonaceae
<i>Eriogonum elongatum</i>	long-stemmed eriogonum	Polygonaceae
<i>Eriogonum roseum</i>	wand wild-buckwheat	Polygonaceae
<i>Eriophyllum confertiflorum</i>	golden-yarrow	Asteraceae
<i>Erodium cicutarium</i>	red-stemmed filaree	Geraniaceae
<i>Erysimum capitatum</i> var. <i>capitatum</i> [subsp. <i>capitatum</i> ]	typical western wallflower	Brassicaceae
<i>Eschscholzia caespitosa</i>	tufted California-poppy	Papaveraceae
<i>Eschscholzia californica</i>	common California-poppy	Papaveraceae
<i>Eucrypta chrysanthemifolia</i>	chrysanthemum-leaved eucrypta	Boraginaceae
<i>Eulobus californicus</i> [ <i>Camissonia californica</i> ]	California mustard evening-primrose	Onagraceae
<i>Festuca arundinacea</i>	reed fescue	Poaceae
<i>Festuca microstachys</i> [ <i>Vulpia microstachys</i> ]	small fescue	Poaceae
<i>Festuca myuros</i> [ <i>Vulpia myuros</i> ]	hairy rat-tail fescue	Poaceae
<i>Festuca rubra</i>	red fescue	Poaceae
<i>Frangula californica</i> [ <i>Rhamnus californica</i> ]	California coffee-berry	Rhamnaceae
<i>Frangula californica</i> subsp. <i>tomentella</i> [ <i>Rhamnus tomentella</i> subsp. <i>tomentella</i> ]	tomentose coffeeberry	Rhamnaceae
<i>Fraxinus dipetala</i>	California ash	Oleaceae
<i>Galium angustifolium</i> subsp. <i>angustifolium</i>	typical chaparral bedstraw	Rubiaceae
<i>Galium aparine</i>	annual bedstraw	Rubiaceae
<i>Galium porrigens</i> var. <i>porrigens</i>	typical graceful bedstraw	Rubiaceae
<i>Garrya veatchii</i>	Veatch's silk-tassel	Garryaceae
<i>Gilia capitata</i> subsp. <i>abrotanifolia</i>	southernwood-leaved gilia	Polemoniaceae
<i>Glechoma hederacea</i>	common ground-ivy	Lamiaceae
<i>Grindelia camporum</i> [ <i>Grindelia robusta</i> ]	Great Valley grindelia	Asteraceae
<i>Hazardia squarrosa</i> var. <i>obtusata</i>	obtuse sawtooth goldenbush	Asteraceae



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<b>Hopper Mountain NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Helenium puberulum</i>	rosilla sneezeweed	Asteraceae
<i>Hesperocnide tenella</i>	slender western-nettle	Urticaceae
<i>Hesperoyucca whipplei</i> [ <i>Yucca whipplei</i> subsp. <i>intermedia</i> ]	Whipple's hesperoyucca	Agavaceae [Liliaceae]
<i>Heterotheca sessiliflora</i> subsp. <i>fastigiata</i>	erect golden-aster	Asteraceae
<i>Heteromeles arbutifolia</i>	toyon	Rosaceae
<i>Hirschfeldia incana</i>	summer field mustard	Brassicaceae
<i>Hordeum murinum</i>	mouse barley	Poaceae
<i>Isocoma menziesii</i> [ <i>Isocoma veneta</i> ]	Menzies's goldenbush	Asteraceae
<i>Juglans californica</i> [var. <i>californica</i> ]	southern California black walnut	Juglandaceae
<i>Juncus rugulosus</i>	wrinkled rush	Juncaceae
<i>Keckiella cordifolia</i>	heart-leaved keckiella	Plantaginaceae
<i>Lactuca serriola</i>	common prickly lettuce	Asteraceae
<i>Lasthenia gracilis</i> [ <i>Lasthenia californica</i> s.l.]	needle goldfields	Asteraceae
<i>Lathyrus vestitus</i> var. <i>vestitus</i> [ <i>Lathyrus laetiflorus</i> subsp. <i>barbarae</i> ]	typical common Pacific pea	Fabaceae
<i>Layia platyglossa</i>	common tidytips	Asteraceae
<i>Lepechinia rossii</i>	Ross's pitcher-sage	Lamiaceae
<i>Leptosyne bigelovii</i> [ <i>Coreopsis bigelovii</i> ]	Bigelow's coreopsis	Asteraceae
<i>Leptosiphon parviflorus</i> [ <i>Linanthus parviflorus</i> ; <i>L. androsaceus</i> ]	small-flowered leptosiphon	Polemoniaceae
<i>Linanthus californicus</i> [ <i>Leptodactylon californicum</i> ]	California prickly-phlox	Polemoniaceae
<i>Lithophragma affine</i>	San Francisco woodland-star	Saxifragaceae
<i>Lobelia dunnii</i> var. <i>serrata</i>	Ojai lobelia	Campanulaceae
<i>Logfia filaginoides</i> [ <i>Filago californica</i> ]	California cottonrose	Asteraceae
<i>Lomatium californicum</i>	California lomatium	Apiaceae
<i>Lomatium utriculatum</i>	spring-gold lomatium	Apiaceae
<i>Lonicera interrupta</i>	connate-leaf chaparral honeysuckle	Caprifoliaceae
<i>Lonicera subspicata</i>	southern honeysuckle	Caprifoliaceae
<i>Lupinus albifrons</i>	white-leaved bush-lupine	Fabaceae
<i>Lupinus bicolor</i>	bicolored lupine	Fabaceae
<i>Lupinus excubitus</i>	grape-soda lupine	Fabaceae
<i>Lupinus sparsifolius</i>	Coulter's lupine	Fabaceae
<i>Lupinus succulentus</i>	succulent lupine	Fabaceae
<i>Lupinus truncatus</i>	truncate-leaved lupine	Fabaceae
<i>Madia gracilis</i>	slender madia	Asteraceae
<i>Malacothrix clevelandii</i>	Cleveland's malacothrix	Asteraceae
<i>Malacothrix saxatilis</i> var. <i>tenuifolia</i>	short-leaved cliff-aster	Asteraceae
<i>Malosma laurina</i>	laurel sumac	Anacardiaceae
<i>Malva parviflora</i>	small-flowered mallow	Malvaceae
<i>Marah macrocarpus</i>	Cucamonga man-root	Cucurbitaceae
<i>Marrubium vulgare</i>	common horehound	Lamiaceae
<i>Medicago polymorpha</i>	toothed medick	Fabaceae
<i>Melilotus indicus</i>	India melilot	Fabaceae
<i>Mentzelia micrantha</i>	chaparral blazing-star	Loasaceae
<i>Mentzelia montana</i>	variegated-bract blazing-star	Loasaceae
<i>Micranthes californica</i> [ <i>Saxifraga californica</i> ]	California saxifraga	Saxifragaceae
<i>Micropus californicus</i>	slender cottonseed	Asteraceae
<i>Microsteris gracilis</i> [ <i>Phlox gracilis</i> ]	slender microsteris	Polemoniaceae
<i>Mimulus aurantiacus</i>	orange bush-monkeyflower	Phrymaceae [Scrophulariaceae]
<i>Mimulus aurantiacus</i> var. <i>pubescens</i> [ <i>Diplacus longiflorus</i> ]	pubescent bush-monkeyflower	Phrymaceae [Scrophulariaceae]
<i>Mimulus cardinalis</i>	cardinal monkeyflower	Phrymaceae

<b>Hopper Mountain NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
		[Scrophulariaceae]
<i>Mimulus guttatus</i>	seep-spring mimulus	Phrymaceae [Scrophulariaceae]
<i>Mirabilis laevis</i> var. <i>crassifolia</i> [ <i>Mirabilis californica</i> ]	California four-o'clock	Nyctaginaceae
<i>Nasturtium officinale</i> [ <i>Rorippa nasturtium-aquaticum</i> ]	white water-cress	Brassicaceae
<i>Nemophila menziesii</i> var. <i>integrifolia</i>	southern baby-blue-eyes	Boraginaceae [Hydrophyllaceae]
<i>Nerium oleander</i>	common oleander	Apocynaceae
<i>Nicotiana glauca</i>	glaucous tobacco	Solanaceae
<i>Orobancha bulbosa</i>	bulbous broomrape	Orobanchaceae
<i>Osmorhiza brachypoda</i>	California sweet-cicely	Apiaceae
<i>Packera breweri</i> [ <i>Senecio breweri</i> ]	Brewer's ragwort	Asteraceae
<i>Paeonia californica</i>	California paeonia	Paeoniaceae
<i>Pectocarya penicillata</i>	sleeping combseed	Boraginaceae
<i>Pectocarya setosa</i>	setose pectocarya	Boraginaceae
<i>Pellaea andromedaefolia</i>	coffee fern	Pteridaceae
<i>Penstemon heterophyllus</i> subsp. <i>australis</i>	southern foothill penstemon	Plantaginaceae [Scrophulariaceae]
<i>Pentagramma triangularis</i> [ <i>Pityrogramma triangularis</i> ]	goldenback fern	Pteridaceae
<i>Phacelia cicutaria</i> var. <i>hispida</i>	hispid caterpillar phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia distans</i>	distant phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia egeana</i>	Kaweah River phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia parryi</i>	Parry's phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia ramosissima</i> [var. <i>latifolia</i> ]	branching phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia tanacetifolia</i>	tansy-leaved phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia viscida</i>	tansy-leaved phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phalaris arundinacea</i>	reed canarygrass	Poaceae
<i>Pholistoma auritum</i> var. <i>auritum</i>	typical blue fiesta-flower	Boraginaceae [Hydrophyllaceae]
<i>Pinus ponderosa</i>	ponderosa pine	Pinaceae
<i>Plagiobothrys nothofulvus</i>	rusty plagiobothrys	Boraginaceae
<i>Platanus racemosa</i>	California sycamore	Platanaceae
<i>Polygala cornuta</i>	horned polygala	Polygalaceae
<i>Polygonum aviculare</i> subsp. <i>depressum</i> [ <i>P. arenastrum</i> ]	Prostrate knotweed	Polygonaceae
<i>Polypodium californicum</i>	California polypodium	Polypodiaceae
<i>Polypogon monspeliensis</i>	rabbitsfoot grass	Poaceae
<i>Populus fremontii</i> subsp. <i>fremontii</i>	typical Fremont's cottonwood	Salicaceae
<i>Prunus ilicifolia</i> subsp. <i>ilicifolia</i>	mainland holly-leaved cherry	Rosaceae
<i>Prunus virginiana</i> var. <i>demissa</i>	western choke-cherry	Rosaceae
<i>Pseudognaphalium biolettii</i> [ <i>Gnaphalium bicolor</i> illeg.]	Bioletti's rabbit-tobacco	Asteraceae
<i>Pseudognaphalium californicum</i> [ <i>Gnaphalium californicum</i> ]	California everlasting	Asteraceae
<i>Pseudognaphalium microcephalum</i> [ <i>Gnaphalium microcephalum</i> ]	small-headed white everlasting	Asteraceae
<i>Pseudognaphalium stramineum</i> [ <i>Gnaphalium stramineum</i> ]	cotton-batting-plant	Asteraceae
<i>Pseudotsuga macrocarpa</i>	bigcone Douglas fir	Pinaceae
<i>Pterostegia drymarioides</i>	woodland pterostegia	Polygonaceae

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<b>Hopper Mountain NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Quercus agrifolia</i>	coast live oak	Fagaceae
<i>Quercus chrysolepis</i>	canyon live oak	Fagaceae
<i>Quercus dumosa</i>	Nuttall's scrub oak	Fagaceae
<i>Quercus wislizeni</i> var. <i>frutescens</i>	scrub interior live oak	Fagaceae
<i>Ranunculus californicus</i>	California buttercup	Ranunculaceae
<i>Ranunculus canus</i> var. <i>ludovicianus</i>	typical Hartweg's buttercup	Ranunculaceae
<i>Rhamnus ilicifolia</i>	hollyleaf redberry	Rhamnaceae
<i>Rhus aromatica</i> [ <i>Rhus trilobata</i> ]	skunkbush sumac	Anacardiaceae
<i>Rhus integrifolia</i>	lemonade-berry	Anacardiaceae
<i>Rhus ovata</i>	sugar-bush	Anacardiaceae
<i>Ribes californicum</i> var. <i>hesperium</i>	Southern California gooseberry	Grossulariaceae
<i>Ribes malvaceum</i>	pink chaparral currant	Grossulariaceae
<i>Rigiopappus leptocladus</i>	rigiopappus	Asteraceae
<i>Rosa californica</i>	California wild rose	Rosaceae
<i>Rubus ursinus</i>	California blackberry	Rosaceae
<i>Rumex conglomeratus</i>	clustered dock	Polygonaceae
<i>Rumex crispus</i>	crisped dock	Polygonaceae
<i>Salix exigua</i>	coyote willow	Salicaceae
<i>Salix gooddingii</i>	Goodding's black willow	Salicaceae
<i>Salix lasiolepis</i>	arroyo willow	Salicaceae
<i>Salvia apiana</i>	California white sage	Lamiaceae
<i>Salvia columbariae</i>	California chia	Lamiaceae
<i>Salvia leucophylla</i>	coastal purple sage	Lamiaceae
<i>Salvia mellifera</i>	California black sage	Lamiaceae
<i>Salvia spathacea</i>	California hummingbird sage	Lamiaceae
<i>Sambucus nigra</i> subsp. <i>caerulea</i> [ <i>Sambucus mexicana</i> , misapplied]	western blue elderberry	Adoxaceae [Caprifoliaceae]
<i>Sanicula arguta</i>	sharp-toothed sanicle	Apiaceae
<i>Scandix pecten-veneris</i>	shepherd's needle	Apiaceae
<i>Schinus molle</i>	Peruvian pepper	Anacardiaceae
<i>Schoenoplectus americanus</i> [ <i>Scirpus americanus</i> ; <i>S. olneyi</i> ]	American tule	Cyperaceae
<i>Scirpus microcarpus</i>	small-fruited bulrush	Cyperaceae
<i>Scutellaria</i> sp.	scutellaria	Lamiaceae
<i>Sidalcea malviflora</i> subsp. <i>californica</i>	California checker-mallow	Malvaceae
<i>Silybum marianum</i>	blessed milkthistle	Asteraceae
<i>Sisymbrium irio</i>	London rocket	Brassicaceae
<i>Sisymbrium orientale</i>	oriental sisymbrium	Brassicaceae
<i>Sisyrinchium bellum</i>	beautiful blue-eyed-grass	Iridaceae
<i>Solanum douglasii</i>	Douglas's nightshade	Solanaceae
<i>Solanum xantii</i>	chaparral nightshade	Solanaceae
<i>Sonchus asper</i> var. <i>asper</i>	typical spiny-leaved sow-thistle	Asteraceae
<i>Sonchus oleraceus</i>	common annual sow-thistle	Asteraceae
<i>Stachys bullata</i>	California hedge-nettle	Lamiaceae
<i>Stebbinsoseris heterocarpa</i> [ <i>Microseris heterocarpa</i> ]	grassland stebbinsoseris	Asteraceae
<i>Stephanomeria cichoriacea</i>	chicory-leaved stephanomeria	Asteraceae
<i>Stipa cernua</i> [ <i>Nassella cernua</i> ]	nodding needle grass	Poaceae
<i>Stipa coronata</i> [ <i>Achnatherum coronatum</i> ]	crested stipa	Poaceae
<i>Stipa lepida</i> [ <i>Nassella lepida</i> ]	foothill needle grass	Poaceae
<i>Stipa miliacea</i> var. <i>miliacea</i> [ <i>Piptatherum miliaceum</i> ; <i>Oryzopsis miliacea</i> .]	smilo-grass	Poaceae
<i>Stipa pulchra</i> [ <i>Nassella pulchra</i> ]	purple needle grass	Poaceae
<i>Stylocline gnaphaloides</i>	everlasting stylocline	Asteraceae
<i>Symphotrichum greatae</i> [ <i>Aster greatae</i> ]	Greata's aster	Asteraceae

<b>Hopper Mountain NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Tauschia arguta</i>	southern tauschia	Apiaceae
<i>Thermopsis californica</i> var. <i>argentata</i> [ <i>Thermopsis macrophylla</i> , misapplied]	silvery thermopsis	Fabaceae
<i>Typha latifolia</i>	common cattail	Typhaceae
<i>Typha</i> sp.	cattail	Typhaceae
<i>Thysanocarpus curvipes</i>	sand fringe-pod	Brassicaceae
<i>Torilis nodosa</i>	short sock-destroyer	Apiaceae
<i>Toxicodendron diversilobum</i>	western poison-oak	Anacardiaceae
<i>Trichostema lanatum</i>	woolly bluecurls	Lamiaceae
<i>Trifolium albopurpureum</i> [var. <i>albopurpureum</i> ]	common rancheria clover	Fabaceae
<i>Trifolium gracilentum</i>	pinpoint clover	Fabaceae
<i>Trifolium willdenovii</i>	tomcat clover	Fabaceae
<i>Uropappus lindleyi</i> [ <i>Microseris lindleyi</i> ]	Lindley's uropappus	Asteraceae
<i>Urtica dioica</i> subsp. <i>holosericea</i>	hoary nettle	Urticaceae
<i>Urtica urens</i>	burning nettle	Urticaceae
<i>Venegasia carpesioides</i>	canyon sunflower	Asteraceae
<i>Verbena lasiostachys</i>	western verbena	Verbenaceae
<i>Vicia americana</i> var. <i>americana</i>	bit-leaf American vetch	Fabaceae
<i>Vinca major</i>	greater periwinkle	Apocynaceae

Hopper Mountain NWR list includes plants observed within the National Wildlife Refuge boundary and, in limited cases, vouchered specimens from lands directly adjacent to the refuge. Sources: List compiled by Elizabeth L. Painter, botanist, with data from Pam De Vries, Rick Burgess, and U.S. Fish and Wildlife Service staff. Scientific names follow The Jepson Manual, 2<sup>nd</sup> Edition (Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors, 2012. The Jepson manual: vascular plants of California, second edition. University of California Press, Berkeley). Brackets indicate synonyms and former family names.

**Table E-2. Hopper Mountain NWR – Culturally Significant Plants**

<b>Culturally Significant Plants at Hopper Mountain NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family Name</b>
<i>Acer macrophyllum</i>	big-leaved maple	Sapindaceae [Aceraceae]
<i>Acmispon brachycarpus</i> [ <i>Lotus humistratus</i> ]	short-podded lotus	Fabaceae
<i>Acmispon glaber</i> var. <i>glaber</i> [ <i>Lotus scoparius</i> var. <i>scoparius</i> ]	typical California broom	Fabaceae
<i>Acourtia microcephala</i> [ <i>Perezia microcephala</i> ]	sacapellote	Asteraceae
<i>Adenostoma fasciculatum</i>	common chamise	Rosaceae
<i>Adiantum jordanii</i>	California maiden-hair	Pteridaceae
<i>Amsinckia intermedia</i> [ <i>Amsinckia menziesii</i> var. <i>intermedia</i> ]	common rancher's fireweed	Boraginaceae
<i>Amsinckia menziesii</i>	Menzies's fiddleneck	Boraginaceae
<i>Apocynum cannabinum</i>	hemp dogbane	Apocynaceae
<i>Arctostaphylos glauca</i>	big-berry manzanita	Ericaceae
<i>Artemisia californica</i>	California sagebrush	Asteraceae
<i>Artemisia douglasii</i>	Douglas's sagewort	Asteraceae
<i>Asclepias californicus</i>	California milkweed	Apocynaceae [Asclepiadaceae]
<i>Asclepias fascicularis</i>	narrow-leaf milkweed	Apocynaceae [Asclepiadaceae]

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<b>Culturally Significant Plants at Hopper Mountain NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family Name</b>
<i>Avena barbata</i>	slender wild oat	Poaceae
<i>Avena fatua</i>	common wild oat	Poaceae
<i>Baccharis pilularis</i>	chaparral coyote-brush	Asteraceae
<i>Baccharis salicifolia</i> subsp. <i>salicifolia</i>	typical mule-fat	Asteraceae
<i>Bloomeria crocea</i>	crocea bloomeria	Themidaceae [Liliaceae]
<i>Brassica nigra</i>	common black mustard	Brassicaceae
<i>Bromus carinatus</i> var. <i>carinatus</i>	typical California brome	Poaceae
<i>Bromus diandrus</i>	ripgut grass	Poaceae
<i>Bromus hordeaceus</i> [ <i>Bromus mollis</i> ]	soft chess	Poaceae
<i>Calochortus clavatus</i> var. <i>clavatus</i>	typical club-haired mariposa lily	Liliaceae
<i>Calochortus clavatus</i> var. <i>pallidus</i>	pale-yellow mariposa lily	Liliaceae
<i>Calochortus venustus</i>	Venus mariposa lily	Liliaceae
<i>Carduus pycnocephalus</i>	Italian thistle	Asteraceae
<i>Castilleja affinis</i> var. <i>affinis</i>	common coastal paintbrush	Orobanchaceae [Scrophulariaceae]
<i>Castilleja exserta</i> subsp. <i>exserta</i>	typical purple owl's-clover	Orobanchaceae [Scrophulariaceae]
<i>Castilleja foliolosa</i>	chaparral paintbrush	Orobanchaceae [Scrophulariaceae]
<i>Caulanthus coulteri</i>	Coulter's caulanthus	Brassicaceae
<i>Ceanothus leucodermis</i>	chaparral white-thorn	Rhamnaceae
<i>Ceanothus oliganthus</i> var. <i>oliganthus</i>	explorer's-bush	Rhamnaceae
<i>Ceanothus thyrsiflorus</i>	blue-blossom ceanothus	Rhamnaceae
<i>Cercis occidentalis</i>	western redbud	Fabaceae
<i>Cercocarpus betuloides</i> var. <i>betuloides</i>	typical birch-leaved cercocarpus	Rosaceae
<i>Chenopodium californicum</i>	California chenopodium	Chenopodiaceae
<i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i>	typical wavy-leaved soap-plant	Agavaceae [Liliaceae]
<i>Chorizanthe staticoides</i>	statice chorizanth	Polygonaceae
<i>Cirsium occidentale</i>	western thistle	Asteraceae
<i>Clarkia bottae</i>	punchbowl clarkia	Onagraceae
<i>Clarkia cylindrical</i>	speckled clarkia	Onagraceae
<i>Clarkia purpurea</i> subsp. <i>quadrivulnera</i>	four-spotted clarkia	Onagraceae
<i>Clarkia speciosa</i> subsp. <i>speciosa</i>	typical redspot clarkia	Onagraceae
<i>Clarkia unguiculata</i>	elegant clarkia	Onagraceae
<i>Claytonia perfoliata</i> subsp. <i>perfoliata</i>	typical miner's lettuce	Montiaceae [Portulacaceae]

<b>Culturally Significant Plants at Hopper Mountain NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family Name</b>
<i>Clematis lasiantha</i>	chaparral clematis	Ranunculaceae
<i>Clematis ligusticifolia</i>	eastern white clematis	Ranunculaceae
<i>Corethrogyne filaginifolia</i> [ <i>Lessingia filaginifolia</i> var. <i>filaginifolia</i> ]	common corethrogyne	Asteraceae
<i>Croton setigerus</i> [ <i>Eremocarpus setigerus</i> ]	turkey-mullein	Euphorbiaceae
<i>Cryptantha intermedia</i>	intermediate cryptantha	Boraginaceae
<i>Cucurbita foetidissima</i>	foetid gourd	Cucurbitaceae
<i>Datisca glomerata</i>	Durango root	Datisceae
<i>Daucus pusillus</i>	rattlesnake carrot	Apiaceae
<i>Deinandra fasciculata</i> [ <i>Hemizonia fasciculata</i> ]	fascicled tarplant	Asteraceae
<i>Delphinium parishii</i>	Parish's delphinium	Ranunculaceae
<i>Delphinium parryi</i> subsp. <i>parryi</i>	typical San Bernardino larkspur	Ranunculaceae
<i>Descurainia pinnata</i> subsp. <i>glabra</i>	smooth western tansy-mustard	Brassicaceae
<i>Dichelostemma capitatum</i> [ <i>Dichelostemma pulchellum</i> ]	capitate blue-dicks	Themidiaceae [Liliaceae]
<i>Dryopteris arguta</i>	coastal wood-fern	Dryopteridaceae
<i>Dudleya cymosa</i>	canyon dudleya	Crassulaceae
<i>Dudleya lanceolata</i>	lanceolate dudleya	Crassulaceae
<i>Elymus glaucus</i> subsp. <i>glaucus</i>	typical blue wild rye	Poaceae
<i>Elymus condensatus</i> [ <i>Leymus condensatus</i> ]	California giant wild-rye	Poaceae
<i>Epilobium canum</i> [ <i>Zauschneria cana</i> ; <i>Zauschneria cana</i> ]	California zauschneria	Onagraceae
<i>Equisetum telmateia</i> subsp. <i>braunii</i>	Braun's giant horsetail	Equisetaceae
<i>Ericameria cuneata</i>	wedge-leaved goldenbush	Asteraceae
<i>Ericameria linearifolia</i> [ <i>Haplopappus linearifolius</i> ]	linear-leaved goldenbush	Asteraceae
<i>Erigeron canadensis</i> [ <i>Conyza canadensis</i> ]	Canadian horseweed	Asteraceae
<i>Erigeron foliosus</i>	foliose daisy	Asteraceae
<i>Eriodictyon crassifolium</i> var. <i>nigrescens</i>	bicolored yerba santa	Boraginaceae [Hydrophyllaceae]
<i>Eriogonum elongatum</i>	long-stemmed eriogonum	Polygonaceae
<i>Eriogonum roseum</i>	wand wild-buckwheat	Polygonaceae
<i>Eriophyllum confertiflorum</i>	golden-yarrow	Asteraceae
<i>Erodium cicutarium</i>	red-stemmed filaree	Geraniaceae
<i>Eschscholzia californica</i>	common California-poppy	Papaveraceae
<i>Frangula californica</i> [ <i>Rhamnus californica</i> ]	California coffee-berry	Rhamnaceae
<i>Gilia capitata</i> subsp. <i>abrotanifolia</i>	southernwood-leaved gilia	Polemoniaceae

Appendix E - Plants and Wildlife

<b>Culturally Significant Plants at Hopper Mountain NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family Name</b>
<i>Grindelia camporum</i> [ <i>Grindelia robusta</i> ]	Great Valley grindelia	Asteraceae
<i>Hazardia squarrosa</i> var. <i>obtusata</i>	obtuse sawtooth goldenbush	Asteraceae
<i>Helenium puberulum</i>	rosilla sneezeweed	Asteraceae
<i>Hesperoyucca whipplei</i> [ <i>Yucca whipplei</i> subsp. <i>intermedia</i> ]	Whipple's hesperoyucca	Agavaceae [Liliaceae]
<i>Heteromeles arbutifolia</i>	toyon	Rosaceae
<i>Hirschfeldia incana</i>	summer field mustard	Brassicaceae
<i>Hordeum murinum</i>	mouse barley	Poaceae
<i>Juglans californica</i> [var. <i>californica</i> ]	southern California black walnut	Juglandaceae
<i>Lasthenia gracilis</i> [ <i>Lasthenia californica</i> s.l.]	needle goldfields	Asteraceae
<i>Lathyrus vestitus</i> var. <i>vestitus</i> [ <i>Lathyrus laetiflorus</i> subsp. <i>barbarae</i> ]	typical common Pacific pea	Fabaceae
<i>Layia platyglossa</i>	common tidytips	Asteraceae
<i>Leptosyne bigelovii</i> [ <i>Coreopsis bigelovii</i> ]	Bigelow's coreopsis	Asteraceae
<i>Lithophragma affine</i>	San Francisco woodland-star	Saxifragaceae
<i>Lomatium californicum</i>	California lomatium	Apiaceae
<i>Lomatium utriculatum</i>	spring-gold lomatium	Apiaceae
<i>Lonicera interrupta</i>	connate-leaf chaparral honeysuckle	Caprifoliaceae
<i>Lonicera subspicata</i>	southern honeysuckle	Caprifoliaceae
<i>Lupinus albifrons</i>	white-leaved bush-lupine	Fabaceae
<i>Lupinus bicolor</i>	bicolored lupine	Fabaceae
<i>Lupinus succulentus</i>	succulent lupine	Fabaceae
<i>Lupinus truncates</i>	truncate-leaved lupine	Fabaceae
<i>Madia gracilis</i>	slender madia	Asteraceae
<i>Malva parviflora</i>	small-flowered mallow	Malvaceae
<i>Marah macrocarpus</i>	Cucamonga man-root	Cucurbitaceae
<i>Marrubium vulgare</i>	common horehound	Lamiaceae
<i>Medicago polymorpha</i>	toothed medick	Fabaceae
<i>Melilotus indicus</i>	India melilot	Fabaceae
<i>Mentzelia micrantha</i>	chaparral blazing-star	Loasaceae
<i>Mentzelia montana</i>	variegated-bract blazing-star	Loasaceae
<i>Mimulus cardinalis</i>	cardinal monkeyflower	Phrymaceae [Scrophulariaceae]
<i>Mimulus guttatus</i>	seep-spring mimulus	Phrymaceae [Scrophulariaceae]
<i>Mirabilis laevis</i> var. <i>crassifolia</i> [ <i>Mirabilis californica</i> ]	California four-o'clock	Nyctaginaceae

<b>Culturally Significant Plants at Hopper Mountain NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family Name</b>
<i>Nasturtium officinale</i> [ <i>Rorippa nasturtium-aquaticum</i> ]	white water-cress	Brassicaceae
<i>Nicotiana glauca</i>	glaucous tobacco	Solanaceae
<i>Osmorhiza brachypoda</i>	California sweet-cicely	Apiaceae
<i>Paeonia californica</i>	California paeonia	Paeoniaceae
<i>Phacelia cicutaria</i> var. <i>hispida</i>	hispid caterpillar phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia distans</i>	distant phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia egena</i>	Kaweah River phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia parryi</i>	Parry's phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia ramosissima</i> [var. <i>latifolia</i> ]	branching phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia tanacetifolia</i>	tansy-leaved phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia viscida</i>	tansy-leaved phacelia	Boraginaceae [Hydrophyllaceae]
<i>Pinus ponderosa</i>	ponderosa pine	Pinaceae
<i>Plagiobothrys nothofulvus</i>	rusty plagiobothrys	Boraginaceae
<i>Platanus racemosa</i>	California sycamore	Platanaceae
<i>Polygala cornuta</i>	horned polygala	Polygalaceae
<i>Polypodium californicum</i>	California polypodium	Polypodiaceae
<i>Polypogon monspeliensis</i>	rabbitsfoot grass	Poaceae
<i>Populus fremontii</i> subsp. <i>fremontii</i>	typical Fremont's cottonwood	Salicaceae
<i>Prunus ilicifolia</i> subsp. <i>ilicifolia</i>	mainland holly-leaved cherry	Rosaceae
<i>Prunus virginiana</i> var. <i>demissa</i>	western choke-cherry	Rosaceae
<i>Pseudognaphalium californicum</i> [ <i>Gnaphalium californicum</i> ]	California everlasting	Asteraceae
<i>Pseudognaphalium microcephalum</i> [ <i>Gnaphalium microcephalum</i> ]	small-headed white everlasting	Asteraceae
<i>Pseudognaphalium stramineum</i> [ <i>Gnaphalium stramineum</i> ]	cotton-batting-plant	Asteraceae
<i>Quercus agrifolia</i>	coast live oak	Fagaceae
<i>Quercus chrysolepis</i>	canyon live oak	Fagaceae
<i>Quercus dumosa</i>	Nuttall's scrub oak	Fagaceae
<i>Quercus wislizeni</i> var. <i>frutescens</i>	scrub interior live oak	Fagaceae
<i>Ranunculus californicus</i>	California buttercup	Ranunculaceae
<i>Rhamnus ilicifolia</i>	hollyleaf redberry	Rhamnaceae
<i>Rhus aromatica</i> [ <i>Rhus trilobata</i> ]	skunkbush sumac	Anacardiaceae
<i>Rhus integrifolia</i>	lemonade-berry	Anacardiaceae
<i>Rhus ovate</i>	sugar-bush	Anacardiaceae



<b>Culturally Significant Plants at Hopper Mountain NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family Name</b>
<i>Ribes californicum</i> var. <i>hesperium</i>	Southern California gooseberry	Grossulariaceae
<i>Ribes malvaceum</i>	pink chaparral currant	Grossulariaceae
<i>Rosa californica</i>	California wild rose	Rosaceae
<i>Rubus ursinus</i>	California blackberry	Rosaceae
<i>Rumex conglomeratus</i>	clustered dock	Polygonaceae
<i>Rumex crispus</i>	crisped dock	Polygonaceae
<i>Salix exigua</i>	coyote willow	Salicaceae
<i>Salix gooddingii</i>	Goodding's black willow	Salicaceae
<i>Salix lasiolepis</i>	arroyo willow	Salicaceae
<i>Salvia apiana</i>	California white sage	Lamiaceae
<i>Salvia columbariae</i>	California chia	Lamiaceae
<i>Salvia mellifera</i>	California black sage	Lamiaceae
<i>Sambucus nigra</i> subsp. <i>caerulea</i> [ <i>Sambucus mexicana</i> , misapplied]	western blue elderberry	Adoxaceae [Caprifoliaceae]
<i>Sanicula arguta</i>	sharp-toothed sanicle	Apiaceae
<i>Schoenoplectus americanus</i> [ <i>Scirpus americanus</i> ; <i>S. olneyi</i> ]	American tule	Cyperaceae
<i>Sisymbrium irio</i>	London rocket	Brassicaceae
<i>Sisyrinchium bellum</i>	beautiful blue-eyed-grass	Iridaceae
<i>Solanum douglasii</i>	Douglas's nightshade	Solanaceae
<i>Solanum xantii</i>	chaparral nightshade	Solanaceae
<i>Sonchus asper</i> var. <i>asper</i>	typical spiny-leaved sow-thistle	Asteraceae
<i>Sonchus oleraceus</i>	common annual sow-thistle	Asteraceae
<i>Stachys bullata</i>	California hedge-nettle	Lamiaceae
<i>Stipa cernua</i> [ <i>Nassella cernua</i> ]	nodding needle grass	Poaceae
<i>Stipa lepida</i> [ <i>Nassella lepida</i> ]	foothill needle grass	Poaceae
<i>Stipa pulchra</i> [ <i>Nassella pulchra</i> ]	purple needle grass	Poaceae
<i>Tauschia arguta</i>	southern tauschia	Apiaceae
<i>Thermopsis californica</i> var. <i>argentata</i> [ <i>Thermopsis macrophylla</i> , misapplied]	silvery thermopsis	Fabaceae
<i>Thysanocarpus curvipes</i>	sand fringe-pod	Brassicaceae
<i>Toxicodendron diversilobum</i>	western poison-oak	Anacardiaceae
<i>Trichostema lanatum</i>	woolly bluecurls	Lamiaceae
<i>Trifolium albopurpureum</i> [var. <i>albopurpureum</i> ]	common rancheria clover	Fabaceae
<i>Trifolium gracilentum</i>	pinpoint clover	Fabaceae

<b>Culturally Significant Plants at Hopper Mountain NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family Name</b>
<i>Trifolium willdenovii</i>	tomcat clover	Fabaceae
<i>Typha latifolia</i>	common cattail	Typhaceae
<i>Uropappus lindleyi</i> [ <i>Microseris lindleyi</i> ]	Lindley's uropappus	Asteraceae
<i>Urtica dioica</i> subsp. <i>holosericea</i>	hoary nettle	Urticaceae
<i>Verbena lasiostachys</i>	western verbena	Verbenaceae

Sources: Timbrook, 2007; Timbrook, pers. comm., 2012; Anderson 2007; Anderson, pers. comm. 2012; Stevens, 2004; USDA Natural Resources Conservation Service, Culturally Significant Plants Database (<http://plants.usda.gov/java/factSheet?cultural=yes>) and Native Uses of Native Plants in the Sierra Nevada Mountains and Foothills of California and Nevada (<ftp://ftp-fc.sc.egov.usda.gov/CA/news/Publications/general/NativePlants04.pdf>).

**Table E-3. Hopper Mountain NWR – Special Status Plants  
Observed Within or in the Vicinity of Hopper Mountain NWR**

Special Status Plants Observed Within or in the Vicinity of Hopper Mountain NWR					
Species Scientific Name Common Name	STATUS			Habitat Associations & Reported Elevation Range	Observation Status
	USFWS	CDFG	CNPS		
<i>Acanthoscyphus parishii</i> var. <i>abramsii</i> Abram's flowery puncturebract	-	-	1B.2	Chaparral 3,750 - 6,750 ft.	Documented in vicinity
<i>California macrophylla</i> [ <i>Erodium macrophyllum</i> ] round-leaved filaree	-	-	1B.1	Clay; cismontane woodland; valley and foothill grassland 50 - 4,000 ft.	Documented on Refuge
<i>Calochortus catalinae</i> Catalina mariposa lily	-	-	4.2	Clay; cismontane woodland; coastal scrub; valley and foothill grassland 50 - 4,000 ft.	Documented in vicinity
<i>Calochortus clavatus</i> var. <i>clavatus</i> typical club-haired mariposa lily	-	-	4.3	Chaparral, cismontane woodland, coastal scrub, grassland (usually serpentinite, clay, rocky) 250 - 4,260 ft.	Documented on Refuge
<i>Calochortus clavatus</i> var. <i>gracilis</i> slender mariposa lily	-	-	1B.2	Chaparral; coastal scrub; valley and foothill grassland 1,050 - 3,250 ft.	Documented in vicinity
<i>Calochortus fimbriatus</i> late-flowered mariposa lily	-	-	1B.3	Chaparral; cismontane woodland; coastal scrub; valley and foothill grassland- often on serpentine soils 900 - 6,300 ft.	Documented in vicinity
<i>Calochortus palmeri</i> var. <i>palmeri</i> Palmer's mariposa lily	-	-	1B.2	Chaparral; lower montane coniferous forest; meadows and seeps 3,280 – 7840 ft.	Documented in vicinity
<i>Calochortus plummerae</i> Plummer's mariposa lily	-	-	4.2	Chaparral; cismontane woodland; coastal scrub; lower montane coniferous forest; valley and foothill grassland 300 - 5,500 ft.	Documented in vicinity
<i>Calystegia peirsonii</i> Peirson's morning glory	-	-	4.2	Chaparral; chenopod scrub; cismontane woodland; coastal scrub; lower montane coniferous forest; valley and foothill grassland 100 - 4,900 ft.	Documented in vicinity
<i>Cercocarpus betuloides</i> var. <i>blancheae</i> island mountain mahogany	-	-	4.3	Closed-cone coniferous forest; chaparral 100 - 2,000 ft.	Documented in vicinity
<i>Chorizanthe parryi</i> var. <i>fernandina</i> San Fernando Valley spineflower	FC	SE	1B.1	Coastal scrub; valley and foothill grassland 500 - 4,000 ft.	Documented in vicinity
<i>Clarkia exilis</i> slender clarkia	-	-	4.3	Cismontane woodland 400 - 3,200 ft.	Documented in vicinity
<i>Clinopodium mimuloides</i> monkey-flower savory	-	-	4.2	Chaparral; north coast coniferous forest 1,000 - 5,900 ft.	Documented in vicinity
<i>Convolvulus simulans</i> small-flowered morning glory	-	-	4.2	Chaparral; coastal scrub; valley and foothill grassland 100 - 2,300 ft.	Documented in vicinity
<i>Deinandra minthornii</i> Santa Susana tarplant	-	SR	1B.2	Chaparral; coastal scrub 900 - 2,500 ft.	Documented in vicinity

<i>Delphinium parryi</i> ssp. <i>purpureum</i> Mt. Pinos larkspur	-	-	4.3	Chaparral, mojavean desert scrub, pinyon & juniper woodland 3,280 - 8,530 ft.	Documented in vicinity
<i>Delphinium umbraculorum</i> umbrella larkspur	-	-	1B.3	Cismontane woodland 1,300 - 5,250 ft.	Documented in vicinity
<i>Dodecahema leptoceras</i> slender-horned spineflower	FE	SE	1B.1	Chaparral; cismontane woodland; coastal scrub 650 - 2,500 ft.	Documented in vicinity
<i>Dudleya parva</i> Conejo dudleya	FT	-	1B.2	Coastal scrub; valley and foothill grassland 200 - 1,500 ft.	Documented in vicinity
<i>Fritillaria ojaiensis</i> Ojai fritillary	-	-	1B.2	Broadleaf upland forest (mesic); chaparral; lower montane coniferous forest; rocky 985 - 3,270 ft.	Documented in vicinity
<i>Harpagonella palmeri</i> Palmer's grapplinghook	-	-	4.2	Chaparral; coastal scrub; valley and foothill grassland 65 - 3,200 ft.	Documented in vicinity
<i>Helianthus nuttallii</i> ssp. <i>parishii</i> Los Angeles sunflower	-	-	1A	Marshes and swamps 30 - 5,500 ft.	Documented in vicinity
<i>Horkelia cuneata</i> var. <i>puberula</i> mesa horkelia	-	-	1B.1	Chaparral; cismontane woodland; coastal scrub 230 - 2,700 ft.	Documented in vicinity
<i>Juglans californica</i> [var. <i>californica</i> ] southern California black walnut	-	-	4.2	Chaparral; Cismontane woodland; Coastal scrub 165 - 3,000 ft.	Documented on Refuge
<i>Juncus acutus</i> subsp. <i>leopoldii</i> southwestern spiny rush	-	-	4.2	Coastal dunes; meadows and seeps; marshes and swamps 10 - 3,000 ft.	Documented in vicinity
<i>Lepechinia rossii</i> Ross's pitcher-sage	-	-	1B.2	Chaparral 1000 - 2,600 ft.	Documented on Refuge
<i>Lilium humboldtii</i> subsp. <i>ocellatum</i>	-	-	4.2	Chaparral; cismontane woodland; coastal scrub; lower montane coniferous forest, riparian woodland 100 - 5,900 ft	Documented in vicinity
<i>Malacothamnus davidsonii</i> Davidson's bush-mallow	-	-	1B.2	Chaparral; cismontane woodland; coastal scrub; riparian woodland 600 - 2,800 ft.	Documented in vicinity
<i>Monardella linoides</i> ssp. <i>oblonga</i> Tehachapi monardella	-	-	1B.3	Lower and upper montane coniferous forest; pinyon and juniper woodland 2,900 - 8,100 ft.	Documented in vicinity
<i>Navarretia ojaiensis</i> Ojai navarretia	-	-	1B.1	Chaparral; coastal scrub; valley and foothill grassland 900 - 2,000 ft.	Documented in vicinity
<i>Orcuttia californica</i> California Orcutt grass	FE	CE	1B.1	Vernal pools 50 - 2,200 ft.	Documented in vicinity
<i>Orobanche valida</i> subsp. <i>valida</i> Rock Creek broomrape	-	-	1B.2	Chaparral; pinyon and juniper woodland 3,200 - 6,560 ft.	Documented in vicinity
<i>Pentachaeta lyonii</i> Lyon's pentachaeta	FE	CE	1B.1	Chaparral; coastal scrub; valley and foothill grassland 100 - 2,100 ft.	Documented in vicinity
<i>Phacelia hubbyi</i> Hubby's phacelia	-	-	4.2	Chaparral; coastal scrub; valley and foothill Grassland 0 - 3,300 ft.	Documented in vicinity

<i>Pseudognaphalium leucocephalum</i> white rabbit-tobacco	-	-	2.2	Chaparral; cismontane woodland; coastal scrub; riparian woodland 0 - 6,900 ft.	Documented in vicinity
<i>Quercus dumosa</i> Nuttall's scrub oak	-	-	1B.1	Sandy, clay loam; closed-cone coniferous forest; chaparral; coastal scrub 45 - 1,320 ft.	Documented on Refuge
<i>Symphytotrichum greatae</i> [ <i>Aster greatae</i> ] Greata's aster	-	-	1B.3	Broadleafed upland forest; chaparral; cismontane woodland; lower montane coniferous forest; riparian woodland 1,000 - 6,600 ft.	Documented on Refuge
<i>Thermopsis californica</i> var. <i>argentata</i> [ <i>Thermopsis macrophylla</i> , misapplied] silvery thermopsis	-	-	4.3	Lower montane coniferous forest; pinyon and juniper woodland 2,500 - 5,200 ft.	Documented on Refuge

Sources: California Native Plant Society (CNPS). 2012. Inventory of Rare and Endangered Plants (online edition, v8-01a, <http://www.rareplants.cnps.org/>). California Native Plant Society. Sacramento, CA. Accessed on November 16, 2012. California Natural Diversity Database (California Department of Fish and Wildlife), Dec. 2012 official version as well as unprocessed records accessed via online portal on January 2, 2013.

<b>SPECIAL STATUS PLANTS LEGEND:</b>	
<b>Federal (U.S. Fish &amp; Wildlife Service)</b>	<b>State (CA Dept. of Fish &amp; Wildlife)</b>
FE      Endangered	SE      Endangered
FT      Threatened	ST      Threatened
FC      Candidate	SR      Rare
	SC      Candidate
<b>California Native Plant Society (CNPS) Rare Plant Rank Categories</b>	
List 1A	Plants Presumed Extinct in California
List 1B	Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2	Plants Rare, Threatened, or Endangered in California But More Common Elsewhere
List 3	Plants About Which We Need More Information - A Review List
List 4	Plants of Limited Distribution – A Watch List
<b>California Native Plant Society (CNPS) Threat Code Extensions</b>	
None	Plants lacking any threat information
.1	Seriously Endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2	Fairly Endangered in California (20-80% of occurrences threatened)
.3	Not very Endangered in California (less than 20% of occurrences threatened or no current threats known)

**Hopper Mountain NWR Wildlife Lists**

Includes compilation from Hopper Mountain National Wildlife Refuge Complex  
Calendar Year 2002 Annual Narrative Report

**Table E-4. Hopper Mountain NWR – Birds**

Hopper Mountain NWR		
Order	Family or Subfamily	Common Name ( <i>Scientific Name</i> )
Anseriformes	Anatinae	Gadwall ( <i>Anas strepera</i> )
		Mallard ( <i>Anas platyrhynchos</i> )
Galliformes	Odontophoridae	Mountain Quail ( <i>Oreortyx pictus</i> )
		California Quail ( <i>Callipepla californica</i> )
Accipitriformes	Cathartidae	Turkey Vulture ( <i>Cathartes aura</i> )
		California Condor ( <i>Gymnogyps californianus</i> )
	Pandionidae	Osprey ( <i>Pandion haliaetus</i> )
	Accipitridae	White-tailed Kite ( <i>Elanus caeruleus</i> )

Hopper Mountain NWR		
Order	Family or Subfamily	Common Name (Scientific Name)
		Bald Eagle ( <i>Haliaeetus leucocephalus</i> )
		Northern Harrier ( <i>Circus cyaneus</i> )
		Sharp-shinned Hawk ( <i>Accipiter striatus</i> )
		Cooper's Hawk ( <i>Accipiter cooperii</i> )
		Northern Goshawk ( <i>Accipiter gentilis</i> )
		Red-shouldered Hawk ( <i>Buteo lineatus</i> )
		Swainson's Hawk ( <i>Buteo swainsoni</i> )
		Red-tailed Hawk ( <i>Buteo jamaicensis</i> )
		Ferruginous Hawk ( <i>Buteo regalis</i> )
		Rough-legged Hawk ( <i>Buteo lagopus</i> )
		Golden Eagle ( <i>Aquila chrysaetos</i> )
Falconiformes	Falconidae (Falconinae)	American Kestrel ( <i>Falco sparverius</i> )
		Merlin ( <i>Falco columbarius</i> )
		Peregrine Falcon ( <i>Falco peregrinus</i> )
		Prairie Falcon ( <i>Falco mexicanus</i> )
Gruiformes	Rallidae	Virginia rail ( <i>Rallus limicola</i> )
		Sora ( <i>Porzana carolina</i> )
Charadriiformes	Scolopacidae (Scolopacinae)	Wilson's Snipe ( <i>Gallinago gallinago</i> )
Columbiformes	Columbidae	Rock Pigeon ( <i>Columba livia</i> )
		Band-tailed Pigeon ( <i>Columba fasciata</i> )
		Mourning Dove ( <i>Zenaida macroura</i> )
Cuculiformes	Cuculidae (Neomorphae)	Greater Roadrunner ( <i>Geococcyx californianus</i> )
Strigiformes	Tytonidae	Barn Owl ( <i>Tyto alba</i> )
	Strigidae	Western Screech Owl ( <i>Otus kennicottii</i> )
		Great Horned Owl ( <i>Bubo virginianus</i> )
		Northern Pygmy Owl ( <i>Glaucidium gnoma</i> )
		Burrowing Owl ( <i>Athene cunicularia hypugaea</i> )
		Long-eared Owl ( <i>Asio otus</i> )
		Short-eared Owl ( <i>Asio flarnmeus</i> )
		Northern Saw-whet Owl ( <i>Aegolius acadicus</i> )
Caprimulgiformes	Caprimulgidae (Caprimulginae)	Common Poorwill ( <i>Phalaenoptilus nuttallii</i> )
Apodiformes	Apodinae	White-throated swift ( <i>Aeronautes saxatalis</i> )
	Trochilidae (Trochilinae)	Anna's Hummingbird ( <i>Calypte anna</i> )
		Costa's Hummingbird ( <i>Calypte costae</i> )
		Black-chinned Hummingbird ( <i>Archilochus alexandri</i> )
		Rufous Hummingbird ( <i>Selasphorus rufus</i> )
Piciformes	Picidae (Picinae)	Lewis' Woodpecker ( <i>Melanerpes lewis</i> )
		Acorn Woodpecker ( <i>Melanerpes formicivorus</i> )
		Red-naped sapsucker ( <i>Sphyrapicus nuchalis</i> )
		Red-breasted Sapsucker ( <i>Sphyrapicus ruber</i> )
		Nuttall's Woodpecker ( <i>Picoides nuttallii</i> )
		Hairy Woodpecker ( <i>Picoides villosus</i> )
		Downy Woodpecker ( <i>Picoides pubescens</i> )
		Northern Flicker ( <i>Colaptes auratus</i> )
Passeriformes	Fluvicolinae	Olive-sided Flycatcher ( <i>Contopus cooperi</i> )
		Western Wood Pewee ( <i>Contopus sordidulus</i> )
		Pacific-slope Flycatcher ( <i>Empidonax difficilis</i> )
		Black Phoebe ( <i>Sayornis nigricans</i> )
		Say's Phoebe ( <i>Sayornis saya</i> )
	Tyranninae	Ash-throated Flycatcher ( <i>Myiarchus cinerascens</i> )
		Western Kingbird ( <i>Tyrannus verticalis</i> )

Hopper Mountain NWR		
Order	Family or Subfamily	Common Name (Scientific Name)
	Laniidae	Loggerhead shrike ( <i>Lanius ludovicianus</i> )
	Vireonidae	Hutton's Vireo ( <i>Vireo huttoni</i> ) Warbling Vireo ( <i>Vireo gilvus</i> )
	Corvidae	Steller's Jay ( <i>Cyanocitta stelleri</i> ) Western Scrub jay ( <i>Aphelocoma californica</i> ) American Crow ( <i>Corvus brachyrhynchos</i> ) Common Raven ( <i>Corvus corax</i> )
	Alaudidae	Horned Lark ( <i>Eremophila alpestris</i> )
	Hirundinidae (Hirundininae)	Violet-green Swallow ( <i>Tachycineta thalassina</i> ) N. Rough-winged Swallow ( <i>Stelgidopteryx serripennis</i> ) Cliff Swallow ( <i>Petrochelidon pyrrhonota</i> )
	Paridae	Oak Titmouse ( <i>Baeolophus inornatus</i> ) Mountain Chickadee ( <i>Poecile gambeli</i> )
	Aegithalidae	Bushtit ( <i>Psaltriparus minimus</i> )
	Sittidae (Sittinae)	White-breasted Nuthatch ( <i>Sitta carolinensis</i> ) Red-breasted Nuthatch ( <i>Sitta Canadensis</i> )
	Troglodytidae	Rock Wren ( <i>Salpinctes obsoletus</i> ) Canyon Wren ( <i>Catherpes mexicanus</i> ) Bewick's Wren ( <i>Thryomanes bewickii</i> ) House Wren ( <i>Troglodytes aedon</i> )
	Poliophtilidae	Blue-gray Gnatcatcher ( <i>Poliophtila caerulea</i> )
	Regulidae	Ruby-crowned Kinglet ( <i>Regulus calendula</i> ) Golden-crowned Kinglet ( <i>Regulus satrapa</i> )
	Sylviidae	Wrentit ( <i>Chamaea fasciata</i> )
	Turdidae	Mountain Bluebird ( <i>Sialia currucoides</i> ) Western Bluebird ( <i>Sialia mexicana</i> ) Swainson's Thrush ( <i>Catharus ustulatus</i> ) Hermit Thrush ( <i>Catharus guttatus</i> ) American Robin ( <i>Turdus migratorius</i> )
	Mimidae	Northern Mockingbird ( <i>Mimus polyglottos</i> ) California Thrasher ( <i>Toxostoma redivivum</i> )
	Sturnidae	European Starling ( <i>Sturnus vulgaris</i> )
	Motacillidae	American Pipit ( <i>Anthus rubescens</i> )
	Bombycillidae	Cedar Waxwing ( <i>Bombycilla cedrorum</i> )
	Ptilogonatidae	Phainopepla ( <i>Phainopepla nitens</i> )
	Parulidae	Orange-crowned Warbler ( <i>Vermivora celata</i> ) Nashville Warbler ( <i>Vermivora ruficapilla</i> ) Common Yellowthroat ( <i>Geothlypis trichas</i> ) Yellow Warbler ( <i>Dendroica petechia</i> ) Yellow-rumped Warbler ( <i>Dendroica coronata</i> ) Black-throated Gray Warbler ( <i>Dendroica nigrescens</i> ) Townsend's Warbler ( <i>Dendroica townsendi</i> ) Hermit Warbler ( <i>Dendroica occidentalis</i> ) Common Yellowthroat ( <i>Geothlypis trichas</i> ) Wilson's Warbler ( <i>Wilsonia pusilla</i> )

Hopper Mountain NWR		
Order	Family or Subfamily	Common Name (Scientific Name)
	Emberizidae	Spotted Towhee ( <i>Pipilo maculatus</i> )
		California Towhee ( <i>Pipilo fuscus</i> )
		Lark sparrow ( <i>Chondestes grammacus</i> )
		Savannah Sparrow ( <i>Passerculus sandwichensis</i> )
		Fox Sparrow ( <i>Passerella iliaca</i> )
		Song Sparrow ( <i>Melospiza melodia</i> )
		Lincoln's Sparrow ( <i>Melospiza lincolni</i> )
		White-crowned Sparrow ( <i>Zonotrichia leucophrys</i> )
		Golden-crowned Sparrow ( <i>Zonotrichia atricapilla</i> )
		Dark-eyed Junco ( <i>Junco hyemalis</i> )
	Cardinalidae	Western Tanager ( <i>Piranga ludoviciana</i> )
		Black-headed Grosbeak ( <i>Pheucticus melanocephalus</i> )
		Blue Grosbeak ( <i>Passerina caerulea</i> ) (yes present)
		Lazuli Bunting ( <i>Passerina amoena</i> )
		Indigo Bunting ( <i>Passerina cyanea</i> )
	Icteridae	Western Meadowlark ( <i>Sturnella neglect</i> )
		Brown-headed Cowbird ( <i>Molothrus ater</i> )
		Red-winged Blackbird ( <i>Agelaius phoeniceus</i> )
		Brewer's Blackbird ( <i>Euphagus cyanocephalus</i> )
		Hooded Oriole ( <i>Icterus cucullatus</i> )
		Bullock's Oriole ( <i>Icterus bullockii</i> )
	Carduelinae	Purple Finch ( <i>Carpodacus purpureus</i> )
		House Finch ( <i>Carpodacus mexicanus</i> )
		Pine Siskin ( <i>Carduelis pinus</i> )
		Lesser Goldfinch ( <i>Carduelis psaltria</i> )
		Lawrence's Goldfinch ( <i>Carduelis lawrencei</i> )
		American Goldfinch ( <i>Carduelis tristis</i> )
		American goldfinch ( <i>Carduelis tristis</i> )

\*Birds categorized using AOU taxonomy (<http://www.aou.org/checklist/north/index.php>)

**Table E-5. Hopper Mountain NWR – Mammals**

Common Name	Scientific Name
Broad-footed mole	( <i>Scapanus latimanus</i> )**
Big brown bat	( <i>Eptesicus fuscus</i> )
Brush rabbit	( <i>Sylvilagus bachmani</i> )
Merriam's chipmunk	( <i>Neotamias merriami</i> )
California ground squirrel	( <i>Otospermophilus beecheyi</i> )
Western gray squirrel	( <i>Sciurus griseus</i> )
Botta's pocket gopher	( <i>Thomomys bottae</i> )
California pocket mouse	( <i>Chaetodipus californicus</i> )
Agile kangaroo rat	( <i>Dipodomys agilis</i> )
California mouse	( <i>Peromyscus californicus</i> )**
Canyon mouse	( <i>Peromyscus crinitus</i> )
Deer mouse	( <i>Peromyscus maniculatus</i> )
Dusky-footed woodrat	( <i>Neotoma fuscipes</i> )
Desert woodrat	( <i>Neotoma lepida</i> )
San Diego desert woodrat	( <i>Neotoma lepida intermedia</i> )
Norway rat	( <i>Rattus norvegicus</i> )
Black rat	( <i>Rattus rattus</i> )
House mouse	( <i>Mus musculus</i> )
Coyote	( <i>Canis latrans</i> )
Red fox	( <i>Vulpes vulpes</i> )
Gray fox	( <i>Urocyon cinereoargenteus</i> )
Black bear	( <i>Ursus americanus</i> )
American badger	( <i>Taxidea taxus</i> )
Striped skunk	( <i>Mephitis mephitis</i> )
Mountain lion	( <i>Puma concolor</i> )
Bobcat	( <i>Lynx rufus</i> )
Mule deer	( <i>Odocoileus hemionus</i> )



\*\* Mammals that have been observed on property surrounding Hopper Mountain NWR, but not on the refuge itself are shown with double asterisks.

**Table E-6. Hopper Mountain NWR – Amphibians**

Common Name	Scientific Name
Southern California toad	<i>(Anaxyrus boreas halophilus)</i>
Baja California treefrog	<i>(Pseudacris hypochondriaca)</i> ; formerly recognized as <i>P. regilla</i>

**Table E-7. Hopper Mountain NWR – Reptiles**

Common Name	Scientific Name
Tiger whiptail	<i>(Aspidoscelis tigris)</i>
Southern alligator lizard	<i>(Elgaria multicarinata)</i>
Western skink	<i>(Plestiodon skiltonianus skiltonianus)</i>
Blainville's horned lizard	<i>(Phrynosoma blainvillii)</i>
Western fence lizard	<i>(Sceloporus occidentalis)</i>
Common side-blotched lizard	<i>(Uta stansburiana)</i>
Southern Pacific rattlesnake	<i>(Crotalus oregonanus helleri)</i>
Ring-necked snake	<i>(Diadophis punctatus)</i>
Coast night-snake	<i>(Hypsiglena ochrorhyncha)</i>
California kingsnake	<i>(Lampropeltis getula californiae)</i>
San Diego gopher snake	<i>(Pituophis catenifer annectens)</i>
Western patch-nosed snake	<i>(Salvadora hexalepis)</i>
Coast patch-nosed snake	<i>(Salvadora hexalepis virgultea)</i>
Western black-headed snake	<i>(Tantilla planiceps)</i>
Gartersnake, unid.	<i>(Thamnophis sp.)</i>
Western pond turtle	<i>(Actinemys marmorata)</i>

Amphibian and reptile taxonomy follows:

Crother, B. I. (ed.). 2008. *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico*, pp. 1. *Imphibiansrpetological Circular* 37.

## Bitter Creek NWR Plant Lists

Table E-8. Bitter Creek NWR – Plants

Bitter Creek NWR		
Scientific Name	Common Name	Family
<i>Acanthomintha obovata</i> subsp. <i>cordata</i>	heart-leaved acanthomintha	Lamiaceae
<i>Achillea millefolium</i>	common yarrow	Asteraceae
<i>Acmispon americanus</i> var. <i>americanus</i> [ <i>Lotus purshianus</i> var. <i>purshianus</i> ; <i>Lotus unifoliolatus</i> var. <i>unifoliolatus</i> ]	typical American bird's-foot-trefoil	Fabaceae
<i>Acmispon brachycarpus</i> [ <i>Lotus humistratus</i> ]	short-podded lotus	Fabaceae
<i>Acmispon glaber</i> [ <i>Lotus scoparius</i> ]	deer lotus	Fabaceae
<i>Acmispon procumbens</i> var. <i>procumbens</i> [ <i>Lotus procumbens</i> var. <i>procumbens</i> ]	typical silky bird's-foot-trefoil	Fabaceae
<i>Acmispon wrangelianus</i> [ <i>Lotus wrangelianus</i> , <i>Lotus subpinnatus</i> , misapplied]	Wrangel's lotus	Fabaceae
<i>Agoseris grandiflora</i> var. <i>grandiflora</i>	typical grassland agoseris	Asteraceae
<i>Agoseris retrorsa</i>	spear-leaved agoseris	Asteraceae
<i>Ailanthus altissima</i>	tree-of-heaven	Simaroubaceae
<i>Aliciella leptomeria</i> [ <i>Gilia leptomeria</i> ]	sand aliciella	Polemoniaceae
<i>Allium crispum</i>	crinkled onion	Alliaceae [Liliaceae]
<i>Allium howellii</i> var. <i>howellii</i>	typical Howell's allium	Alliaceae [Liliaceae]
<i>Allium peninsulare</i> var. <i>peninsulare</i>	typical peninsular allium	Alliaceae [Liliaceae]
<i>Allophyllum gilioides</i> subsp. <i>gilioides</i>	typical gilia-like allophyllum	Polemoniaceae
<i>Allophyllum gilioides</i> subsp. <i>violaceum</i>	gilia-like allophyllum	Polemoniaceae
<i>Amaranthus blitoides</i>	mat amaranth	Amaranthaceae
<i>Ambrosia acanthicarpa</i>	annual bur-sage	Asteraceae
<i>Amsinckia douglasiana</i>	Douglas's fiddleneck	Boraginaceae
<i>Amsinckia eastwoodiae</i>	Eastwood's fiddleneck	Boraginaceae
<i>Amsinckia intermedia</i> [ <i>Amsinckia menziesii</i> var. <i>intermedia</i> ]	common rancher's fireweed	Boraginaceae
<i>Amsinckia menziesii</i> [var. <i>menziesii</i> ]	Menzies's fiddleneck	Boraginaceae
<i>Amsinckia tessellata</i> var. <i>gloriosa</i>	glorious fiddleneck	Boraginaceae
<i>Amsinckia tessellata</i> var. <i>tessellate</i>	typical tessellate fiddleneck	Boraginaceae
<i>Amsinckia vernicosa</i> [var. <i>vernicosa</i> ]	green fiddleneck	Boraginaceae
<i>Ancistrocarphus filagineus</i>	hooked groundstar	Asteraceae
<i>Androsace elongata</i> subsp. <i>acuta</i>	California androsace	Primulaceae
<i>Anisocoma acaulis</i>	anisocoma	Asteraceae
<i>Aphanes occidentalis</i>	western parsley-piert	Rosaceae
<i>Artemisia dracunculus</i>	wild tarragon	Asteraceae
<i>Artemisia tridentata</i> subsp. <i>tridentata</i>	Great Basin sagebrush	Asteraceae
<i>Asclepias eriocarpa</i>	Kotolo milkweed	Apocynaceae [Asclepiadaceae]
<i>Asclepias erosa</i>	giant sand-milkweed	Apocynaceae [Asclepiadaceae]
<i>Asclepias fascicularis</i>	narrow-leaf milkweed	Apocynaceae [Asclepiadaceae]
<i>Astragalus didymocarpus</i> var. <i>didymocarpus</i>	typical two-seeded milkvetch	Fabaceae
<i>Astragalus douglasii</i> var. <i>douglasii</i>	typical Douglas's milkvetch	Fabaceae
<i>Astragalus hornii</i> var. <i>hornii</i>	typical Horn's milkvetch	Fabaceae

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<b>Bitter Creek NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Astragalus lentiginosus</i> var. <i>nigracalycis</i>	black-sepaled freckled locoweed	Fabaceae
<i>Astragalus oxyphysus</i>	Diablo milkvetch	Fabaceae
<i>Astragalus trichopodus</i> var. <i>phoxus</i>	Santa Barbara milkvetch	Fabaceae
<i>Athysanus pusillus</i>	dwarf athysanus	Brassicaceae
<i>Atriplex argentea</i> var. <i>expansa</i> [var. <i>mohavensis</i> ]	Mojave orach	Chenopodiaceae
<i>Atriplex canescens</i> subsp. <i>canescens</i>	typical four-wing saltbush	Chenopodiaceae
<i>Atriplex lentiformis</i> [subsp. <i>lentiformis</i> ; <i>Atriplex breweri</i> ]	big saltbush	Chenopodiaceae
<i>Atriplex polycarpa</i>	many-fruited saltbush	Chenopodiaceae
<i>Atriplex spinifera</i>	spinescale saltbush	Chenopodiaceae
<i>Avena barbata</i>	slender wild oat	Poaceae
<i>Avena fatua</i>	common wild oat	Poaceae
<i>Baccharis glutinosa</i> [ <i>Baccharis douglasii</i> ]	marsh baccharis	Asteraceae
<i>Baccharis salicifolia</i> [ <i>Baccharis glutinosa</i> , misapplied; <i>Baccharis viminea</i> ]	mulefat	Asteraceae
<i>Balsamorhiza deltoidea</i>	deltoid balsamroot	Asteraceae
<i>Bloomeria crocea</i>	golden bloomeria	Themidiaceae [Liliaceae]
<i>Boechea pulchra</i> [ <i>Arabis pulchra</i> var. <i>pulchra</i> ]	beautiful rock-cress	Brassicaceae
<i>Bolboschoenus maritimus</i> subsp. <i>paludosus</i> [ <i>Scirpus maritimus</i> var. <i>paludosus</i> ]	saltmarsh tuberous-bulrush	Cyperaceae
<i>Bowlesia incana</i>	hoary bowlesia	Apiaceae
<i>Bromus arenarius</i>	Australian chess	Poaceae
<i>Bromus berterioanus</i> [ <i>Bromus trinii</i> var. <i>trinii</i> ]	Chilean chess	Poaceae
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome	Poaceae
<i>Bromus catharticus</i>	rescue grass	Poaceae
<i>Bromus diandrus</i> [ <i>Bromus rigidus</i> ]	ripgut brome	Poaceae
<i>Bromus hordeaceus</i> [ <i>Bromus mollis</i> ]	soft chess	Poaceae
<i>Bromus madritensis</i> subsp. <i>madritensis</i>	foxtail chess	Poaceae
<i>Bromus madritensis</i> subsp. <i>rubens</i> [ <i>Bromus rubens</i> ]	red brome	Poaceae
<i>Bromus tectorum</i>	common cheatgrass	Poaceae
<i>Calandrinia ciliata</i>	ciliate red-maids	Montiaceae [Portulacaceae]
<i>Calochortus clavatus</i> var. <i>clavatus</i>	typical club-haired mariposa lily	Liliaceae
<i>Calochortus kennedyi</i> var. <i>kennedyi</i>	typical desert mariposa lily	Liliaceae
<i>Calochortus venustus</i>	Venus mariposa lily	Liliaceae
<i>Calyptidium monandrum</i>	sand-cress calyptidium	Montiaceae [Portulacaceae]
<i>Camissonia campestris</i> subsp. <i>campestris</i>	typical Mojave suncup	Onagraceae
<i>Camissonia contorta</i>	contorted suncup	Onagraceae
<i>Camissonia strigulosa</i>	strigose suncup	Onagraceae
<i>Camissoniopsis bistorta</i> [ <i>Camissonia bistorta</i> ]	southern suncup	Onagraceae
<i>Camissoniopsis hirtella</i> [ <i>Camissonia hirtella</i> ]	small-haired camissonia	Onagraceae
<i>Camissoniopsis intermedia</i> [ <i>Camissonia intermedia</i> ]	intermediate suncup	Onagraceae
<i>Camissoniopsis pallida</i> subsp. <i>pallida</i> [ <i>Camissonia pallida</i> subsp. <i>pallida</i> ]	typical pallid evening-primrose	Onagraceae

<b>Bitter Creek NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Capsella bursa-pastoris</i>	common shepherd's-purse	Brassicaceae
<i>Castilleja applegatei</i>	Applegate's paintbrush	Orobanchaceae [Scrophulariaceae]
<i>Castilleja exserta</i> subsp. <i>exserta</i>	typical purple owl's-clover	Orobanchaceae [Scrophulariaceae]
<i>Castilleja minor</i> subsp. <i>spiralis</i>	typical lesser paintbrush	Orobanchaceae [Scrophulariaceae]
<i>Castilleja plagiotoma</i>	Mojave paintbrush	Orobanchaceae [Scrophulariaceae]
<i>Castilleja subinclusa</i> subsp. <i>subinclusa</i>	typical long-leaf paintbrush	Orobanchaceae [Scrophulariaceae]
<i>Caulanthus coulteri</i> [var. <i>coulteri</i> ]	Coulter's caulanthus	Brassicaceae
<i>Caulanthus inflatus</i>	desert-candle caulanthus	Brassicaceae
<i>Caulanthus lasiophyllus</i> [ <i>Guillenia lasiophylla</i> ; <i>Thelypodium lasiophyllum</i> ]	California mustard	Brassicaceae
<i>Caulanthus lemmonii</i> [ <i>Caulanthus coulteri</i> var. <i>lemmonii</i> ]	Lemmon's jewelflower	Brassicaceae
<i>Centaurea melitensis</i>	tocalote	Asteraceae
<i>Centaurea solstitialis</i>	yellow centaurea	Asteraceae
<i>Centrostegia thurberi</i>	Thurber's centrostegia	Polygonaceae
<i>Chaenactis stevioides</i> [var. <i>brachypappa</i> ]	stevia chaenactis	Asteraceae
<i>Chamaesyce ocellata</i> subsp. <i>ocellata</i>	typical ocellated spurge	Euphorbiaceae
<i>Chenopodium album</i>	white goosefoot	Chenopodiaceae
<i>Chenopodium californicum</i>	California chenopodium	Chenopodiaceae
<i>Chorispora tenella</i>	tenella mustard	Brassicaceae
<i>Chorizanthe staticoides</i>	statice chorizanth	Polygonaceae
<i>Chorizanthe uniaristata</i>	one-awn chorizanth	Polygonaceae
<i>Chorizanthe watsonii</i>	Watson's chorizanth	Polygonaceae
<i>Chorizanthe xanti</i> var. <i>xanti</i>	typical Xantus's chorizanth	Polygonaceae
<i>Chrysothamnus viscidiflorus</i>	viscid rabbitbrush	Asteraceae
<i>Cirsium occidentale</i>	western thistle	Asteraceae
<i>Clarkia cylindrica</i> subsp. <i>cylindrical</i>	typical speckled clarkia	Onagraceae
<i>Clarkia purpurea</i> subsp. <i>quadrivulnera</i>	four-spotted clarkia	Onagraceae
<i>Clarkia purpurea</i> subsp. <i>viminea</i>	large purple clarkia	Onagraceae
<i>Clarkia tembloriensis</i> subsp. <i>tembloriensis</i>	Vasek's Temblor Range clarkia	Onagraceae
<i>Claytonia exigua</i> subsp. <i>exigua</i>	typical pale claytonia	Montiaceae [Portulacaceae]
<i>Claytonia parviflora</i> subsp. <i>parviflora</i>	typical streambank spring-beauty	Montiaceae [Portulacaceae]
<i>Claytonia parviflora</i> subsp. <i>viridis</i>	green streambank spring-beauty	Montiaceae [Portulacaceae]
<i>Claytonia perfoliata</i> subsp. <i>perfoliata</i>	typical miner's lettuce	Montiaceae [Portulacaceae]
<i>Collinsia bartsiiifolia</i> var. <i> davidsonii</i>	Davidson's collinsia	Plantaginaceae [Scrophulariaceae]
<i>Collinsia heterophylla</i>	purple-and-white collinsia	Plantaginaceae [Scrophulariaceae]
<i>Convolvulus arvensis</i>	field convolvulus	Convolvulaceae
<i>Cordylanthus rigidus</i> subsp. <i>rigidus</i>	rigid bird's beak	Orobanchaceae [Scrophulariaceae]
<i>Corethrogyne filaginifolia</i> [ <i>Lessingia filaginifolia</i> , including var. <i>filaginifolia</i> ]	common corethrogyne	Asteraceae
<i>Crassula connata</i>	sand pygmyweed	Crassulaceae

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<b>Bitter Creek NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Croton setigerus</i> [ <i>Eremocarpus setigerus</i> ]	turkey-mullein	Euphorbiaceae
<i>Cryptantha circumscissa</i>	matted cryptantha	Boraginaceae
<i>Cryptantha echinella</i>	hedgehog cryptantha	Boraginaceae
<i>Cryptantha flaccida</i>	flaccid cryptantha	Boraginaceae
<i>Cryptantha intermedia</i>	intermediate cryptantha	Boraginaceae
<i>Cryptantha nemaclada</i>	Colusa cryptantha	Boraginaceae
<i>Cryptantha nevadensis</i>	Nevada cryptantha	Boraginaceae
<i>Cryptantha nevadensis</i> var. <i>rigida</i>	rigid cryptantha	Boraginaceae
<i>Cryptantha oxygona</i>	sharp-nut cryptantha	Boraginaceae
<i>Cryptantha sparsiflora</i> [included in <i>Cryptantha flaccida</i> in Jepson Manual 1st edition]	few-flowered cryptantha	Boraginaceae
<i>Cucurbita palmate</i>	common coyote gourd	Cucurbitaceae
<i>Cuscuta californica</i> var. <i>californica</i>	typical chaparral dodder	Convolvulaceae [Cuscutaceae]
<i>Datura wrightii</i> [ <i>Datura meteloides</i> ]	Wright's datura	Solanaceae
<i>Deinandra pallida</i> [ <i>Hemizonia pallida</i> ]	Kern tarplant	Asteraceae
<i>Delphinium gypsophilum</i> subsp. <i>gypsophilum</i>	Pinoche Creek larkspur	Ranunculaceae
<i>Delphinium hansenii</i>	Hansen's delphinium	Ranunculaceae
<i>Delphinium inopinum</i>	unexpected larkspur	Ranunculaceae
<i>Delphinium parryi</i> subsp. <i>purpureum</i>	Mount Pinos larkspur	Ranunculaceae
<i>Delphinium patens</i> subsp. <i>montanum</i>	mountain spreading larkspur	Ranunculaceae
<i>Descurainia pinnata</i> subsp. <i>glabra</i>	smooth western tansy-mustard	Brassicaceae
<i>Descurainia sophia</i>	Eurasian tansy mustard	Brassicaceae
<i>Dichelostemma capitatum</i> subsp. <i>capitatum</i>	typical blue dicks	Themidiaceae [Liliaceae]
<i>Distichlis spicata</i>	spiked saltgrass	Poaceae
<i>Dudleya lanceolata</i>	lance-leaved dudleya	Crassulaceae
<i>Eastwoodia elegans</i>	eastwoodia	Asteraceae
<i>Eleocharis quinqueflora</i> [ <i>Eleocharis pauciflora</i> ]	few-flowered spike-rush	Cyperaceae
<i>Elymus cinereus</i> [ <i>Leymus cinereus</i> ]	basin wild-rye	Poaceae
<i>Elymus condensatus</i> [ <i>Leymus condensatus</i> ]	California giant wildrye	Poaceae
<i>Elymus elymoides</i> [ <i>Sitanion hystrix</i> ]	bottlebrush squirreltail	Poaceae
<i>Elymus glaucus</i>	blue wildrye	Poaceae
<i>Elymus multisetus</i> [ <i>Sitanion jubatum</i> ]	big squirreltail	Poaceae
<i>Elymus stebbinsii</i> [ <i>Agropyron parishii</i> ]	Stebbins's wheatgrass	Poaceae
<i>Elymus triticoides</i> [ <i>Leymus triticoides</i> ]	creeping beardless wildrye	Poaceae
<i>Elymus X gouldii</i> [ <i>Leymus X multiflorus</i> ]	multiflowered wildrye	Poaceae
<i>Emmenanthe penduliflora</i> var. <i>penduliflora</i>	yellow-flowered whispering bells	Boraginaceae [Hydrophyllaceae]
<i>Ephedra viridis</i>	green ephedra	Ephedraceae
<i>Epilobium brachycarpum</i>	tall annual willow-herb	Onagraceae
<i>Epilobium canum</i> subsp. <i>latifolium</i>	broad-leaved California fuchsia	Onagraceae
<i>Eragrostis</i> cf. <i>pectinacea</i>	western lovegrass	Poaceae
<i>Eremalche parryi</i> subsp. <i>kernensis</i> [ <i>Eremalche kernensis</i> ]	Kern mallow	Malvaceae

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<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Eremalche parryi</i> subsp. <i>parryi</i>	typical Parry's mallow	Malvaceae
<i>Eremothera boothii</i> subsp. <i>decorticans</i> [ <i>Camissonia boothii</i> subsp. <i>decorticans</i> ]	reddish shredding primrose	Onagraceae
<i>Eriastrum densifolium</i> subsp. <i>austromontanum</i>	southern mountain eriastrum	Polemoniaceae
<i>Eriastrum densifolium</i> subsp. <i>elongatum</i>	elongate eriastrum	Polemoniaceae
<i>Eriastrum hooveri</i>	Hoover's eriastrum	Polemoniaceae
<i>Eriastrum pluriflorum</i>	many-flowered eriastrum	Polemoniaceae
<i>Eriastrum pluriflorum</i> subsp. <i>pluriflorum</i>	typical many-flowered eriastrum	Polemoniaceae
<i>Eriastrum signatum</i>	David's spotted woolly-star	Polemoniaceae
<i>Eriastrum sparsiflorum</i>	few-flowered eriastrum	Polemoniaceae
<i>Ericameria linearifolia</i> [ <i>Haplopappus linearifolius</i> ]	linear-leaved goldenbush	Asteraceae
<i>Ericameria nauseosa</i> var. <i>mohavensis</i> [ <i>Chrysothamnus nauseosus</i> subsp. <i>mohavensis</i> ]	Mojave rubber rabbitbrush	Asteraceae
<i>Erigeron foliosus</i> var. <i>foliosus</i>	typical leafy fleabane	Asteraceae
<i>Eriogonum angulosum</i>	angle-stemmed eriogonum	Polygonaceae
<i>Eriogonum baileyi</i> var. <i>baileyi</i>	typical Bailey's buckwheat	Polygonaceae
<i>Eriogonum</i> cf. <i>wrightii</i>	Wright's eriogonum	Polygonaceae
<i>Eriogonum clavatum</i>	Hoover's desert-trumpet	Polygonaceae
<i>Eriogonum elongatum</i> var. <i>elongatum</i>	typical long-stemmed eriogonum	Polygonaceae
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	Mojave Desert California buckwheat	Polygonaceae
<i>Eriogonum gossypinum</i>	cottony wild buckwheat	Polygonaceae
<i>Eriogonum gracile</i> var. <i>gracile</i>	typical slender woolly eriogonum	Polygonaceae
<i>Eriogonum heermannii</i>	Heermann's eriogonum	Polygonaceae
<i>Eriogonum nudum</i>	naked eriogonum	Polygonaceae
<i>Eriogonum ordii</i>	Fort Mohave wild buckwheat	Polygonaceae
<i>Eriogonum roseum</i>	wand wild buckwheat	Polygonaceae
<i>Eriogonum temblorense</i>	Temblor wild buckwheat	Polygonaceae
<i>Eriogonum viridescens</i>	two-toothed wild buckwheat	Polygonaceae
<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i>	long-stem golden yarrow	Asteraceae
<i>Eriophyllum jepsonii</i>	Jepson's eriophyllum	Asteraceae
<i>Eriophyllum lanatum</i> var. <i>obovatum</i>	southern Sierra woolly sunflower	Asteraceae
<i>Eriophyllum pringlei</i>	Pringle's eriophyllum	Asteraceae
<i>Erodium cicutarium</i>	red-stemmed filaree	Geraniaceae
<i>Erodium moschatum</i>	musk filaree	Geraniaceae
<i>Erysimum capitatum</i> var. <i>capitatum</i> [ <i>Erysimum moniliforme</i> ]	typical western wallflower	Brassicaceae
<i>Eschscholzia caespitosa</i>	tufted California-poppy	Papaveraceae
<i>Eschscholzia californica</i>	common California-poppy	Papaveraceae
<i>Eschscholzia lemmonii</i> subsp. <i>lemmonii</i>	typical Lemmon's eschscholzia	Papaveraceae
<i>Eulobus californicus</i> [ <i>Camissonia californica</i> ]	mustard camissonia	Onagraceae
<i>Festuca bromoides</i> [ <i>Vulpia bromoides</i> ]	brome fescue	Poaceae
<i>Festuca microstachys</i> [ <i>Festuca arida</i> ; <i>F. ffuses</i> ; <i>F. eastwoodiae</i> ; <i>F. pacifica</i> ; <i>F. reflexa</i> ; <i>F. grayi</i> ; <i>F. microstachys</i> var. <i>ffuses</i> ; <i>F. tracyi</i> ;	small fescue	Poaceae

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<b>Bitter Creek NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>F. microstachys</i> var. <i>pauciflora</i> ; <i>F. microstachys</i> var. <i>microstachys</i> ; <i>Vulpia microstachys</i>		
<i>Festuca myuros</i> [ <i>Vulpia myuros</i> ; <i>V. myuros</i> var. <i>ffuses</i> ; <i>V. myuros</i> var. <i>myuros</i> ]	hairy rat-tail fescue	Poaceae
<i>Frankenia salina</i>	alkali frankenia	Frankeniaceae
<i>Fritillaria agrestis</i>	stink-bells	Liliaceae
<i>Galium andrewsii</i> subsp. <i>intermedium</i>	intermediate Andrews's bedstraw	Rubiaceae
<i>Galium aparine</i>	annual bedstraw	Rubiaceae
<i>Gilia achilleifolia</i> subsp. <i>multicaulis</i>	many-stemmed California gilia	Polemoniaceae
<i>Gilia austro-occidentalis</i>	southwestern gilia	Polemoniaceae
<i>Gilia brecciarum</i> subsp. <i>brecciarum</i>	typical Nevada gilia	Polemoniaceae
<i>Gilia capitata</i> subsp. <i>abrotanifolia</i>	southernwood-leaved gilia	Polemoniaceae
<i>Gilia jacens</i> [ <i>Gilia brecciarum</i> subsp. <i>jacens</i> ]	purple-flowered breccia gilia	Polemoniaceae
<i>Gilia latiflora</i> subsp. <i>cuyamensis</i>	Cuyama gilia	Polemoniaceae
<i>Gilia latiflora</i> subsp. <i>davyi</i>	Davy's gilia	Polemoniaceae
<i>Gilia modocensis</i>	Modoc gilia	Polemoniaceae
<i>Gilia ochroleuca</i> subsp. <i>bizonata</i>	desert volcanic gilia	Polemoniaceae
<i>Gilia transmontana</i>	transmontane gilia	Polemoniaceae
<i>Gilia tricolor</i>	tricolored gilia	Polemoniaceae
<i>Grindelia camporum</i>	common gumplant	Asteraceae
<i>Gutierrezia californica</i>	California matchweed	Asteraceae
<i>Helianthus annuus</i>	common annual sunflower	Asteraceae
<i>Heliotropium curassavicum</i>	salt heliotrope	Boraginaceae
<i>Herniaria ffuses</i> var. <i>cinerea</i> [subsp. <i>cinerea</i> ]	gray herniaria	Caryophyllaceae
<i>Hesperoyucca whipplei</i> [ <i>Yucca whipplei</i> ]	Whipple's yucca	Agavaceae [Liliaceae]
<i>Heterotheca sessiliflora</i> subsp. <i>echioides</i> [ <i>Chrysopsis villosa</i> var. <i>echioides</i> ]	bristly golden-aster	Asteraceae
<i>Hirschfeldia incana</i> [ <i>Brassica ffuseste</i> ]	summer field mustard	Brassicaceae
<i>Hordeum depressum</i>	low barley	Poaceae
<i>Hordeum murinum</i> subsp. <i>glaucum</i> [ <i>Hordeum glaucum</i> ; <i>Hordeum stebbinsii</i> ]	glaucous barley	Poaceae
<i>Hordeum murinum</i> subsp. <i>leporinum</i> [ <i>Hordeum leporinum</i> ]	hare barley	Poaceae
<i>Hordeum murinum</i> subsp. <i>murinum</i>	common wall-barley	Poaceae
<i>Hordeum vulgare</i>	common barley	Poaceae
<i>Hornungia procumbens</i> [ <i>Hutchinsia procumbens</i> ]	prostrate hornungia	Brassicaceae
<i>Isocoma acradenia</i> [ <i>Haplopappus acradenius</i> ]	alkali goldenbush	Asteraceae
<i>Isocoma acradenia</i> var. <i>bracteosa</i> [ <i>Haplopappus acradenius</i> subsp. <i>bracteosus</i> ]	San Joaquin isocoma	Asteraceae
<i>Iva axillaris</i> [subsp. <i>robustior</i> ]	poverty-weed iva	Asteraceae
<i>Juglans regia</i>	common walnut	Juglandaceae
<i>Juncus balticus</i>	Baltic rush	Juncaceae
<i>Juncus effusus</i> subsp. <i>pacificus</i> ?	Pacific soft rush	Juncaceae
<i>Juncus ensifolius</i> ?	dagger-leaved rush	Juncaceae
<i>Juncus mexicanus</i>	Mexican rush	Juncaceae

<b>Bitter Creek NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Juncus xiphioides</i>	iris-leaved rush	Juncaceae
<i>Juniperus californica</i>	California juniper	Cupressaceae
<i>Koeleria macrantha</i>	prairie koeleria	Poaceae
<i>Krascheninnikovia lanata</i> [ <i>Eurotia lanata</i> , <i>Ceratoides lanata</i> ]	common winterfat	Chenopodiaceae
<i>Lactuca serriola</i>	common prickly lettuce	Asteraceae
<i>Lagophylla ramosissima</i> [subsp. <i>ramosissima</i> ]	branched lagophylla	Asteraceae
<i>Lasthenia gracilis</i> [ <i>Lasthenia californica</i> s.l.]	needle goldfields	Asteraceae
<i>Lasthenia microglossa</i>	small-rayed lasthenia	Asteraceae
<i>Layia glandulosa</i>	glandular layia	Asteraceae
<i>Layia pentachaeta</i> subsp. <i>albida</i>	white Sierran layia	Asteraceae
<i>Lepidium appelianum</i> [ <i>Cardaria pubescens</i> ]	long-stalk hoary-cress	Brassicaceae
<i>Lepidium nitidum</i> [var. <i>nitidum</i> ]	shining pepperwort	Brassicaceae
<i>Leptosiphon filipes</i> [ <i>Linanthus filipes</i> ]	thread-like leptosiphon	Polemoniaceae
<i>Leptosiphon liniflorus</i> [ <i>Linanthus liniflorus</i> ]	flax-flowered leptosiphon	Polemoniaceae
<i>Leptosiphon parviflorus</i> [ <i>Linanthus parviflorus</i> ]	small-flowered leptosiphon	Polemoniaceae
<i>Leptosiphon pygmaeus</i> subsp. <i>continentalis</i> [ <i>Linanthus pygmaeus</i> subsp. <i>continentalis</i> ]	continental pygmy leptosiphon	Polemoniaceae
<i>Leptosyne bigelovii</i> [ <i>Coreopsis bigelovii</i> ]	Bigelow's coreopsis	Asteraceae
<i>Leptosyne calliopsidea</i> [ <i>Coreopsis calliopsidea</i> ]	leafy-stemmed coreopsis	Asteraceae
<i>Lessingia glandulifera</i> var. <i>glandulifera</i> [ <i>Lessingia lemmonii</i> var. <i>lemmonii</i> ]	typical valley lessingia	Asteraceae
<i>Linanthus dichotomus</i> subsp. <i>dichotomus</i>	typical evening snow	Polemoniaceae
<i>Lithophragma cymbalaria</i>	mission woodland-star	Saxifragaceae
<i>Lithophragma parviflorum</i> var. <i>parviflorum</i>	typical small-flowered woodland-star	Saxifragaceae
<i>Loeseliastrum schottii</i>	Schott's loeseliastrum	Polemoniaceae
<i>Logfia filaginoides</i> [ <i>Filago californica</i> ]	California cottonrose	Asteraceae
<i>Lomatium californicum</i>	California lomatium	Apiaceae
<i>Lomatium macrocarpum</i>	large-fruited lomatium	Apiaceae
<i>Lomatium utriculatum</i>	spring-gold lomatium	Apiaceae
<i>Lonicera subspicata</i> var. <i>denudata</i> [ <i>Lonicera johnstonii</i> ]	southern chaparral honeysuckle	Caprifoliaceae
<i>Lupinus albifrons</i>	white-leaved bush-lupine	Fabaceae
<i>Lupinus bicolor</i>	bicolored lupine	Fabaceae
<i>Lupinus elatus</i>	tall silky lupine	Fabaceae
<i>Lupinus excubitus</i>	grape-soda lupine	Fabaceae
<i>Lupinus formosus</i> var. <i>formosus</i>	typical summer bush lupine	Fabaceae
<i>Lupinus microcarpus</i> var. <i>densiflorus</i> [ <i>Lupinus densiflorus</i> ]	dense-flowered lupine	Fabaceae
<i>Lupinus microcarpus</i> var. <i>horizontalis</i> [ <i>Lupinus horizontalis</i> ]	sunset lupine	Fabaceae
<i>Lupinus microcarpus</i> var. <i>microcarpus</i> [ <i>Lupinus subvexus</i> ]	red-flowered lupine	Fabaceae
<i>Lupinus succulentus</i>	succulent lupine	Fabaceae
<i>Madia elegans</i>	elegant madia	Asteraceae
<i>Malacothrix californica</i>	California malacothrix	Asteraceae



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<b>Bitter Creek NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Malacothrix coulteri</i>	Coulter's malacothrix	Asteraceae
<i>Malacothrix saxatilis</i> var. <i>tenuifolia</i> [ <i>Malacothrix altissima</i> ]	short-leaved cliff-aster	Asteraceae
<i>Malus</i> sp. (persisting from cultivation)	apple	Rosaceae
<i>Malva parviflora</i>	small-flowered mallow	Malvaceae
<i>Marah fabacea</i>	California man-root	Cucurbitaceae
<i>Marrubium vulgare</i>	common horehound	Lamiaceae
<i>Matricaria discoidea</i> [ <i>Chamomilla suaveolens</i> ; <i>Matricaria matricarioides</i> ]	common pineapple-weed	Asteraceae
<i>Melia azedarach</i> L.	Chinaberry tree	Meliaceae
<i>Melica imperfecta</i>	small flowered melica	Poaceae
<i>Melica stricta</i>	nodding melica	Poaceae
<i>Mentzelia affinis</i>	yellow blazing-star	Loasaceae
<i>Mentzelia dispersa</i>	bushy mentzelia	Loasaceae
<i>Mentzelia pectinata</i>	San Joaquin blazing-star	Loasaceae
<i>Mentzelia veatchiana</i>	Veatch's mentzelia	Loasaceae
<i>Microsteris gracilis</i> [ <i>Phlox gracilis</i> ]	slender microsteris	Polemoniaceae
<i>Mimulus androsaceus</i>	orange bush-monkeyflower	Phrymaceae [Scrophulariaceae]
<i>Mimulus guttatus</i>	seep-spring mimulus	Phrymaceae [Scrophulariaceae]
<i>Minuartia douglasii</i>	Douglas's stitchwort	Caryophyllaceae
<i>Mirabilis multiflora</i> var. <i>pubescens</i>	Foebel's mirabilis	Nyctaginaceae
<i>Monardella breweri</i> subsp. <i>lanceolata</i> [ <i>Monardella lanceolata</i> ]	mustang monardella	Lamiaceae
<i>Monardella linoides</i> subsp. <i>oblonga</i>	willow monardella	Lamiaceae
<i>Monolopia lanceolata</i>	common monolopia	Asteraceae
<i>Monolopia stricta</i>	Crum's monolopia	Asteraceae
<i>Mucronea perfoliata</i> [ <i>Chorizanthe perfoliata</i> ]	perfoliate mucronea	Polygonaceae
<i>Muhlenbergia asperifolia</i>	scratchgrass muhly	Poaceae
<i>Muhlenbergia rigens</i>	California deergrass	Poaceae
<i>Muilla maritima</i>	common muilla	Themidiaceae [Liliaceae]
<i>Myosurus minimus</i>	least mousetail	Ranunculaceae
<i>Navarretia leptalea</i> [ <i>Gilia leptalea</i> ]	Bridges's pincushion-plant	Polemoniaceae
<i>Navarretia mitracarpa</i> [ <i>Navarretia jaredii</i> ]	mitre-fruited navarretia	Polemoniaceae
<i>Nemacladus californicus</i> [ <i>Parishella californica</i> ]	California parishella	Campanulaceae
<i>Nemophila menziesii</i> var. <i>menziesii</i>	typical baby blue-eyes	Boraginaceae
<i>Nemophila pedunculata</i>	meadow nemophila	Boraginaceae
<i>Nicotiana glauca</i>	glaucous tobacco	Solanaceae
<i>Nicotiana quadrivalvis</i> [ <i>Nicotiana bigelovii</i> ]	large-flowered tobacco	Solanaceae
<i>Oenothera primiveris</i>	spring evening-primrose	Onagraceae
<i>Orobanche fasciculata</i>	fascicled broomrape	Orobanchaceae
<i>Osmorhiza brachypoda</i>	California sweet-cicely	Apiaceae
<i>Packera breweri</i> [ <i>Senecio breweri</i> ]	Brewer's ragwort	Asteraceae
<i>Papaver heterophyllum</i> [ <i>Stylomecon heterophylla</i> ]	California wind-poppy	Papaveraceae

<b>Bitter Creek NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Pectocarya linearis</i> subsp. <i>ferocula</i>	slender pectocarya	Boraginaceae
<i>Pectocarya penicillata</i>	sleeping combseed	Boraginaceae
<i>Pectocarya setosa</i>	setose pectocarya	Boraginaceae
<i>Pellaea mucronata</i> var. <i>californica</i>	California cliffbrake	Pteridaceae
<i>Penstemon centranthifolius</i>	California scarlet bugler	Plantaginaceae [Scrophulariaceae]
<i>Penstemon heterophyllus</i> var. <i>australis</i> ?	southern foothill penstemon	Plantaginaceae [Scrophulariaceae]
<i>Penstemon laetus</i> var. <i>laetus</i>	typical penstemon	Plantaginaceae [Scrophulariaceae]
<i>Perideridia pringlei</i>	Pringle's yampah	Apiaceae
<i>Phacelia cicutaria</i>	caterpillar phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia ciliata</i>	ciliate phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia cryptantha</i>	cryptantha phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia distans</i>	distant phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia douglasii</i>	Douglas's phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia egena</i>	Kaweah River phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia fremontii</i>	Fremont's phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia imbricata</i> subsp. <i>imbricata</i>	imbricate phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia imbricata</i> subsp. <i>patula</i>	typical imbricate phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia tanacetifolia</i>	tansy-leaved phacelia	Boraginaceae [Hydrophyllaceae]
<i>Pholistoma membranaceum</i>	white pholistoma	Boraginaceae [Hydrophyllaceae]
<i>Phoradendron bolleanum</i> [ <i>Phoradendron densum</i> ]	bollean mistletoe	Viscaceae
<i>Phoradendron serotinum</i> subsp. <i>tomentosum</i> [ <i>Phoradendron villosum</i> ; <i>Phoradendron flavens</i> ]	hairy mistletoe	Viscaceae
<i>Pinus monophylla</i> [ <i>Pinus cembroides</i> subsp. <i>monophylla</i> ; <i>Pinus cembroides</i> var. <i>monophylla</i> ]	single-leaved pinyon	Pinaceae
<i>Plagiobothrys arizonicus</i>	Arizona popcorn-flower	Boraginaceae
<i>Plagiobothrys canescens</i>	valley popcorn-flower	Boraginaceae
<i>Plagiobothrys leptocladus</i>	alkali plagiobothrys	Boraginaceae
<i>Plagiobothrys nothofulvus</i>	rusty plagiobothrys	Boraginaceae
<i>Plagiobothrys tenellus</i>	Pacific popcorn-flower	Boraginaceae
<i>Plantago erecta</i> [ <i>Plantago hookeriana</i> var. <i>californica</i> ]	erect plantain	Plantaginaceae
<i>Platystemon californicus</i>	cream-cups	Papaveraceae
<i>Plectritis ciliosa</i> [subsp. <i>insignis</i> ]	ciliate plectritis	Valerianaceae
<i>Poa bulbosa</i> subsp. <i>vivipara</i>	viviparous bulbous bluegrass	Poaceae
<i>Poa fendleriana</i> subsp. <i>longiligula</i>	long-liguled mutton-grass	Poaceae
<i>Poa secunda</i> subsp. <i>juncifolia</i>	rush bluegrass	Poaceae
<i>Poa secunda</i> subsp. <i>secunda</i> [ <i>Poa scabrella</i> ]	typical secund bluegrass	Poaceae
<i>Polygonum aviculare</i> subsp. <i>depressum</i> [ <i>Polygonum arenastrum</i> ]	oval-leaved knotweed	Polygonaceae

Appendix E - Plants and Wildlife

<b>Bitter Creek NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Polypogon monspeliensis</i>	rabbitsfoot grass	Poaceae
<i>Populus</i> sp. (cultivar)	cottonwood	Salicaceae
<i>Populus fremontii</i> subsp. <i>fremontii</i>	typical Fremont's cottonwood	Salicaceae
<i>Populus nigra</i>	European black poplar	Salicaceae
<i>Populus trichocarpa</i> [ <i>Populus balsamifera</i> subsp. <i>trichocarpa</i> ]	western black cottonwood	Salicaceae
<i>Prunus virginiana</i> var. <i>demissa</i>	western choke-cherry	Rosaceae
<i>Pseudognaphalium canescens</i> [ <i>Gnaphalium canescens</i> ]	Wright's rabbit-tobacco	Asteraceae
<i>Pseudognaphalium luteoalbum</i> [ <i>Gnaphalium luteo-album</i> ]	weedy cudweed	Asteraceae
<i>Pseudognaphalium stramineum</i> [ <i>Gnaphalium stramineum</i> ; <i>Gnaphalium chilense</i> ]	cotton-batting-plant	Asteraceae
<i>Pterostegia drymarioides</i>	woodland pterostegia	Polygonaceae
<i>Pyrus</i> sp. (cultivar)	pear	Rosaceae
<i>Quercus berberidifolia</i>	inland scrub oak	Fagaceae
<i>Quercus douglasii</i>	California blue oak	Fagaceae
<i>Quercus john-tuckeri</i> [ <i>Quercus turbinella</i> subsp. <i>californica</i> ]	Tucker's oak	Fagaceae
<i>Quercus X alvordiana</i>	Alvord's oak	Fagaceae
<i>Rafinesquia californica</i>	California chicory	Asteraceae
<i>Ribes californicum</i> var. <i>californicum</i>	typical hillside gooseberry	Grossulariaceae
<i>Ribes quercetorum</i>	oak-woods gooseberry	Grossulariaceae
<i>Robinia pseudoacacia</i>	common robinia	Fabaceae
<i>Rosa</i> sp. (cultivar)	rose	Rosaceae
<i>Rumex crispus</i>	oval-leaved knotweed	Polygonaceae
<i>Rumex hymenosepalus</i>	canaigre dock	Polygonaceae
<i>Salix</i> sp.	salix	Salicaceae
<i>Salix exigua</i> [ <i>Salix argophylla</i> ]	coyote willow	Salicaceae
<i>Salix gooddingii</i>	Goodding's black willow	Salicaceae
<i>Salix laevigata</i>	smooth red willow	Salicaceae
<i>Salix lasiolepis</i>	arroyo willow	Salicaceae
<i>Salsola tragus</i> [ <i>Salsola iberica</i> ; <i>Salsola kali</i> var. <i>tenuifolia</i> ; <i>Salsola pestifer</i> ]	common Russian-thistle tumbleweed	Chenopodiaceae
<i>Salvia carduacea</i>	thistle sage	Lamiaceae
<i>Salvia columbariae</i> [var. <i>columbariae</i> ]	California chia	Lamiaceae
<i>Sambucus nigra</i> subsp. <i>caerulea</i> [ <i>Sambucus mexicana</i> , misapplied]	western blue elderberry	Adoxaceae [Caprifoliaceae]
<i>Schismus arabicus</i>	Arabian schismus	Poaceae
<i>Schismus barbatus</i>	common Mediterranean schismus	Poaceae
<i>Secale cereal</i>	cultivated annual rye	Poaceae
<i>Senecio vulgaris</i>	common garden groundsel	Asteraceae
<i>Sisymbrium altissimum</i>	tall sisymbrium	Brassicaceae
<i>Sisymbrium orientale</i>	oriental sisymbrium	Brassicaceae
<i>Solanum umbelliferum</i> [var. <i>incanum</i> ]	blue-witch nightshade	Solanaceae
<i>Solanum xanti</i>	chaparral nightshade	Solanaceae
<i>Solidago confinis</i>	southern goldenrod	Asteraceae
<i>Sonchus asper</i> subsp. <i>asper</i>	typical spiny-leaved sow-thistle	Asteraceae
<i>Sonchus oleraceus</i>	common annual sow-thistle	Asteraceae

<b>Bitter Creek NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Spergularia marina</i>	salt-marsh sand-spurrey	Caryophyllaceae
<i>Stanleya pinnata</i> var. <i>pinnata</i>	typical desert prince's-plume	Brassicaceae
<i>Stellaria nitens</i>	shining starwort	Caryophyllaceae
<i>Stellaria pallida</i>	pale starwort	Caryophyllaceae
<i>Stephanomeria exigua</i> subsp. <i>carotifera</i>	white plume stephanomeria	Asteraceae
<i>Stephanomeria exigua</i> subsp. <i>exigua</i>	typical small stephanomeria	Asteraceae
<i>Stephanomeria pauciflora</i> [var. <i>pauciflora</i> ]	few-flowered stephanomeria	Asteraceae
<i>Stephanomeria virgata</i> subsp. <i>pleurocarpa</i>	typical tall stephanomeria	Asteraceae
<i>Stipa cernua</i> [ <i>Nassella cernua</i> ]	nodding needle grass	Poaceae
<i>Stipa pulchra</i> [ <i>Nassella pulchra</i> ]	purple needle grass	Poaceae
<i>Stipa speciosa</i> [ <i>Achnatherum speciosum</i> ; <i>Jarava speciosa</i> ; <i>Pappostipa speciosa</i> ]	desert needle grass	Poaceae
<i>Streptanthus cordatus</i>	heart-leaved streptanthus	Brassicaceae
<i>Stylocline gnaphaloides</i>	everlasting stylocline	Asteraceae
<i>Stylocline micropoides</i>	woolly-head stylocline	Asteraceae
<i>Tamarix aphylla</i>	athel tamarix	Tamaricaceae
<i>Tamarix ramosissima</i>	common salt-cedar	Tamaricaceae
<i>Tetrapteron graciliflorum</i> [ <i>Camissonia graciliflora</i> ]	hill suncup	Onagraceae
<i>Tetrapteron palmeri</i> [ <i>Camissonia palmeri</i> ]	Palmer's suncup	Onagraceae
<i>Thysanocarpus curvipes</i>	sand fringe-pod	Brassicaceae
<i>Toxicoscordion brevibracteatum</i> [ <i>Zigadenus brevibracteatus</i> ]	desert zigadene	Melanthiaceae [Liliaceae]
<i>Trichostema lanceolatum</i>	vinegar trichostema	Lamiaceae
<i>Trichostema ovatum</i>	ovate bluecurls	Lamiaceae
<i>Trifolium albopurpureum</i> [var. <i>albopurpureum</i> ]	common rancheria clover	Fabaceae
<i>Trifolium gracilentum</i> [var. <i>gracilentum</i> ]	pinpoint clover	Fabaceae
<i>Trifolium olivaceum</i> [ <i>Trifolium albopurpureum</i> var. <i>olivaceum</i> ]	olive clover	Fabaceae
<i>Trifolium willdenovii</i> [ <i>Trifolium tridentatum</i> ]	tomcat clover	Fabaceae
<i>Tropidocarpum gracile</i>	graceful tropidocarpum	Brassicaceae
<i>Typha angustifolia</i>	narrow cattail	Typhaceae
<i>Typha domingensis</i>	southern cattail	Typhaceae
<i>Ulmus</i> sp.	Elm	Ulmaceae
<i>Uropappus lindleyi</i> [ <i>Microseris lindleyi</i> ; <i>M. linearifolia</i> ; <i>Calais lindleyi</i> ]	Lindley's uropappus	Asteraceae
<i>Urtica dioica</i> subsp. <i>holosericea</i>	hoary nettle	Urticaceae
<i>Verbena lasiostachys</i>	western verbena	Verbenaceae
<i>Veronica anagallis-aquatica</i>	great water speedwell	Plantaginaceae [Scrophulariaceae]
<i>Xanthium spinosum</i>	spiny cocklebur	Asteraceae
<i>Xanthium strumarium</i>	common cocklebur	Asteraceae
<i>Yabea microcarpa</i>	yabea	Apiaceae

List includes plants observed or documented within the National Wildlife Refuge boundary as well as a limited number of vouchered specimens from lands directly adjacent to the refuge. List compiled by Elizabeth L. Painter, botanist, with data from Pam De Vries, Tim Thomas & Carl Wishner, N. Misa Werner, and others. Scientific names follow The Jepson Manual, 2<sup>nd</sup> Edition (Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors, 2012. The Jepson manual: vascular plants of California, second edition. University of California Press, Berkeley). Brackets indicate synonyms and former family names.

**Table E-9. Bitter Creek NWR – Culturally Significant Plants**

<b>Culturally Significant Plants at Bitter Creek NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Achillea millefolium</i>	common yarrow	Asteraceae
<i>Acmispon brachycarpus</i> [ <i>Lotus humistratus</i> ]	short-podded lotus	Fabaceae
<i>Acmispon glaber</i> [ <i>Lotus scoparius</i> ]	deer lotus	Fabaceae
<i>Acmispon procumbens</i> var. <i>procumbens</i> [ <i>Lotus procumbens</i> var. <i>procumbens</i> ]	typical silky bird's-foot-trefoil	Fabaceae
<i>Agoseris retrorsa</i>	spear-leaved agoseris	Asteraceae
<i>Allium crispum</i>	crinkled onion	Alliaceae [Liliaceae]
<i>Allium howellii</i> var. <i>howellii</i>	typical Howell's allium	Alliaceae [Liliaceae]
<i>Allium peninsulare</i> var. <i>peninsulare</i>	typical peninsular allium	Alliaceae [Liliaceae]
<i>Amsinckia intermedia</i> [ <i>Amsinckia menziesii</i> var. <i>intermedia</i> ]	common rancher's fireweed	Boraginaceae
<i>Amsinckia menziesii</i> [var. <i>menziesii</i> ]	Menzies's fiddleneck	Boraginaceae
<i>Amsinckia tessellata</i> var. <i>gloriosa</i>	glorious fiddleneck	Boraginaceae
<i>Amsinckia tessellata</i> var. <i>tessellata</i>	typical tessellate fiddleneck	Boraginaceae
<i>Artemisia dracunculus</i>	wild tarragon	Asteraceae
<i>Artemisia tridentata</i> subsp. <i>tridentata</i>	Great Basin sagebrush	Asteraceae
<i>Asclepias eriocarpa</i>	Kotolo milkweed	Apocynaceae [Asclepiadaceae]
<i>Asclepias erosa</i>	giant sand-milkweed	Apocynaceae [Asclepiadaceae]
<i>Asclepias fascicularis</i>	narrow-leaf milkweed	Apocynaceae [Asclepiadaceae]
<i>Atriplex canescens</i> subsp. <i>canescens</i>	typical four-wing saltbush	Chenopodiaceae
<i>Atriplex lentiformis</i> [subsp. <i>lentiformis</i> ; <i>Atriplex breweri</i> ]	big saltbush	Chenopodiaceae
<i>Atriplex polycarpa</i>	many-fruited saltbush	Chenopodiaceae
<i>Avena barbata</i>	slender wild oat	Poaceae
<i>Avena fatua</i>	common wild oat	Poaceae
<i>Baccharis glutinosa</i> [ <i>Baccharis douglasii</i> ]	marsh baccharis	Asteraceae
<i>Baccharis salicifolia</i> [ <i>Baccharis glutinosa</i> , misapplied; <i>Baccharis viminea</i> ]	mulefat	Asteraceae
<i>Balsamorhiza deltoidea</i>	deltoid balsamroot	Asteraceae
<i>Bloomeria crocea</i>	golden bloomeria	Themidiaceae [Liliaceae]
<i>Bolboschoenus maritimus</i> subsp. <i>paludosus</i> [ <i>Scirpus maritimus</i> var. <i>paludosus</i> ]	saltmarsh tuberous-bulrush	Cyperaceae
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome	Poaceae
<i>Bromus diandrus</i> [ <i>Bromus rigidus</i> ]	ripgut brome	Poaceae
<i>Calandrinia ciliata</i>	ciliate red-maids	Montiaceae [Portulacaceae]
<i>Calochortus kennedyi</i> var. <i>kennedyi</i>	typical desert mariposa lily	Liliaceae
<i>Calochortus venustus</i>	Venus mariposa lily	Liliaceae
<i>Calyptridium monandrum</i>	sand-cress calyptridium	Montiaceae [Portulacaceae]
<i>Castilleja applegatei</i>	Applegate's paintbrush	Orobanchaceae [Scrophulariaceae]
<i>Castilleja exserta</i> subsp. <i>exserta</i>	typical purple owl's-clover	Orobanchaceae [Scrophulariaceae]
<i>Castilleja minor</i> subsp. <i>spiralis</i>	California threadtorch	Orobanchaceae [Scrophulariaceae]
<i>Castilleja plagiotoma</i>	Mojave paintbrush	Orobanchaceae [Scrophulariaceae]
<i>Castilleja subinclusa</i> subsp. <i>subinclusa</i>	typical long-leaf paintbrush	Orobanchaceae [Scrophulariaceae]
<i>Caulanthus coulteri</i> [var. <i>coulteri</i> ]	Coulter's caulanthus	Brassicaceae
<i>Chenopodium californicum</i>	California chenopodium	Chenopodiaceae
<i>Chorizanthe staticoides</i>	stace chorizanthe	Polygonaceae
<i>Cirsium occidentale</i>	western thistle	Asteraceae
<i>Clarkia cylindrica</i> subsp. <i>cylindrical</i>	typical speckled clarkia	Onagraceae
<i>Clarkia purpurea</i> subsp. <i>quadrivulnera</i>	four-spotted clarkia	Onagraceae

<b>Culturally Significant Plants at Bitter Creek NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Clarkia purpurea</i> subsp. <i>viminea</i>	large purple clarkia	Onagraceae
<i>Clarkia tembloriensis</i> subsp. <i>tembloriensis</i>	Vasek's Temblor Range clarkia	Onagraceae
<i>Claytonia perfoliata</i> subsp. <i>perfoliata</i>	typical miner's lettuce	Montiaceae [Portulacaceae]
<i>Corethrogyne filaginifolia</i> [Lessingia <i>filaginifolia</i> , including var. <i>filaginifolia</i> ]	common corethrogyne	Asteraceae
<i>Croton setigerus</i> [Eremocarpus <i>setigerus</i> ]	turkey-mullein	Euphorbiaceae
<i>Cryptantha intermedia</i>	intermediate cryptantha	Boraginaceae
<i>Cuscuta californica</i> var. <i>californica</i>	typical chaparral dodder	Convolvulaceae [Cuscutaceae]
<i>Datura wrightii</i> [Datura <i>meteloides</i> ]	Wright's datura	Solanaceae
<i>Deinandra pallida</i> [Hemizonia <i>pallida</i> ]	Kern tarplant	Asteraceae
<i>Delphinium gypsophilum</i> subsp. <i>gypsophilum</i>	Pinoche Creek larkspur	Ranunculaceae
<i>Delphinium hansenii</i>	Hansen's delphinium	Ranunculaceae
<i>Delphinium inopinum</i>	unexpected larkspur	Ranunculaceae
<i>Delphinium parryi</i> subsp. <i>purpureum</i>	Mount Pinos larkspur	Ranunculaceae
<i>Delphinium patens</i> subsp. <i>montanum</i>	mountain spreading larkspur	Ranunculaceae
<i>Descurainia pinnata</i> subsp. <i>glabra</i>	smooth western tansy-mustard	Brassicaceae
<i>Dichelostemma capitatum</i> subsp. <i>capitatum</i>	typical blue dicks	Themidiaceae [Liliaceae]
<i>Distichlis spicata</i>	spiked saltgrass	Poaceae
<i>Dudleya lanceolata</i>	lance-leaved dudleya	Crassulaceae
<i>Elymus cinereus</i> [Leymus <i>cinereus</i> ]	basin wild-rye	Poaceae
<i>Elymus condensatus</i> [Leymus <i>condensatus</i> ]	California giant wildrye	Poaceae
<i>Elymus elymoides</i> [Sitanion <i>hystrix</i> ]	bottlebrush squirreltail	Poaceae
<i>Elymus glaucus</i>	blue wildrye	Poaceae
<i>Elymus multisetus</i> [Sitanion <i>jubatum</i> ]	big squirreltail	Poaceae
<i>Elymus triticoides</i> [Leymus <i>triticoides</i> ]	creeping beardless wildrye	Poaceae
<i>Ephedra viridis</i>	green ephedra	Ephedraceae
<i>Epilobium canum</i> subsp. <i>latifolium</i>	broad-leaved California fuchsia	Onagraceae
<i>Eriastrum densifolium</i> subsp. <i>austromontanum</i>	southern mountain eriastrum	Polemoniaceae
<i>Eriastrum densifolium</i> subsp. <i>elongatum</i>	elongate eriastrum	Polemoniaceae
<i>Ericameria linearifolia</i> [Haplopappus <i>linearifolius</i> ]	linear-leaved goldenbush	Asteraceae
<i>Ericameria nauseosa</i> var. <i>mohavensis</i> [Chrysothamnus <i>nauseosus</i> subsp. <i>mohavensis</i> ]	Mojave rubber rabbitbrush	Asteraceae
<i>Erigeron foliosus</i> var. <i>foliosus</i>	typical leafy fleabane	Asteraceae
<i>Eriogonum angulosum</i>	angle-stemmed eriogonum	Polygonaceae
<i>Eriogonum baileyi</i> var. <i>baileyi</i>	typical Bailey's buckwheat	Polygonaceae
<i>Eriogonum</i> cf. <i>wrightii</i>	Wright's eriogonum	Polygonaceae
<i>Eriogonum elongatum</i> var. <i>elongatum</i>	typical long-stemmed eriogonum	Polygonaceae
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	Mojave Desert California buckwheat	Polygonaceae
<i>Eriogonum nudum</i>	naked eriogonum	Polygonaceae
<i>Eriogonum roseum</i>	wand wild buckwheat	Polygonaceae
<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i>	long-stem golden yarrow	Asteraceae
<i>Erodium cicutarium</i>	red-stemmed filaree	Geraniaceae
<i>Eschscholzia californica</i>	common California-poppy	Papaveraceae
<i>Gilia capitata</i> subsp. <i>abrotanifolia</i>	southernwood-leaved gilia	Polemoniaceae
<i>Grindelia camporum</i>	common gumplant	Asteraceae
<i>Gutierrezia californica</i>	California matchweed	Asteraceae
<i>Helianthus annuus</i>	common annual sunflower	Asteraceae
<i>Heliotropium curassavicum</i>	salt heliotrope	Boraginaceae
<i>Hesperoyucca whipplei</i> [Yucca <i>whipplei</i> ]	Whipple's yucca	Agavaceae [Liliaceae]
<i>Hirschfeldia incana</i> [Brassica <i>ffuseste</i> ]	summer field mustard	Brassicaceae

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<b>Culturally Significant Plants at Bitter Creek NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Hordeum murinum</i> subsp. <i>glaucum</i> [ <i>Hordeum glaucum</i> ; <i>Hordeum stebbinsii</i> ]	glaucous barley	Poaceae
<i>Hordeum murinum</i> subsp. <i>leporinum</i> [ <i>Hordeum leporinum</i> ]	hare barley	Poaceae
<i>Hordeum murinum</i> subsp. <i>murinum</i>	common wall-barley	Poaceae
<i>Juncus balticus</i>	Baltic rush	Juncaceae
<i>Juncus effusus</i> subsp. <i>pacificus</i> ?	Pacific soft rush	Juncaceae
<i>Juncus ensifolius</i> ?	dagger-leaved rush	Juncaceae
<i>Juniperus californica</i>	California juniper	Cupressaceae
<i>Lasthenia gracilis</i> [ <i>Lasthenia californica</i> s.l.]	needle goldfields	Asteraceae
<i>Layia glandulosa</i>	glandular layia	Asteraceae
<i>Lepidium nitidum</i> [var. <i>nitidum</i> ]	shining pepperwort	Brassicaceae
<i>Leptosyne bigelovii</i> [ <i>Coreopsis bigelovii</i> ]	Bigelow's coreopsis	Asteraceae
<i>Lomatium californicum</i>	California lomatium	Apiaceae
<i>Lomatium macrocarpum</i>	large-fruited lomatium	Apiaceae
<i>Lomatium utriculatum</i>	spring-gold lomatium	Apiaceae
<i>Lonicera subspicata</i> var. <i>denudata</i> [ <i>Lonicera johnstonii</i> ]	southern chaparral honeysuckle	Caprifoliaceae
<i>Lupinus albifrons</i>	white-leaved bush-lupine	Fabaceae
<i>Lupinus bicolor</i>	bicolored lupine	Fabaceae
<i>Lupinus succulentus</i>	succulent lupine	Fabaceae
<i>Madia elegans</i>	elegant madia	Asteraceae
<i>Malacothrix californica</i>	California malacothrix	Asteraceae
<i>Malva parviflora</i>	small-flowered mallow	Malvaceae
<i>Marah fabacea</i>	California man-root	Cucurbitaceae
<i>Marrubium vulgare</i>	common horehound	Lamiaceae
<i>Melica imperfecta</i>	small flowered melica	Poaceae
<i>Mentzelia affinis</i>	yellow blazing-star	Loasaceae
<i>Mentzelia dispersa</i>	bushy mentzelia	Loasaceae
<i>Mentzelia pectinata</i>	San Joaquin blazing-star	Loasaceae
<i>Mentzelia veatchiana</i>	Veatch's mentzelia	Loasaceae
<i>Mimulus guttatus</i>	seep-spring mimulus	Phrymaceae [Scrophulariaceae]
<i>Monardella breweri</i> subsp. <i>lanceolata</i> [ <i>Monardella lanceolata</i> ]	mustang monardella	Lamiaceae
<i>Monardella linoides</i> subsp. <i>oblonga</i>	willow monardella	Lamiaceae
<i>Muhlenbergia rigens</i>	California deergrass	Poaceae
<i>Nicotiana glauca</i>	glaucous tobacco	Solanaceae
<i>Nicotiana quadrivalvis</i> [ <i>Nicotiana</i> <i>bigelovii</i> ]	large-flowered tobacco	Solanaceae
<i>Osmorhiza brachypoda</i>	California sweet-cicely	Apiaceae
<i>Pellaea mucronata</i> var. <i>californica</i>	California cliffbrake	Pteridaceae
<i>Penstemon laetus</i> var. <i>laetus</i>	typical penstemon	Plantaginaceae [Scrophulariaceae]
<i>Perideridia pringlei</i>	Pringle's yampah	Apiaceae
<i>Phacelia cicutaria</i>	caterpillar phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia ciliata</i>	ciliate phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia cryptantha</i>	cryptantha phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia distans</i>	distant phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia douglasii</i>	Douglas's phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia egena</i>	Kaweah River phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia fremontii</i>	Fremont's phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia imbricata</i> subsp. <i>imbricata</i>	imbricate phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia imbricata</i> subsp. <i>patula</i>	typical imbricate phacelia	Boraginaceae [Hydrophyllaceae]
<i>Phacelia tanacetifolia</i>	tansy-leaved phacelia	Boraginaceae [Hydrophyllaceae]
<i>Pholistoma membranaceum</i>	white pholistoma	Boraginaceae [Hydrophyllaceae]
<i>Phoradendron bolleanum</i> [ <i>Phoradendron</i> <i>densum</i> ]	bollean mistletoe	Viscaceae

<b>Culturally Significant Plants at Bitter Creek NWR</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Phoradendron serotinum</i> subsp. <i>tomentosum</i> [ <i>Phoradendron villosum</i> ; <i>Phoradendron flavens</i> ]	hairy mistletoe	Viscaceae
<i>Pinus monophylla</i> [ <i>Pinus cembroides</i> subsp. <i>monophylla</i> ; <i>Pinus cembroides</i> var. <i>monophylla</i> ]	single-leaved pinyon	Pinaceae
<i>Plagiobothrys nothofulvus</i>	rusty plagiobothrys	Boraginaceae
<i>Platystemon californicus</i>	cream-cups	Papaveraceae
<i>Polypogon monspeliensis</i>	rabbitsfoot grass	Poaceae
<i>Populus fremontii</i> subsp. <i>fremontii</i>	typical Fremont's cottonwood	Salicaceae
<i>Populus trichocarpa</i> [ <i>Populus balsamifera</i> subsp. <i>trichocarpa</i> ]	western black cottonwood	Salicaceae
<i>Prunus virginiana</i> var. <i>demissa</i>	western choke-cherry	Rosaceae
<i>Pseudognaphalium canescens</i> [ <i>Gnaphalium canescens</i> ]	Wright's rabbit-tobacco	Asteraceae
<i>Pseudognaphalium stramineum</i> [ <i>Gnaphalium stramineum</i> ; <i>Gnaphalium chilense</i> ]	cotton-batting-plant	Asteraceae
<i>Quercus berberidifolia</i>	inland scrub oak	Fagaceae
<i>Quercus douglasii</i>	California blue oak	Fagaceae
<i>Quercus X alvordiana</i>	Alvord's oak	Fagaceae
<i>Ribes californicum</i> var. <i>californicum</i>	typical hillside gooseberry	Grossulariaceae
<i>Ribes quercetorum</i>	oak-woods gooseberry	Grossulariaceae
<i>Rumex hymenosepalus</i>	canaigre dock	Polygonaceae
<i>Salix</i> sp.	salix	Salicaceae
<i>Salix exigua</i> [ <i>Salix argophylla</i> ]	coyote willow	Salicaceae
<i>Salix gooddingii</i>	Goodding's black willow	Salicaceae
<i>Salix laevigata</i>	smooth red willow	Salicaceae
<i>Salix lasiolepis</i>	arroyo willow	Salicaceae
<i>Salvia carduacea</i>	thistle sage	Lamiaceae
<i>Salvia columbariae</i> [var. <i>columbariae</i> ]	California chia	Lamiaceae
<i>Sambucus nigra</i> subsp. <i>caerulea</i> [ <i>Sambucus mexicana</i> , misapplied]	western blue elderberry	Adoxaceae [Caprifoliaceae]
<i>Solanum xanti</i>	chaparral nightshade	Solanaceae
<i>Solidago confinis</i>	southern goldenrod	Asteraceae
<i>Sonchus asper</i> subsp. <i>asper</i>	typical spiny-leaved sow-thistle	Asteraceae
<i>Sonchus oleraceus</i>	common annual sow-thistle	Asteraceae
<i>Stanleya pinnata</i> var. <i>pinnata</i>	typical desert prince's-plume	Brassicaceae
<i>Stephanomeria virgata</i> subsp. <i>pleurocarpa</i>	typical tall stephanomeria	Asteraceae
<i>Stipa cernua</i> [ <i>Nassella cernua</i> ]	nodding needle grass	Poaceae
<i>Stipa pulchra</i> [ <i>Nassella pulchra</i> ]	purple needle grass	Poaceae
<i>Stipa speciosa</i> [ <i>Achnatherum speciosum</i> ; <i>Jarava speciosa</i> ; <i>Pappostipa speciosa</i> ]	desert needle grass	Poaceae
<i>Thysanocarpus curvipes</i>	sand fringe-pod	Brassicaceae
<i>Toxicoscordion brevibracteatum</i> [ <i>Zigadenus brevibracteatus</i> ]	desert zigadene	Melanthiaceae [Liliaceae]
<i>Trichostema lanceolatum</i>	vinegar trichostema	Lamiaceae
<i>Trifolium albopurpureum</i> [var. <i>albopurpureum</i> ]	common rancheria clover	Fabaceae
<i>Trifolium gracilentum</i> [var. <i>gracilentum</i> ]	pinpoint clover	Fabaceae
<i>Trifolium willdenovii</i> [ <i>Trifolium tridentatum</i> ]	tomcat clover	Fabaceae
<i>Typha angustifolia</i>	narrow cattail	Typhaceae
<i>Typha domingensis</i>	southern cattail	Typhaceae
<i>Uropappus lindleyi</i> [ <i>Microseris lindleyi</i> ; <i>M. linearifolia</i> ; <i>Calais lindleyi</i> ]	Lindley's uropappus	Asteraceae
<i>Urtica dioica</i> subsp. <i>holosericea</i>	hoary nettle	Urticaceae
<i>Verbena lasiostachys</i>	western verbena	Verbenaceae



Sources: Timbrook, 2007; Timbrook, pers. comm., 2012; Anderson, 2007; Anderson, pers. comm., 2012; Stevens, 2004; USDA Natural Resources Conservation Service, Culturally Significant Plants Database (<http://plants.usda.gov/java/factSheet?cultural=yes>) and Native Uses of Native Plants in the Sierra Nevada Mountains and Foothills of California and Nevada (<ftp://ftp-fc.sc.gov.usda.gov/CA/news/Publications/general/NativePlants04.pdf>).

**Table E-10. Bitter Creek NWR – Special Status Plants Observed Within or in the Vicinity of Bitter Creek NWR**

Special Status Plants Observed Within or in the Vicinity of Bitter Creek NWR					
Species Scientific Name Common Name	STATUS			Habitat Associations & Reported Elevation Range	Observation Status
	USFWS	CDFG	CNPS		
<i>Acanthomintha obovata</i> subsp. <i>cordata</i> Heart-leaved acanthomintha	-	-	4.2	Chaparral, cismontane woodland; pinyon & juniper woodland, grassland (clay); 2,575-5,050 ft	Observed on Refuge
<i>Acanthoscyphus parishii</i> var. <i>abramsii</i> [ <i>Oxytheca parishii</i> var. <i>abramsii</i> ] Abram's flowery puncturebract	-	-	1B.2	Chaparral; 4,350-6,050 ft	Documented in vicinity Polygonaceae
<i>Allium howellii</i> var. <i>clokeyi</i> Mt. Pinos onion	-	-	1B.3	Pinyon & juniper woodland; 4,350-6,050 ft	Documented in vicinity
<i>Amsinckia douglasiana</i> Douglas' fiddleneck	-	-	4.2	Cismontane woodland, grassland (Monterey shale, dry); 0-6,400 ft	Reported on the Refuge in 1997; not observed in 2009 or 2010
<i>Androsace elongata</i> subsp. <i>acuta</i> California androsace	-	-	4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon & juniper woodland, grassland; 490-3,900 ft	Documented on Refuge
<i>Antirrhinum ovatum</i> small snapdragon	-	-	4.2	Chaparral, cismontane woodland, Pinyon & juniper woodland, grassland/clay or gypsum, often alkaline; 650-3,280 ft	Documented in vicinity
<i>Astragalus hornii</i> var. <i>hornii</i> typical Horn's milkvetch	-	-	1B.1	Meadows and seeps; 200-2,800 ft	Reported on the Refuge in 1997; not observed in 2009 or 2010
<i>Astragalus leucolobus</i> Big Bear Valley woolypod	-	-	1B.2	Pinyon & juniper woodland; 5,700-8,700 ft	Documented in vicinity
<i>Astragalus macrodon</i> Salinas milkvetch	-	-	4.3	Chaparral openings, cismontane woodland, grassland (sandstone, shale, or serpentinite); 820-3,120 ft	Documented in vicinity
<i>Atriplex cordulata</i> var. <i>cordulata</i> heartscale	-	-	1B.2	Saltbush scrub; meadows and seeps, valley and foothill grassland 0-1,850 ft.	Documented in vicinity
<i>Atriplex coronata</i> var. <i>coronata</i> typical crownscale	-	-	4.2	Saltbush scrub, grassland, vernal pools/alkaline; 0-1,935 ft	Documented in vicinity
<i>California macrophylla</i> [ <i>Erodium macrophyllum</i> ] California filaree	-	-	1B.1	Cismontane woodland, grassland; 50-3,950 ft	Documented in vicinity

Special Status Plants Observed Within or in the Vicinity of Bitter Creek NWR					
Species Scientific Name Common Name	STATUS			Habitat Associations & Reported Elevation Range	Observation Status
	USFWS	CDFG	CNPS		
<i>Calochortus clavatus</i> var. <i>clavatus</i> typical club-haired mariposa lily	-	-	4.3	Chaparral, cismontane woodland, coastal scrub, grassland (usually serpentinite, clay, rocky; 250-4,260 ft)	Documented in vicinity
<i>Calochortus fimbriatus</i> [ <i>Calochortus weedii</i> var. <i>vestus</i> ] late-flowered mariposa lily	-	-	1B.3	Chaparral, cismontane woodland, riparian woodland; 900-6,250 ft	Documented in vicinity
<i>Calochortus palmeri</i> var. <i>palmeri</i> typical Palmer's mariposa lily	-	-	1B.2	Chaparral, lower montane coniferous woodland, meadows & seeps (mesic); 3,280-7,850 ft	Documented in vicinity
<i>Castilleja plagiotoma</i> Mojave paintbrush	-	-	4.3	Great Basin scrub (alluvial), Joshua tree woodland, lower montane coniferous forest, Pinyon & juniper woodland; 985-8,200 ft	Documented on Refuge
<i>Caulanthus californicus</i> California jewelflower	FE	SE	1B.1	Saltbush scrub; pinyon & juniper woodland; grassland (sandy; 200-3,280 ft)	Documented in vicinity
<i>Caulanthus lemmonii</i> [ <i>Caulanthus coulteri</i> var. <i>lemmonii</i> ] Lemmon's jewelflower	-	-	1B.2	Pinyon & juniper woodland, grassland; 260-4,000 ft	Documented on Refuge
<i>Chorizanthe blakleyi</i> Blakely's chorizanthe	-	-	1B.3	Chaparral, pinyon & juniper woodland; 1,950-5,250 ft	Documented in vicinity
<i>Convolvulus simulans</i> mesa morning-glory	-	-	4.2	Chaparral openings, coastal scrub, grassland (clay, serpentinite seeps); 100-2,300 ft	Documented in vicinity
<i>Cordylanthus rigidus</i> subsp. <i>brevibracteatus</i> short-bracted bird's beak	-	-	4.3	Chaparral, lower and upper montane coniferous forest (granitic), Pinyon & juniper woodland; 3,280-8,500 ft	Documented in vicinity
<i>Delphinium hesperium</i> subsp. <i>cuyamaca</i> Cuyamaca larkspur	-	SR	1B.2	Lower montane coniferous forest; meadows and seeps; vernal pools 4,000-5,400 ft.	Documented in vicinity
<i>Delphimium inopinum</i> unexpected larkspur	-	-	4.3	Upper montane coniferous forest (rocky, metamorphic); 6,200-9,200 ft	Reported on the Refuge in 1997; not observed in 2009 or 2010
<i>Delphinium parryi</i> subsp. <i>purpureum</i> Mt. Pinos larkspur	-	-	4.3	Chaparral, Mojavean desert scrub, Pinyon & juniper woodland; 3,280-8,530 ft	Reported on the Refuge in 1997; not observed in 2009 or 2010
<i>Delphinium recurvatum</i> recurved larkspur	-	-	1B.2	Saltbush scrub; cismontane woodland, grassland (alkaline); 10-2,460 ft	Documented in vicinity
<i>Delphinium umbraculorum</i> umbrella larkspur	-	-	1B.3	Cismontane woodland; 1,300-1,970 ft.	Documented in vicinity

Special Status Plants Observed Within or in the Vicinity of Bitter Creek NWR					
Species Scientific Name Common Name	STATUS			Habitat Associations & Reported Elevation Range	Observation Status
	USFWS	CDFG	CNPS		
<i>Eremalche parryi</i> subsp. <i>kernensis</i> Kern mallow	FE	-	1B.1	Saltbush scrub; grassland; 200-3,300 ft	Documented on Refuge
<i>Eriastrum hooveri</i> Hoover's eriastrum	-	-	4.2	Saltbush scrub; pinyon and juniper woodland; grassland; 165-3,000 ft	Reported on the Refuge in 1997; not observed in 2009 or 2010
<i>Eriogonum gossypinum</i> cottony buckwheat	-	-	4.2	Saltbush scrub, grassland (clay); 330-1,800 ft	Reported on the Refuge in 1997; not observed in 2009 or 2010
<i>Eriogonum kennedyi</i> var. <i>alpigenum</i> southern alpine buckwheat	-	-	1B.3	Subalpine coniferous woodland; 8,500-11,500 ft	Documented in vicinity
<i>Eriogonum kennedyi</i> var. <i>austromontanum</i> southern mountain buckwheat	FT	-	1B.2	Lower montane coniferous forest 5,800-9,500 ft.	Documented in vicinity
<i>Eriogonum nudum</i> var. <i>indictum</i> protruding buckwheat	-	-	4.2	Chaparral, Saltbush scrub, cismontane woodland (clay), serpentinite; 490-4,800 ft	Documented in vicinity
<i>Eriogonum temblorense</i> Temblor buckwheat	-	-	1B.2	Grassland; 985-3,280 ft.	Reported on the Refuge in 1997; not observed in 2009 or 2010
<i>Eriophyllum jepsonii</i> Jepson's woolly sunflower	-	-	4.3	Chaparral, cismontane woodland, coastal scrub (sometimes serpentinite); 650-3,300 ft	Reported on the Refuge in 1997; not observed in 2009 or 2010
<i>Eriophyllum lanatum</i> var. <i>hallii</i> Ft. Tejon woolly sunflower	-	-	1B.1	Chaparral and cismontane woodland; 3,500-4,925 ft	Documented in vicinity
<i>Eriophyllum lanatum</i> var. <i>obovatum</i> Southern Sierra woolly sunflower	-	-	4.3	Lower and upper montane coniferous forest (sandy loam); 3,650-8,200 ft	Reported on the Refuge in 1997; not observed in 2009 or 2010
<i>Eschscholzia hypocoides</i> San Benito poppy	-	-	4.3	Chaparral, cismontane woodland, grassland (serpentinite clay); 650-4,920 ft	Documented in vicinity
<i>Eschscholzia lemmonii</i> subsp. <i>kernensis</i> Tejon poppy	-	-	1B.1	Grassland; 800-2,000 ft	Documented in vicinity
<i>Frasera neglecta</i> [ <i>Swertia neglecta</i> ] pine green-gentian	-	-	4.3	Lower and upper montane coniferous forest, Pinyon & juniper woodland; 4,590-8,200 ft	Documented in vicinity
<i>Fritillaria agrestis</i> stinkbells (Chocolate lily)	-	-	4.2	Chaparral, pinyon & juniper woodland, cismontane woodland; grassland; 35-5,100 ft	Documented on Refuge
<i>Gilia latiflora</i> subsp. <i>cuyamensis</i> Cuyama gilia	-	-	4.3	Pinyon & juniper woodland (sandy); 1,970-6,560 ft	Documented on Refuge
<i>Gilia tenuiflora</i> subsp. <i>amplifaucalis</i> trumpet-throated gilia	-	-	4.3	Cismontane woodland, grassland (sandy); 1,280-2,950 ft	Documented in vicinity

Special Status Plants Observed Within or in the Vicinity of Bitter Creek NWR					
Species Scientific Name Common Name	STATUS			Habitat Associations & Reported Elevation Range	Observation Status
	USFWS	CDFG	CNPS		
<i>Lasthenia glabrata</i> subsp. <i>coulteri</i> Coulter's goldfields	-	-	1B.1	Marshes, swamps, playas, vernal pools; 0-4,000 feet	Documented in vicinity
<i>Layia heterotricha</i> pale yellow layia	-	-	1B.1	Cismontane woodland, coastal scrub, pinyon & juniper woodland, grassland (alkaline or clay soils); 985-5,600 ft	Documented in vicinity
<i>Layia munzii</i> Munz's tidy- tips	-	-	1B.2	Saltbush scrub, grassland ( alkaline or clay soils); 500-2,300 ft	Documented in vicinity
<i>Lepidium jaredii</i> subsp. <i>jaredi</i> Carrizo pepper-grass	-	-	1B.2	Grassland (alkaline or adobe); 1,100-3,300 ft	Documented in vicinity
<i>Lessingia tenuis</i> spring lessingia	-	-	4.3	Chaparral, cismontane woodland, lower montane coniferous forest openings; 985-7,050 ft	Documented in vicinity
<i>Lupinus elatus</i> tall silky lupine	-	-	4.3	Lower montane coniferous forest; Upper montane coniferous forest 4,950-10,000 ft.	Documented on Refuge
<i>Madia radiata</i> golden madia	-	-	1B.1	Saltbush scrub, grassland; 80- 2,950 ft	Documented in vicinity
<i>Monardella linoides</i> subsp. <i>oblonga</i> Tehachapi monardella	-	-	1B.3	Lower and upper montane coniferous forest, pinyon & juniper woodland; 2,950-8,100 ft	Reported on the Refuge in 1997; not observed in 2009 or 2010
<i>Monolopia congdonii</i> [ <i>Lembertia congdonii</i> ] San Joaquin woollythreads	FE	-	1B.2	Saltbush scrub; valley and foothill grassland (sandy) 200-2,700 ft.	Documented in vicinity
<i>Mucronea californica</i> California mucronea	-	-	4.2	Chaparral, cismontane woodland, coastal dunes, coastal scrub, valley and foothills grassland 0-4,600 ft.	Documented in vicinity
<i>Navarretia peninsularis</i> Baja navarretia	-	-	1B.2	Chaparral, lower montane coniferous forest, meadows and seeps, pinyon & juniper woodland; 4,900-7,500 ft	Documented in vicinity
<i>Navarretia setiloba</i> Piute Mountains navarretia	-	-	1B.1	Cismontane woodland, pinyon & juniper woodland, grassland; 1,000-6,900 ft	Documented in vicinity
<i>Nemacladus gracilis</i> graceful nemacladus	-	-	4.3	Cismontane woodland, grassland (sandy or gravelly); 390-6,230 ft	Documented in vicinity

Special Status Plants Observed Within or in the Vicinity of Bitter Creek NWR					
Species Scientific Name Common Name	STATUS			Habitat Associations & Reported Elevation Range	Observation Status
	USFWS	CDFG	CNPS		
<i>Perideridia pringlei</i> Pringle's yampah	-	-	4.3	Chaparral, cismontane woodland, coastal scrub, Pinyon & juniper woodland (serpentine, often clay); 985-5,900 ft	Documented on Refuge
<i>Phacelia exilis</i> Transverse Range phacelia	-	-	4.3	Lower and upper montane coniferous forest (sandy or gravelly) meadows and seeps, Pebble plain; 3,600-8,850 ft	Documented in vicinity
<i>Phacelia mohavensis</i> Mojave phacelia	-	-	4.3	Cismontane woodland, lower montane coniferous forest, meadows and seeps, Pinyon & juniper woodland (sandy or gravelly); 4,590-8,200 ft	Documented in vicinity
<i>Sidalcea neomexicana</i> New Mexico sidalcea	-	-	2.2	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, alkaline playas; 50- 5,020 ft	Documented in vicinity
<i>Stylocline masonii</i> Mason's neststraw	-	-	1B.1	Saltbush scrub; pinyon & juniper woodland (sandy); sandy washes; 300-1,300 ft.	Documented in vicinity
<i>Symphytotrichum defoliatum</i> [ <i>Aster bernardinus</i> ] San Bernardino symphyotrichum	-	-	1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland 0-6,700 ft.	Documented in vicinity
<i>Syntrichopappus lemmonii</i> Lemmon's syntrichopappus	-	-	4.3	Chaparral, Joshua tree woodland, Pinyon & juniper woodland (sandy or gravelly); 1,640-6,000 ft	Documented in vicinity
<i>Thermopsis californica</i> var. <i>argentata</i> silvery thermopsis	-	-	4.3	Lower montane coniferous forest, Pinyon & juniper woodland; 2,950-5,230 ft	Documented in vicinity
<i>Trichostema ovatum</i> ovate bluecurls	-	-	4.2	Saltbush scrub; grassland; 200-1,000 ft	Documented in vicinity
<i>Viola pinetorum</i> var. <i>grisea</i> grey-leaved violet	-	-	1B.3	Meadows and seeps, subalpine coniferous forest, upper montane coniferous forest 5,000-11,000 ft.	Documented in vicinity

Special Status Plants Observed Within or in the Vicinity of Bitter Creek NWR					
Species Scientific Name Common Name	STATUS			Habitat Associations & Reported Elevation Range	Observation Status
	USFWS	CDFG	CNPS		
<i>Viola pupurea</i> subsp. <i>aurea</i> [ <i>V. aurea</i> ] golden mountain violet	-	-	2.2	Great Basin scrub, Pinyon & juniper woodland; 3,280-6,700 ft	Documented in vicinity

Sources: California Native Plant Society (CNPS). 2012. Inventory of Rare and Endangered Plants (online edition, v8-01a, <http://www.rareplants.cnps.org/>). California Native Plant Society, Sacramento, CA. Accessed on November 16, 2012. California Natural Diversity Database (California Department of Fish and Wildlife), Dec. 2012 full version as well as unprocessed records accessed via online portal on January 2, 2013. Modified from original list compiled by Pam De Vries (De Vries 2009; De Vries 2010).

SPECIAL STATUS PLANTS LEGEND:	
<b>Federal (U.S. Fish &amp; Wildlife Service)</b>	<b>State (CA Dept. of Fish &amp; Wildlife)</b>
FE Endangered	SE Endangered
FT Threatened	ST Threatened
FC Candidate	SR Rare
	SC Candidate
<b>California Native Plant Society (CNPS) Rare Plant Rank Categories</b>	
List 1A	Plants Presumed Extinct in California
List 1B	Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2	Plants Rare, Threatened, or Endangered in California But More Common Elsewhere
List 3	Plants About Which We Need More Information - A Review List
List 4	Plants of Limited Distribution – A Watch List
<b>California Native Plant Society (CNPS) Threat Code Extensions</b>	
None	Plants lacking any threat information
.1	Seriously Endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2	Fairly Endangered in California (20-80% of occurrences threatened)
.3	Not very Endangered in California (less than 20% of occurrences threatened or no current threats known)

*Bitter Creek NWR Wildlife Lists*

**Table E-11. Bitter Creek NWR – Birds**

Bitter Creek NWR		
Order	Family or Subfamily	Common Name ( <i>Scientific Name</i> )
Anseriformes	Anatinae	Mallard ( <i>Anas platyrhynchos</i> )
Galliformes	Odontophoridae	Mountain Quail ( <i>Oreortyx pictus</i> ) California Quail ( <i>Callipepla californica</i> )
	Phasianidae (Phasianinae)	Chukar ( <i>Alectoris chukar</i> )
Accipitriformes	Cathartidae	Turkey Vulture ( <i>Cathartes aura</i> ) California Condor ( <i>Gymnogyps californianus</i> )
	Pandionidae	Osprey ( <i>Pandion haliaetus</i> )
	Accipitridae	White-tailed Kite ( <i>Elanus caeruleus</i> ) Bald Eagle ( <i>Haliaeetus leucocephalus</i> ) Northern Harrier ( <i>Circus cyaneus</i> ) Sharp-shinned Hawk ( <i>Accipiter striatus</i> ) Cooper's Hawk ( <i>Accipiter cooperii</i> ) Red-shouldered Hawk ( <i>Buteo lineatus</i> ) Swainson's Hawk ( <i>Buteo swainsoni</i> ) Red-tailed Hawk ( <i>Buteo jamaicensis</i> ) Ferruginous Hawk ( <i>Buteo regalis</i> )

Appendix E - Plants and Wildlife

Bitter Creek NWR		
Order	Family or Subfamily	Common Name (Scientific Name)
		Rough-legged Hawk ( <i>Buteo lagopus</i> )
		Golden Eagle ( <i>Aquila chrysaetos</i> )
Falconiformes	Falconidae (Falconinae)	American Kestrel ( <i>Falco sparverius</i> )
		Merlin ( <i>Falco columbarius</i> )
		Peregrine Falcon ( <i>Falco peregrinus</i> )
		Prairie Falcon ( <i>Falco mexicanus</i> )
Charadriiformes	Charadriidae (Charadriinae)	Killdeer ( <i>Charadrius vociferus</i> )
	Scolopacidae (Scolopacinae)	Spotted Sandpiper ( <i>Actitis macularius</i> )
		Long-billed Curlew ( <i>Numenius americanus</i> )
		Wilson's Snipe ( <i>Gallinago delicata</i> )
	Laridae (Larinae)	California Gull ( <i>Larus californicus</i> )
Columbiformes	Columbidae	Band-tailed Pigeon ( <i>Columba fasciata</i> )
		Mourning Dove ( <i>Zenaida macroura</i> )
Cuculiformes	Cuculidae (Neomorphae)	Greater Roadrunner ( <i>Geococcyx californianus</i> )
Strigiformes	Tytonidae	Barn Owl ( <i>Tyto alba</i> )
	Strigidae	Western Screech Owl ( <i>Otus kennicottii</i> )
		Great Horned Owl ( <i>Bubo virginianus</i> )
		Northern Pygmy Owl ( <i>Glaucidium gnoma</i> )
		Burrowing Owl ( <i>Athene cunicularia hypugaea</i> )
		Long-eared Owl ( <i>Asio otus</i> )
		Short-eared Owl ( <i>Asio flammeus</i> )
Caprimulgiformes	Caprimulgidae (Chordeilinae)	Lesser Nighthawk ( <i>Chordeiles acutipennis</i> )
	(Caprimulginae)	Common Poorwill ( <i>Phalaenoptilus nuttallii</i> )
Apodiformes	Apodinae	White-throated swift ( <i>Aeronautes saxatalis</i> )
	Trochilidae (Trochilinae)	Black-chinned Hummingbird ( <i>Archilochus alexandri</i> )
		Anna's Hummingbird ( <i>Calypte anna</i> )
		Costa's Hummingbird ( <i>Calypte costae</i> )
		Rufous Hummingbird ( <i>Selasphorus rufus</i> )
Piciformes	Picidae (Picinae)	Lewis' Woodpecker ( <i>Melanerpes lewis</i> )
		Acorn Woodpecker ( <i>Melanerpes formicivorus</i> )
		Red-breasted Sapsucker ( <i>Sphyrapicus ruber</i> )
		Nuttall's Woodpecker ( <i>Picoides nuttallii</i> )
		Downy Woodpecker ( <i>Picoides pubescens</i> )
		Hairy Woodpecker ( <i>Picoides villosus</i> )
		Northern Flicker ( <i>Colaptes auratus</i> )
Passeriformes	Fluvicolinae	Olive-sided Flycatcher ( <i>Contopus borealis</i> )
		Western Wood-Pee-wee ( <i>Contopus sordidulus</i> )
		Pacific-slope Flycatcher ( <i>Empidonax difficilis</i> )
		Black Phoebe ( <i>Sayornis nigricans</i> )
		Say's Phoebe ( <i>Sayornis saya</i> )
	Tyranninae	Ash-throated Flycatcher ( <i>Myiarchus cinerascens</i> )
		Western Kingbird ( <i>Tyrannus verticalis</i> )
	Laniidae	Loggerhead shrike ( <i>Lanius ludovicianus</i> )
	Vireonidae	Cassin's Vireo ( <i>Vireo cassinii</i> )
		Hutton's Vireo ( <i>Vireo huttoni</i> )

Bitter Creek NWR		
Order	Family or Subfamily	Common Name (Scientific Name)
	Corvidae	Steller's Jay ( <i>Cyanocitta stelleri</i> )
		Western Scrub Jay ( <i>Aphelocoma californica</i> )
		American Crow ( <i>Corvus brachyrhynchos</i> )
		Common Raven ( <i>Corvus corax</i> )
	Alaudidae	Horned Lark ( <i>Eremophila alpestris</i> )
	Hirundinidae (Hirundininae)	Violet-green Swallow ( <i>Tachycineta thalassina</i> )
		N. Rough-winged Swallow ( <i>Stelgidopteryx serripennis</i> )
		Cliff Swallow ( <i>Hirundo pyrrhonota</i> )
		Barn Swallow ( <i>Hirundo rustica</i> )
	Paridae	Mountain Chickadee ( <i>Parus gambeli</i> )
		Oak Titmouse ( <i>Baeolophus inornatus</i> )
	Aegithalidae	Bushtit ( <i>Psaltriparus minimus</i> )
	Sittidae (Sittinae)	Red-breasted Nuthatch ( <i>Sitta canadensis</i> )
		White-breasted Nuthatch ( <i>Sitta carolinensis</i> )
		Pygmy Nuthatch ( <i>Sitta pygmaea</i> )
	Troglodytidae	Rock Wren ( <i>Salpinctes obsoletus</i> )
		Canyon Wren ( <i>Catherpes mexicanus</i> )
		Bewick's Wren ( <i>Thryomanes bewickii</i> )
		House Wren ( <i>Troglodytes aedon</i> )
	Poliopitidae	Blue-gray Gnatcatcher ( <i>Poliopitila caerulea</i> )
	Regulidae	Golden-crowned Kinglet ( <i>Regulus satrapa</i> )
		Ruby-crowned Kinglet ( <i>Regulus calendula</i> )
	Sylviidae	Wrentit ( <i>Chamaea fasciata</i> )
	Turdidae	Western Bluebird ( <i>Sialia mexicana</i> )
		Mountain Bluebird ( <i>Sialia currucoides</i> )
		Hermit Thrush ( <i>Catharus guttatus</i> )
		American Robin ( <i>Turdus migratorius</i> )
		Varied Thrush ( <i>Ixoreus naevius</i> )
	Mimidae	Northern Mockingbird ( <i>Mimus polyglottos</i> )
		California Thrasher ( <i>Toxostoma redivivum</i> )
		Le Conte's Thrasher ( <i>Toxostoma lecontei</i> )
	Sturnidae	European Starling ( <i>Sturnus vulgaris</i> )
	Motacillidae	American Pipit ( <i>Anthus rubescens</i> )
	Bombycillidae	Cedar Waxwing ( <i>Bombycilla cedrorum</i> )
	Ptilonotidae	Phainopepla ( <i>Phainopepla nitens</i> )
	Parulidae	Orange-crowned Warbler ( <i>Vermivora celata</i> )
		Nashville Warbler ( <i>Vermivora ruficapilla</i> )
		Common Yellowthroat ( <i>Geothlypis trichas</i> )
		Yellow-rumped Warbler ( <i>Dendroica coronata</i> )
		Black-throated Gray Warbler ( <i>Dendroica nigrescens</i> )
		Townsend's Warbler ( <i>Dendroica townsendi</i> )
		Hermit Warbler ( <i>Dendroica occidentalis</i> )
		Wilson's Warbler ( <i>Wilsonia pusilla</i> )
	Emberizidae	Spotted Towhee ( <i>Pipilo maculatus</i> )
		California Towhee ( <i>Pipilo fuscus</i> )
		Rufous-crowned Sparrow ( <i>Aimophila ruficeps</i> )
		Chipping Sparrow ( <i>Spizella passerina</i> )



Bitter Creek NWR		
Order	Family or Subfamily	Common Name (Scientific Name)
		Black-chinned Sparrow ( <i>Spizella atrogularis</i> )
		Vesper Sparrow ( <i>Pooecetes gramineus</i> )
		Lark sparrow ( <i>Chondestes grammacus</i> )
		Sage Sparrow ( <i>Amphispiza belli</i> )
		Savannah Sparrow ( <i>Passerculus sandwichensis</i> )
		Grasshopper Sparrow ( <i>Ammodramus savannarum</i> )
		Fox Sparrow ( <i>Passerella illiaca</i> )
		Song Sparrow ( <i>Melospiza melodia</i> )
		Lincoln's Sparrow ( <i>Melospiza lincolni</i> )
		White-crowned Sparrow ( <i>Zonotrichia leucophrys</i> )
		Golden-crowned Sparrow ( <i>Zonotrichia atricapilla</i> )
		Dark-eyed Junco ( <i>Junco hyemalis</i> )
	Cardinalidae	Western Tanager ( <i>Piranga ludoviciana</i> )
		Black-headed Grosbeak ( <i>Pheucticus melanocephalus</i> )
		Blue Grosbeak ( <i>Passerina caerulea</i> )
		Lazuli Bunting ( <i>Passerina amoena</i> )
	Icteridae	Red-winged Blackbird ( <i>Agelaius phoeniceus</i> )
		Tricolored Blackbird ( <i>Agelaius tricolor</i> )
		Western Meadowlark ( <i>Sturnella neglect</i> )
		Brewer's Blackbird ( <i>Euphagus cyanocephalus</i> )
		Brown-headed Cowbird ( <i>Molothrus ater</i> )
		Hooded Oriole ( <i>Icterus cucullatus</i> )
		Bullock's Oriole ( <i>Icterus bullockii</i> )
	Carduelinae	Purple Finch ( <i>Carpodacus purpureus</i> )
		House Finch ( <i>Carpodacus mexicanus</i> )
		Pine Siskin ( <i>Carduelis pinus</i> )
		Lesser Goldfinch ( <i>Carduelis psaltria</i> )
		Lawrence's Goldfinch ( <i>Carduelis lawrencei</i> )
	Passeridae	House Sparrow ( <i>Passer domesticus</i> )

Birds categorized using American Ornithologists' Union (AOU) taxonomy (<http://www.aou.org/checklist/north/index.php>)

**Table E-12. Bitter Creek NWR – Mammals**

Common Name	Scientific Name
Brazilian free-tailed bat	( <i>Tadarida brasiliensis</i> )
Western mastiff bat	( <i>Eumops perotis</i> )
Desert cottontail	( <i>Sylvilagus audubonii</i> )
Black-tailed jackrabbit	( <i>Lepus californicus</i> )
California ground squirrel	( <i>Otospermophilus beecheyi</i> )
Nelson's Antelope Squirrel	( <i>Ammospermophilus nelsoni</i> )
Merriam's chipmunk	( <i>Neotamias merriami</i> )
Botta's pocket gopher	( <i>Thomomys bottae</i> )
San Joaquin pocket mouse	( <i>Perognathus inornatus</i> )
Heermann's kangaroo rat	( <i>Dipodomys heermanni</i> )
California vole	( <i>Microtus californicus</i> )
Deer mouse	( <i>Peromyscus maniculatus</i> )
California mouse	( <i>Peromyscus californicus</i> )
Pinyon mouse	( <i>Peromyscus truei</i> )
Dusky-footed woodrat	( <i>Neotoma fuscipes</i> )
Coyote	( <i>Canis latrans</i> )
Gray fox	( <i>Urocyon cinereoargenteus</i> )
Black bear	( <i>Ursus americanus</i> )
San Joaquin kit fox	( <i>Vulpes macrotis mutica</i> ) (Federally-listed as Endangered)
Raccoon	( <i>Procyon lotor</i> )
Long-tailed weasel	( <i>Mustela frenata</i> )
American badger	( <i>Taxidea taxus</i> )
Western spotted skunk	( <i>Spilogale gracilis</i> )
Striped skunk	( <i>Mephitis mephitis</i> )

Mountain lion	( <i>Puma concolor</i> )
Bobcat	( <i>Lynx rufus</i> )
Mule deer	( <i>Odocoileus hemionus</i> )
Tule elk	( <i>Cervus elaphus nannodes</i> )
Pronghorn	( <i>Antilocapra Americana</i> )

**Table E-13. Bitter Creek NWR – Amphibians**

Common Name	Scientific Name
Southern California toad	( <i>Anaxyrus boreas halophilus</i> )
Baja California treefrog	( <i>Pseudacris hypochondriaca</i> ); formerly recognized as <i>P. regilla</i> .
Western spadefoot	( <i>Spea hammondi</i> )

**Table E-14. Bitter Creek NWR – Reptiles**

Common Name	Scientific Name
Tiger whiptail	( <i>Aspidoscelis tigris</i> )
Western red-tailed skink	( <i>Plestiodon gilberti rubricaudatus</i> )
Skilton's skink	( <i>Plestiodon skiltonianus skiltonianus</i> )
Blainville's horned lizard	( <i>Phrynosoma blainvillii</i> )
Western fence lizard	( <i>Sceloporus occidentalis</i> )
Common side-blotched lizard	( <i>Uta stansburiana</i> )
Western rattlesnake	( <i>Crotalus oreganus</i> )
Blainville's night snake	( <i>Hypsiglena ochrorhyncha</i> )
California kingsnake	( <i>Lampropeltis getula californiae</i> )
California mountain kingsnake	( <i>Lampropeltis zonata</i> )
Pacific gopher snake	( <i>Pituophis catenifer catenifer</i> )
Gartersnake, unid.	( <i>Thamnophis</i> sp.)

Amphibian and reptile taxonomy follows:

Crother, B. I. (ed.). 2008. *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico*, pp. 1–84. SSAR Herpetological Circular 37.

**Blue Ridge NWR Plant Lists****Table E-15. Blue Ridge NWR – Plants**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<i>Abies concolor</i>	white fir	Pinaceae
<i>Adenostoma fasciculatum</i>	chamise	Rosaceae
<i>Amsinckia</i> sp.	fiddleneck	Boraginaceae
<i>Arctostaphylos patula</i>	greenleaf manzanita	Ericaceae
<i>Arctostaphylos viscida</i>	viscid manzanita	Ericaceae
<i>Asclepias californica</i>	California milkweed	Apocynaceae
<i>Asclepias fascicularis</i>	narrow-leaf milkweed	Apocynaceae
<i>Bromus diandrus</i>	ripgut grass	Poaceae
<i>Bromus hordeaceus</i>	soft chess	Poaceae
<i>Bromus madritensis</i> subsp. <i>rubens</i>	red brome	Poaceae
<i>Calocedrus decurrens</i>	California incense-cedar	Cupressaceae
<i>Ceanothus leucodermis</i>	chaparral whitethorn	Rhamnaceae
<i>Cercocarpus betuloides</i>	birch-leaved cercocarpus	Rosaceae
<i>Chamaebatia foliolosa</i>	mountain misery	Rosaceae
<i>Chlorogalum pomeridianum</i>	wavy-leaved soap-plant	Agavaceae
<i>Cirsium</i> sp.	thistle	Asteraceae
<i>Clarkia</i> sp.	clarkia	Onagraceae
<i>Cynosurus echinatus</i>	bristly dogtail grass	Poaceae
<i>Dendromecon rigida</i>	bush poppy	Papaveraceae
<i>Dudleya</i> sp.	dudleya	Crassulaceae
<i>Eriodictyon californicum</i>	California yerba santa	Boraginaceae [Hydrophyllaceae]
<i>Eriogonum</i> sp.	wild buckwheat	Polygonaceae
<i>Frangula californica</i> subsp. <i>cuspidata</i>	California coffee-berry	Rhamnaceae
<i>Juncus</i> sp.	rush	Juncaceae
<i>Lonicera</i> sp.	honeysuckle	Caprifoliaceae
<i>Marah fabacea</i>	California man-root	Cucurbitaceae
<i>Mimulus viscidus</i>	viscid monkeyflower	Phrymaceae [Scrophulariaceae]
<i>Orobanche</i> sp.	broomrape	Orobanchaceae
<i>Pinus lambertiana</i>	sugar pine	Pinaceae
<i>Pinus ponderosa</i>	ponderosa pine	Pinaceae
<i>Populus fremontii</i>	Fremont's cottonwood	Salicaceae
<i>Prunus virginiana</i> var. <i>demissa</i>	common choke-cherry	Rosaceae
<i>Quercus chrysolepis</i>	canyon live oak	Fagaceae
<i>Quercus garryana</i>	Oregon oak	Fagaceae
<i>Quercus kelloggii</i>	California black oak	Fagaceae
<i>Quercus wislizeni</i>	interior live oak	Fagaceae
<i>Rhamnus ilicifolia</i>	hollyleaf redberry	Rhamnaceae
<i>Ribes</i> sp.	gooseberry	Grossulariaceae
<i>Rosa californica</i>	California rose	Rosaceae
<i>Sambucus nigra</i> subsp. <i>caerulea</i> [ <i>Sambucus mexicana</i> , misapplied]	western blue elderberry	Adoxaceae [Caprifoliaceae]
<i>Symphoricarpos</i> sp.	snowberry	Caprifoliaceae
<i>Toxicodendron diversilobum</i>	western poison oak	Anacardiaceae
<i>Umbellularia californica</i>	California bay-laurel	Lauraceae

List includes only plants observed within the Refuge boundary on Service-owned lands. Field observations by U.S. Fish and Wildlife Service staff and Joan Stewart, botanist. Scientific names follow The Jepson Manual, 2<sup>nd</sup> Edition (Baldwin, B.G., D.H. Goldman, D.J.

Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors, 2012. The Jepson manual: vascular plants of California, second edition. University of California Press, Berkeley). Brackets indicate synonyms and former family names.

**Table E-16. Blue Ridge NWR – Culturally Significant Plants**

Culturally Significant Plants at Blue Ridge NWR		
Scientific Name	Common Name	Family Name
<i>Arctostaphylos viscida</i>	viscid manzanita	Ericaceae
<i>Asclepias fascicularis</i>	narrow-leaf milkweed	Apocynaceae
<i>Bromus diandrus</i>	ripgut grass	Poaceae
<i>Ceanothus leucodermis</i>	chaparral whitethorn	Rhamnaceae
<i>Cercocarpus betuloides</i>	birch-leaved cercocarpus	Rosaceae
<i>Chlorogalum pomeridianum</i>	wavy-leaved soap-plant	Agavaceae
<i>Eriodictyon californicum</i>	California yerba santa	Boraginaceae [Hydrophyllaceae]
<i>Frangula californica</i> subsp. <i>cuspidata</i>	California coffee-berry	Rhamnaceae
<i>Pinus ponderosa</i>	ponderosa pine	Pinaceae
<i>Populus fremontii</i>	Fremont's cottonwood	Salicaceae
<i>Prunus virginiana</i> var. <i>demissa</i>	common choke-cherry	Rosaceae
<i>Quercus chrysolepis</i>	canyon live oak	Fagaceae
<i>Quercus kelloggii</i>	California black oak	Fagaceae
<i>Quercus wislizeni</i>	interior live oak	Fagaceae
<i>Ribes</i> sp. <sup>1</sup>	gooseberry	Grossulariaceae
<i>Rosa californica</i>	California rose	Rosaceae
<i>Sambucus nigra</i> subsp. <i>caerulea</i> [ <i>Sambucus mexicana</i> , misapplied]	western blue elderberry	Adoxaceae [Caprifoliaceae]
<i>Symphoricarpos</i> sp. <sup>1</sup>	snowberry	Caprifoliaceae
<i>Toxicodendron diversilobum</i>	western poison oak	Anacardiaceae
<i>Umbellularia californica</i>	California bay-laurel	Lauraceae

Sources: Timbrook, 2007; Timbrook, pers. comm. 2012; Anderson 2007; Anderson, pers. comm. 2012; Stevens, 2004; USDA Natural Resources Conservation Service, Culturally Significant Plants Database (<http://plants.usda.gov/java/factSheet?cultural=yes>) and Native Uses of Native Plants in the Sierra Nevada Mountains and Foothills of California and Nevada (<ftp://ftp-fc.sc.gov.usda.gov/CA/news/Publications/general/NativePlants04.pdf>).

<sup>1</sup> Genus has been observed on the refuge. Culturally significant taxa potentially on the refuge include: *Ribes aureum* (and varieties) and *Symphoricarpos albus*.

**Table E-17. Blue Ridge NWR – Special Status Plants Observed Within or in the Vicinity of Blue Ridge NWR**

Special Status Plants Observed Within or in the Vicinity of Blue Ridge NWR					
Scientific Name Common Name	STATUS			Habitat Associations & Reported Elevation Range	Observation Status
	USFWS	CDFG	CNPS		
<i>Allium abramsii</i> Abram's onion	-	-	1B.2	Lower and upper montane coniferous forest 2,900-10,000 ft.	Documented in vicinity
<i>Angelica callii</i> Call's angelica	-	-	4.3	Cismontane woodland; lower montane coniferous forest 3,600 - 6,560 ft.	Documented in vicinity
<i>Brodiaea insignis</i> Kaweah brodiaea	-	SE	1B.2	Cismontane woodland; meadows and seeps; valley and foothill grassland 500 - 4,500 ft.	Documented in vicinity
<i>Calochortus westonii</i> Shirley Meadows star tulip	-	-	1B.2	Broadleafed upland forest; lower montane coniferous forest; meadows and seeps 4,900 - 6,900 ft.	Documented in vicinity
<i>Calystegia malacophylla</i> var. <i>berryi</i> Berry's morning glory	-	-	3.3	Chaparral; lower montane coniferous forest 2,000 - 8,000 ft.	Documented in vicinity
<i>Ceanothus pinetorum</i> Kern Ceanothus	-	-	4.3	Lower montane coniferous forest; upper montane coniferous forest; subalpine coniferous forest 3,500 – 9,000 ft	Documented in vicinity
<i>Carlquistia muirii</i> Muir's tarplant	-	-	1B.3	Chaparral; lower and upper montane coniferous forest 3,600 - 8,200 ft.	Documented in vicinity
<i>Cinna bolanderi</i> Bolander's woolreed	-	-	1B.2	Upper montane coniferous forest; meadows and seeps 5,500 - 8,000 ft.	Documented in vicinity
<i>Clarkia exilis</i> Slender clarkia	-	-	4.3	Cismontane woodland 390 – 3,280 ft	Documented in vicinity
<i>Clarkia springvillensis</i> Springville clarkia	FT	SE	1B.2	Chaparral; cismontane woodland; valley and foothill grassland 800 - 4,000 ft.	Documented in vicinity
<i>Claytonia parviflora</i> subsp. <i>grandiflora</i> streambank spring beauty	-	-	4.2	Cismontane woodland 800 - 4,000 ft.	Documented in vicinity
<i>Cuscuta jepsonii</i> Jepson's dodder	-	-	1B.2	Streambanks; north coast coniferous forest 3,900 - 7,500 ft.	Documented in vicinity
<i>Delphinium inopinum</i> unexpected larkspur	-	-	4.3	Upper montane coniferous forest 6,200 - 9,200 ft.	Documented in vicinity
<i>Delphinium purpusii</i> rose-flowered larkspur	-	-	1B.3	Chaparral; cismontane woodland; pinyon and juniper woodland 980 - 4,400 ft.	Documented in vicinity

<i>Delphinium recurvatum</i> recurved larkspur	-	-	1B.2	Chenopod scrub; cismontane woodland; valley and foothill grassland 10 - 2,600 ft.	Documented in vicinity
<i>Dudleya cymosa</i> subsp. <i>costatifolia</i> Pierpoint Springs dudleya			1B.2	Chaparral; cismontane woodland 4,700 - 5,200 ft.	Documented in vicinity
<i>Erigeron inornatus</i> var. <i>keilii</i> Keil's daisy			1B.3	Lower montane coniferous forest; meadows and seeps 5,900 - 7,200 ft.	Documented in vicinity
<i>Eriogonum nudum</i> var. <i>murinum</i> mouse buckwheat	-	-	1B.2	Chaparral; cismontane woodland; valley and foothill grassland 1,200 - 3,700 ft.	Documented in vicinity
<i>Eryngium spinosepalum</i> spiny-sepaled button celery	-	-	1B.2	Valley and foothill grassland; vernal pools 260 - 836 ft.	Documented in vicinity
<i>Erythronium pusaterii</i> Kaweah fawn lily	-	-	1B.3	Subalpine coniferous forest; meadows and seeps 6,900 - 9,100 ft.	Documented in vicinity
<i>Fritillaria brandegeei</i> Greenhorn fritillary	-	-	1B.3	Lower montane coniferous forest 4,600 - 6,900 ft.	Documented in vicinity
<i>Fritillaria striata</i> striped adobe-lily	-	ST	1B.1	Cismontane woodland; valley and foothill grassland 400 - 4,775 ft.	Documented in vicinity
<i>Hosackia oblongifolia</i> var. <i>cuprea</i> copper-flowered bird's-foot trefoil	-	-	1B.3	Upper montane coniferous forest; meadows and seeps 7,800 - 9,000 ft.	Documented in vicinity
<i>Iris munzii</i> Munz's iris	-	-	1B.3	Cismontane woodland 1,000 - 2,600 ft.	Documented in vicinity
<i>Ivesia campestris</i> field ivesia	-	-	1B.2	Meadows and seeps; subalpine coniferous forest; upper montane coniferous forest 6,500 - 11,100 ft.	Documented in vicinity
<i>Juncus nodosus</i> knotted rush	-	-	2.3	Meadows and seeps; marshes and swamps 100 - 6,400 ft.	Documented in vicinity
<i>Leptosiphon serrulatus</i> Madera leptosiphon	-	-	1B.2	Cismontane woodland; lower montane coniferous forest 980 - 4,200 ft.	Documented in vicinity
<i>Lupinus lepidus</i> var. <i>culbertsonii</i> Hockett Meadows lupine	-	-	1B.3	Meadows and seeps; upper montane coniferous forest 8,000 - 9,800 ft.	Documented in vicinity
<i>Mimulus norrisii</i> Kaweah monkeyflower	-	-	1B.3	Chaparral; cismontane woodland 1,200 - 4,200 ft.	Documented in vicinity
<i>Mimulus pictus</i> calico monkeyflower	-	-	1B.2	Broadleafed upland forest; cismontane woodland 300 - 4,700 ft.	Documented in vicinity
<i>Oreonana purpurascens</i> purple mountain-parsley	-	-	1B.2	Broadleafed upland forest; subalpine coniferous forest; upper montane coniferous forest 7,800 - 9,400 ft.	Documented in vicinity

<i>Ribes menziesii</i> var. <i>ixoderme</i> aromatic canyon gooseberry	-	-	1B.2	Chaparral; cismontane woodland 2,000 - 3,800 f.	Documented in vicinity
<i>Ribes tularense</i> Sequoia gooseberry	-	-	1B.3	Lower and upper montane coniferous forest 4,900 - 6,800 ft.	Documented in vicinity

Sources: California Native Plant Society (CNPS). 2012. Inventory of Rare and Endangered Plants (online edition, v8-01a, <http://www.rareplants.cnps.org/>). California Native Plant Society. Sacramento, CA. Accessed on November 16, 2012. California Natural Diversity Database (California Department of Fish and Wildlife), Dec. 2012 full version as well as unprocessed records accessed via online portal on January 2, 2013.

<b>SPECIAL STATUS PLANTS LEGEND:</b>	
<b>Federal (USFWS)</b>	<b>State (CDFG)</b>
FE      Endangered	SE      Endangered
FT      Threatened	ST      Threatened
FC      Candidate	SR      Rare
	SC      Candidate
<b>California Native Plant Society (CNPS) List Categories</b>	
List 1A	Plants Presumed Extinct in California
List 1B	Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2	Plants Rare, Threatened, or Endangered in California But More Common Elsewhere
List 3	Plants About Which We Need More Information - A Review List
List 4	Plants of Limited Distribution – A Watch List
<b>California Native Plant Society (CNPS) Threat Code Extensions</b>	
None	Plants lacking any threat information
.1	Seriously Endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2	Fairly Endangered in California (20-80% of occurrences threatened)
.3	Not very Endangered in California (less than 20% of occurrences threatened or no current threats known)

**Blue Ridge NWR Wildlife Lists**

Extracted from Hopper Mountain National Wildlife Refuge Complex  
Calendar Year 2002 Annual Narrative Report

**Table E-18. Blue Ridge NWR – Birds**

Below are lists of wildlife species for the Blue Ridge Wildlife Habitat Area. These species occur on and/or near Blue Ridge NWR.

Blue Ridge NWR			
Order	Family or Subfamily	Common Name ( <i>Scientific Name</i> )	
Galliformes	Odontophoridae	Mountain Quail ( <i>Oreortyx pictus</i> )	
		California Quail ( <i>Callipepla californica</i> )	
	Tetraoninae	Blue Grouse ( <i>Dendragapus obscurus</i> )	
Accipitriformes	Cathartidae	Turkey Vulture ( <i>Cathartes aura</i> )	
		California Condor ( <i>Gymnogyps californianus</i> )	
	Pandionidae	Osprey ( <i>Pandion haliaetus</i> )	
		Accipitridae	Northern Harrier ( <i>Circus cyaneus</i> )
			Sharp-shinned Hawk ( <i>Accipiter striatus</i> )
			Cooper's Hawk ( <i>Accipiter cooperii</i> )
Northern Goshawk ( <i>Accipiter gentilis</i> )			
		Red-shouldered Hawk ( <i>Buteo lineatus</i> )	
		Red-tailed Hawk ( <i>Buteo jamaicensis</i> )	
		Golden Eagle ( <i>Aquila chrysaetos</i> )	

Blue Ridge NWR		
Order	Family or Subfamily	Common Name (Scientific Name)
Falconiformes	Falconidae (Falconinae)	American Kestrel ( <i>Falco sparverius</i> )
		Prairie Falcon ( <i>Falco mexicanus</i> )
Columbiformes	Columbidae	Rock Pigeon ( <i>Columba livia</i> )
		Band-tailed Pigeon ( <i>Columba fasciata</i> )
		Mourning Dove ( <i>Zenaida macroura</i> )
	Cuculiformes Cuculidae (Neomorphinae)	Greater Roadrunner ( <i>Geococcyx californianus</i> )
Strigiformes	Strigidae	Western Screech Owl ( <i>Otus kennicottii</i> )
		Great Horned Owl ( <i>Bubo virginianus</i> )
		Northern Pygmy Owl ( <i>Glaucidium gnoma</i> )
		Northern Saw-whet Owl ( <i>Aegolius acadicus</i> )
Caprimulgiformes	Caprimulgidae (Chordeilinae)	Common Nighthawk ( <i>Chordeiles minor</i> )
	(Caprimulginae)	Poorwill ( <i>Phalaenoptilus nuttallii</i> )
		Whip-poor-will ( <i>Caprimulgus vociferus</i> )
Apodiformes	Trochilidae (Trochilinae)	Black-chinned Hummingbird ( <i>Archilochus alexandri</i> )
		Anna's Hummingbird ( <i>Calypte anna</i> )
		Rufous Hummingbird ( <i>Selasphorus rufus</i> )
Piciformes	Picidae (Picinae)	Lewis' Woodpecker ( <i>Melanerpes lewis</i> )
		Acorn Woodpecker ( <i>Melanerpes formicivorus</i> )
		Red-breasted Sapsucker ( <i>Sphyrapicus ruber</i> )
		Nuttall's Woodpecker ( <i>Picoides nuttallii</i> )
		Downy Woodpecker ( <i>Picoides pubescens</i> )
		Hairy Woodpecker ( <i>Picoides villosus</i> )
		White-headed Woodpecker ( <i>Picoides albolarvatus</i> )
		Northern Flicker ( <i>Colaptes auratus</i> )
		Pileated Woodpecker ( <i>Dryocopus pileatus</i> )
Passeriformes	Fluvicolinae	Olive-sided Flycatcher ( <i>Contopus borealis</i> )
		Western Wood-Pee wee ( <i>Contopus sordidulus</i> )
		Pacific-slope Flycatcher ( <i>Empidonax difficilis</i> )
		Black Phoebe ( <i>Sayornis nigricans</i> )
	Tyranninae	Ash-throated Flycatcher ( <i>Myiarchus cinerascens</i> )
		Western Kingbird ( <i>Tyrannus verticalis</i> )
	Vireonidae	Warbling Vireo ( <i>Vireo gilvus</i> )
	Corvidae	Steller's Jay ( <i>Cyanocitta stelleri</i> )
		Western Scrub-jay ( <i>Aphelocoma californica</i> )
		Clark's Nutcracker ( <i>Nucifraga columbiana</i> )
		Common Raven ( <i>Corvus corax</i> )
	Hirundinidae (Hirundininae)	Purple Martin ( <i>Progne subis</i> )
		Tree Swallow ( <i>Tachycineta bicolor</i> )
		Violet-green Swallow ( <i>Tachycineta thalassina</i> )
		Cliff Swallow ( <i>Hirundo pyrrhonota</i> )
Paridae	Mountain Chickadee ( <i>Parus gambeli</i> )	
	Oak Titmouse ( <i>Baeolophus inornatus</i> )	
Aegithalidae	Bushtit ( <i>Psaltriparus minimus</i> )	
Sittidae (Sittinae)	Red-breasted Nuthatch ( <i>Sitta canadensis</i> )	
	White-breasted Nuthatch ( <i>Sitta carolinensis</i> )	
	Pygmy Nuthatch ( <i>Sitta pygmaea</i> )	
Certhiidae (Certhiinae)	Brown Creeper ( <i>Certhia americanus</i> )	



Appendix E - Plants and Wildlife

Blue Ridge NWR		
Order	Family or Subfamily	Common Name ( <i>Scientific Name</i> )
	Troglodytidae	Rock Wren ( <i>Salpinctes obsoletus</i> )
		Canyon Wren ( <i>Catherpes mexicanus</i> )
		Bewick's Wren ( <i>Thryomanes bewickii</i> )
		House Wren ( <i>Troglodytes aedon</i> )
	Poliopitilidae	Blue-gray Gnatcatcher ( <i>Poliopitila caerulea</i> )
	Regulidae	Golden-crowned Kinglet ( <i>Regulus satrapa</i> )
		Ruby-crowned Kinglet ( <i>Regulus calendula</i> )
	Sylviidae	Wrentit ( <i>Chamaea fasciata</i> )
	Turdidae	Western Bluebird ( <i>Sialia mexicana</i> )
		Swainson's Thrush ( <i>Catharus ustulatus</i> )
		Hermit Thrush ( <i>Catharus guttatus</i> )
		American Robin ( <i>Turdus migratorius</i> )
	Mimidae	California Thrasher ( <i>Toxostoma redivivum</i> )
	Bombycillidae	Cedar Waxwing ( <i>Bombycilla cedrorum</i> )
	Parulidae	Orange-crowned Warbler ( <i>Vermivora celata</i> )
		Nashville Warbler ( <i>Vermivora ruficapilla</i> )
		MacGillivray's Warbler ( <i>Oporornis tolmiei</i> )
		Yellow-rumped Warbler ( <i>Dendroica coronata</i> )
		Black-throated Gray Warbler ( <i>Dendroica nigrescens</i> )
		Townsend's Warbler ( <i>Dendroica townsendi</i> )
		Hermit Warbler ( <i>Dendroica occidentalis</i> )
		Wilson's Warbler ( <i>Wilsonia pusilla</i> )
	Emberizidae	Green-tailed Towhee ( <i>Pipilo chlorurus</i> )
		Spotted Towhee ( <i>Pipilo maculatus</i> )
		California Towhee ( <i>Pipilo fuscus</i> )
		Chipping Sparrow ( <i>Spizella passerina</i> )
		Fox Sparrow ( <i>Passerella illiaca</i> )
		Song Sparrow ( <i>Melospiza melodia</i> )
		White-crowned Sparrow ( <i>Zonotrichia leucophrys</i> )
		Golden-crowned Sparrow ( <i>Zonotrichia atricapilla</i> )
		Dark-eyed Junco ( <i>Junco hyemalis</i> )
	Cardinalidae	Western Tanager ( <i>Piranga ludoviciana</i> )
		Black-headed Grosbeak ( <i>Pheucticus melanocephalus</i> )
		Lazuli Bunting ( <i>Passerina amoena</i> )
	Icteridae	Brewer's Blackbird ( <i>Euphagus cyanocephalus</i> )
		Brown-headed Cowbird ( <i>Molothrus ater</i> )
		Baltimore Oriole ( <i>Icterus galbula</i> )
	Carduelinae	Purple Finch ( <i>Carpodacus purpureus</i> )
		Cassin's Finch ( <i>Carpodacus cassinii</i> )
		House Finch ( <i>Carpodacus mexicanus</i> )
		Pine Siskin ( <i>Carduelis pinus</i> )
		Lesser Goldfinch ( <i>Carduelis psaltria</i> )
		Lawrence's Goldfinch ( <i>Carduelis lawrencei</i> )

\*Birds categorized using AOU taxonomy (<http://www.aou.org/checklist/north/index.php>)

**Table E-19. Blue Ridge NWR – Mammals**

The following mammals have been identified on or near Blue Ridge NWR and the surrounding area.

Common Name	Scientific Name
Virginia opossum	<i>(Didelphis marsupialis)</i>
Shrew	<i>(Sorex sp.)</i>
Broad-footed mole	<i>(Scalopus latimanus)</i>
California myotis	<i>(Myotis californicus)</i>
Merriam's chipmunk	<i>(Neotamias merriami)</i>
California ground squirrel	<i>(Otospermophilus beecheyi)</i>
Western gray squirrel	<i>(Sciurus griseus)</i>
Douglas squirrel	<i>(Tamiasciurus douglasii)</i>
Botta's pocket gopher	<i>(Thomomys bottae)</i>
California mouse	<i>(Peromyscus californicus)</i>
Deer mouse	<i>(Peromyscus maniculatus)</i>
Pinyon mouse	<i>(Peromyscus truei)</i>
Desert woodrat	<i>(Neotoma lepida)</i>
Vole, unidentified	<i>(Microtus sp.)</i>
Coyote	<i>(Canis latrans)</i>
Gray fox	<i>(Urocyon cinereoargenteus)</i>
Black bear	<i>(Ursus americanus)</i>
Ringtail	<i>(Bassariscus astutus)</i>
Western spotted skunk	<i>(Spilogale gracilis)</i>
Striped skunk	<i>(Mephitis mephitis)</i>
Mountain lion	<i>(Puma concolor)</i>
Bobcat	<i>(Lynx rufus)</i>
Feral pig	<i>(Sus scrofa)</i>
Mule deer	<i>(Odocoileus hemionus)</i>

**Table E-20. Blue Ridge NWR – Amphibians**

The following amphibian species have been identified on or near Blue Ridge NWR.

Common Name	Scientific Name
Sierran treefrog	<i>(Pseudacris sierra)</i> ; formerly recognized as <i>P. regilla</i> .

**Table E-21. Blue Ridge NWR – Reptiles**

The following reptile species have been identified on or near Blue Ridge NWR.

Common Name	Scientific Name
California whiptail	<i>(Aspidocelis tigris munda)</i>
Sierra alligator lizard	<i>(Elgaria coerulea palmeri)</i>
Gilbert's skink	<i>(Plestiodon gilberti)</i>
Blainville's horned lizard	<i>(Phrynosoma blainvillii)</i>
Western fence lizard	<i>(Sceloporus occidentalis)</i>
Northern rubber boa	<i>(Charina bottae)</i>
Western yellow-bellied racer	<i>(Coluber constrictor mormon)</i>
Northern Pacific rattlesnake	<i>(Crotalus oreganus oreganus)</i>
Pacific gopher snake	<i>(Pituophis catenifer catenifer)</i>
Valley gartersnake	<i>(Thamnophis sirtalis fitchi)</i>

**Table E-22. Blue Ridge NWR – Butterflies**

The following butterfly species have been identified on or near Blue Ridge NWR.

Common Name	Scientific Name
Monarch	<i>(Danaus plexippus)</i>
Square-spotted blue	<i>(Euphilotes battoides)</i>
Acmon blue	<i>(Icaricia acmon)</i>
California sister	<i>(Adelpha bredowii)</i>
Lorquin’s admiral	<i>(Basilarchia lorquini)</i>
Buckeye	<i>(Junonia coenia)</i>
Mourning cloak	<i>(Nymphalis antiopa)</i>
Chakedon checkerspot	<i>(Occidrys chalcedona)</i>
Painted lady	<i>(Vanessa cardui)</i>
Western swallowtail	<i>(Pterourus rutulus)</i>
Pale swallowtail	<i>(Pterourus eurymedon)</i>
Orange sulphur	<i>(Colias eurytheme)</i>
European cabbage butterfly	<i>(Pieris rapae)</i>
California ringlet	<i>(Coenonympha tullia californica)</i>

Amphibian and reptile taxonomy follows:

Crother, B. I. (ed.). 2008. *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico*, pp. 1–84. SSAR Herpetological Circular 37.

**References for the Plant Lists**

Anderson, M. K. 2007. Native American uses and management of California’s grasslands. Pages 57-66 in (Stromberg, M.R., J.D. Corbin, and C.M. D’Antonio editors) *California grasslands: Ecology and management*. University of California Press. Berkeley, CA.

Anderson, M. K. 2012. Personal communication with Dr. Elizabeth L. Painter, botanist.

Timbrook, J. 2007. *Chumash Ethnobotany: Plant Knowledge among the Chumash People of Southern California*. Santa Barbara Museum of Natural History, Santa Barbara, California.

Timbrook, J. 2012. Personal communication with Dr. Elizabeth L. Painter, botanist.

Stevens, M.L. 2004. Ethnoecology of selected California wetland plants. *Fremontia* 32(4): 7-15.

USDA Natural Resources Conservation Service, Culturally Significant Plants Database (<http://plants.usda.gov/java/factSheet?cultural=yes>)

USDA Natural Resources Conservation Service, Native Uses of Native Plants in the Sierra Nevada Mountains and Foothills of California and Nevada (<ftp://ftp-fc.sc.egov.usda.gov/CA/news/Publications/general/NativePlants04.pdf>)  
 California State Library, State Symbols (<http://www.library.ca.gov/history/symbols.html>)

# Appendix F – Endangered Species Act, Section 7 Compliance

# United States Department of the Interior



## FISH AND WILDLIFE SERVICE



Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825

December 13, 2011

Document Number: 111213024943

Mark Pelz  
US Fish and Wildlife Service - Region 8 - Refuge Planning  
2800 Cottage Way  
Sacramento, CA 95825

Subject: Species List for Bitter Creek NWR

Dear: Mr Pelz

We are sending this official species list in response to your December 13, 2011 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be March 12, 2012.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found [here](#).

Endangered Species Division



U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in  
or may be Affected by Projects in the Counties and/or  
U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 111213024943

Database Last Updated: September 18, 2011

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Quad Lists

Listed Species

**Invertebrates**

- Branchinecta lynchi
  - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
  - valley elderberry longhorn beetle (T)

**Amphibians**

- Rana draytonii
  - California red-legged frog (T)

**Reptiles**

- Gambelia (=Crotaphytus) sila
  - blunt-nosed leopard lizard (E)

**Birds**

- Gymnogyps californianus
  - California condor (E)

**Mammals**

- Dipodomys ingens
  - giant kangaroo rat (E)
- Sorex ornatus relictus

- Buena Vista Lake shrew (E)
- Vulpes macrotis mutica
  - San Joaquin kit fox (E)

**Plants**

- Caulanthus californicus
  - California jewelflower (E)

**Quads Containing Listed, Proposed or Candidate Species:**

SANTIAGO CREEK (191A)

BALLINGER CANYON (191B)

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**County Lists**

No county species lists requested.

**Key:**

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

**Important Information About Your Species List**

**How We Make Species Lists**

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

## **Plants**

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

## **Surveying**

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

See our [Protocol](#) and [Recovery Permits](#) pages.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

## **Your Responsibilities Under the Endangered Species Act**

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

### **Take incidental to an otherwise lawful activity may be authorized by one of two procedures:**

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a



permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

### **Critical Habitat**

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [Map Room](#) page.

### **Candidate Species**

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

### **Species of Concern**

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

### **Wetlands**

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

# United States Department of the Interior



## FISH AND WILDLIFE SERVICE



Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825

December 13, 2011

Document Number: 111213025453

Mark Pelz  
US Fish and Wildlife Service - Region 8 - Refuge Planning  
2800 Cottage Way  
Sacramento, CA 95825

Subject: Species List for Blue Ridge NWR

Dear: Mr Pelz

We are sending this official species list in response to your December 13, 2011 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be March 12, 2012.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found [here](#).

Endangered Species Division



U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in  
or may be Affected by Projects in the Counties and/or  
U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 111213025453

Database Last Updated: September 18, 2011

---

Quad Lists

Listed Species

**Invertebrates**

- *Desmocerus californicus dimorphus*
  - valley elderberry longhorn beetle (T)

**Fish**

- *Hypomesus transpacificus*
  - delta smelt (T)

**Amphibians**

- *Rana draytonii*
  - California red-legged frog (T)

**Birds**

- *Gymnogyps californianus*
  - California condor (E)
  - Critical habitat, California condor (X)

**Plants**

- *Clarkia springvillensis*
  - Springville clarkia (T)

## Candidate Species

### Amphibians

- Rana muscosa
  - mountain yellow-legged frog (C)

### Mammals

- Martes pennanti
  - fisher (C)

### Quads Containing Listed, Proposed or Candidate Species:

DENNISON PEAK (332D)

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### County Lists

No county species lists requested.

### Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
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- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

## Important Information About Your Species List

### How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Ventura Fish and Wildlife Office  
2493 Portola Road, Suite B  
Ventura, California 93003




IN REPLY REFER TO:  
08EVEN00-2012-SLI-0236

March 22, 2012

## Memorandum

To: Refuge Planner, Region 8 Sacramento California

From:   
Deputy Assistant Field Supervisor, Ventura Fish and Wildlife Office,  
Ventura, California

Subject: Species List for the Hopper Mountain National Wildlife Refuge

This letter responds to your request received through the Fish and Wildlife Service's (Service) internet-based Information, Planning, and Conservation (IPaC) decision support system on March 18, 2012. You requested information on federally proposed or listed threatened and endangered species, candidate species, and designated critical habitat that may be affected by the Hopper Mountain National Wildlife Refuge Comprehensive Conservation Plan, as depicted on the map you generated on the IPaC system.

This letter fulfills the Service's responsibility under section 7(c) of the Endangered Species Act of 1973, as amended (Act). The Service, as the lead Federal agency for the project, has the responsibility to review its proposed activities and determine whether any listed species may be affected. If the project is a construction project<sup>1</sup> which may require an environmental impact statement, the Service has the responsibility to prepare a biological assessment to make a determination of the effects of the action on the listed species or critical habitat. If the Service determines that a listed species or critical habitat is likely to be adversely affected, it should request, in writing to our office, formal consultation pursuant to section 7 of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to threatened or endangered species or their critical habitat prior to a written request for formal consultation. During this review process, the Service may engage in planning efforts but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of section 7(d) of the Act.

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<sup>1</sup> "Construction project" means any major Federal action which significantly affects the quality of the human environment designed primarily to result in the building of structures such as dams, buildings, roads, pipelines, and channels. This includes Federal actions such as permits, grants, licenses, or other forms of Federal authorizations or approval which may result in construction.

We also recommend that you review information in the California Department of Fish and Game's Natural Diversity Data Base. You can contact the California Department of Fish and Game at (916) 324-3812 for information on other sensitive species that may occur in this area.

If you have any questions regarding this matter, please contact Steve Kirkland of our staff at (805) 644-1766, extension 267.

**LISTED SPECIES  
WHICH MAY OCCUR IN THE VICINITY OF THE HOPPER MOUNTAIN NATIONAL  
WILDLIFE REFUGE, VENTURA COUNTY, CALIFORNIA**

Birds

California condor	<i>Gymnogyps californianus</i>	E, CH
California gnatcatcher	<i>Polioptila californica</i>	T
Least Bell's vireo	<i>Vireo bellii pusillus</i>	E
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E

Amphibians

California red-legged frog	<i>Rana draytonii</i>	T
----------------------------	-----------------------	---

**Key:**

E - Endangered

T - Threatened

CH - Critical habitat



# United States Department of the Interior



In Reply Refer to:  
FWS/R8/80230

FISH AND WILDLIFE SERVICE  
Pacific Southwest Region  
2800 Cottage Way, Room W-1832  
Sacramento, California 95825-1846

September 26, 2012

## Memorandum

To: Diane Noda, Field Supervisor, Ventura Fish and Wildlife Office  
Ventura, California

From: Mark Pelz, Chief, Refuge Planning, Region 8 *Mark Pelz*  
Sacramento, California

Subject: Intra-Service Section 7 Biological Evaluation

We are requesting your concurrence with our findings in the attached Intra-Service Section 7 Biological Evaluation for Hopper Mountain National Wildlife Refuge (NWR) in the implementation of the *Draft Comprehensive Conservation Plan and Environmental Assessment for Hopper Mountain, Bitter Creek, and Blue Ridge NWRs (CCP/EA)*. We are working with the Sacramento Field Office to fulfill section 7 compliance requirements for the Bitter Creek and Blue Ridge NWRs, which are under their jurisdiction.

The CCP/EA is programmatic in nature, with the long term restoration effects being the goal, short term effects are minimized by the extensive measures provided in Appendix B. We evaluated the proposed general management, maintenance, and public use activities in the CCP/EA and believe the activities outlined in the CCP will lead to long-term benefits to threatened and endangered species.

Thank you for your attention to this matter. Our schedule includes completion of the Final CCP/EA and section 7 compliance by December 2012. If you have any questions regarding this request or the CCP/EA, please call Sandy Osborn at (916) 414-6503 or via email at [sandy\\_osborn@fws.gov](mailto:sandy_osborn@fws.gov).

## Enclosures

cc: Farris (VFWO), Leeman (SFWO)  
Brady, Tappe (Hopper Mountain NWR Complex)

TAKE PRIDE<sup>™</sup>  
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**INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM**

**Originating Person:** Prepared by Maya Biery and Sandy Osborn  
 Region 8, Refuge Planning, 2800 Cottage Way, W-1832, Sacramento, California

**Telephone Number:** Sandy Osborn, Refuge Planner (916) 414-6503

**Date:** 9/24/12

**I. Region:** 8

**II. Service Activity (Program):**  
 Hopper Mountain NWR, Draft Comprehensive Conservation Plan and Environmental Assessment (CCP/EA), March 2012.

**III. Pertinent Species and Habitat:**

**A. Listed species and/or their critical habitat within the action area:**

**Threatened and Endangered Species List for Hopper Mountain National Wildlife Refuge (NWR).**

<b>Threatened and Endangered Species in Ventura County</b>					
<b>TYPE</b>	<b>SCIENTIFIC NAME</b>	<b>COMMON NAME</b>	<b>CATEGORY</b>	<b>CRITICAL HABITAT</b>	<b>DOCUMENTED ON HMNWR?</b>
<b>Birds</b>					
	<i>Gymnogyps californianus</i>	California condor	E	Y	Y
	<i>Polioptila californica</i>	California gnatcatcher	T	N	N
	<i>Vireo bellii pusillus</i>	Least Bell's vireo	E	N	N
	<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	E	N	N
<b>Amphibians</b>					
	<i>Rana draytonii</i>	California red-legged frog	T	N	N

**B. Proposed critical habitat within the action area:**  
 None

**C. Candidate species within the action area:**  
*Hopper Mountain NWR:*  
 None

**D. Include species/habitat occurrence on a map.**

*Hopper Mountain NWR:*

The California condor is the only federally-listed species known to occur on Hopper Mountain NWR. Hopper Mountain NWR has roosting, foraging, and nesting habitat for the California condor. To obtain maps of its occurrence, please contact the California Condor Recovery Program.

There are no recorded locations of the other listed species for Hopper Mountain NWR, and thus their locations are not shown on the map.

Vegetation/Landcover maps are included in the Draft CCP/EA on the following pages.

*Hopper Mountain NWR:*

Page 34

**IV. Geographic area or station name and action:**

Hopper Mountain, Bitter Creek, and Blue Ridge NWRs, Comprehensive Conservation Plan (CCP)

**V. Location (attach map):**

Please see page 3 of the CCP.

**A. Ecoregion Number and Name:**

*Hopper Mountain NWR:*

Ecoregion 4, Southern California Ecoregion.

**B. County and State:**

*Hopper Mountain NWR:*

Ventura County, California.

**C. Section, township and range (or latitude and longitude): -**

**D. Distance (miles) and direction to nearest town:**

Hopper Mountain NWR is approximately 6 miles north of Fillmore.

**E. Species/habitat occurrence:**

*Hopper Mountain NWR:* pages 37-45 of the CCP.

**VI. Description of proposed action (attach additional pages as needed):**

*Hopper Mountain NWR:*

Draft CCP, Chapter 4 - Management Direction; Refuge Complex Goals, Objectives, and Strategies – pages 94-95, and 97-112.

For a partial list of major actions, see also Draft CCP, Chapter 5, Implementation and Monitoring – page 139.

**VII. Determination of effects:**

**A. Explanation of effects of the action on species and critical habitats in items III. A, B, and C (attach additional pages as needed):**

*Hopper Mountain NWR:*

Appendix B – Draft Environmental Assessment (EA), pages 45 to 47, and 53 (See also Vegetation, pages 39-41, and Wildlife Resources, pages 42-44).

**B. Explanation of actions to be implemented to reduce adverse effects:**

Conservation Measures - Appendix 1 to Appendix B – Draft EA, pages 113 to 117.

**VIII. Effect Determination and response requested: [\* = optional].**

**A. Listed species/designated critical habitat:**

**Determination Requested**

**Response**

**May affect, but is not likely to adversely effect**

*Hopper Mountain NWR:*

California condor ( <i>Gymnogyps californianus</i> ) (E)	___ <b>Concurrence</b>
California gnatcatcher ( <i>Polioptila californica</i> ) (T)	___ <b>Concurrence</b>
Least Bell's vireo ( <i>Vireo bellii pusillus</i> ) (E)	___ <b>Concurrence</b>
Southwestern willow flycatcher ( <i>Empidonax traillii extimus</i> ) (E)	___ <b>Concurrence</b>
California red-legged frog ( <i>Rana draytonii</i> ) (T)	___ <b>Concurrence</b>

**B. Proposed critical habitat:**

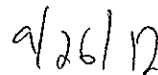
None

**C. Candidate species:**

None



\_\_\_\_\_  
**Signature**



\_\_\_\_\_  
**Date**

**Mark Pelz, Chief, Refuge Planning**

# APPENDIX 1: Best Management Practices

Best Management Practices (BMPs) are designed to reduce adverse impacts to wildlife and plants and their critical habitats. BMPs shall be executed by all project coordinators. BMPs are listed by main project categories, but in practice, overlaps do exist among the categories.

## General BMPs for all Project Categories:

1. Follow all terms, conditions, and stipulations in regulatory permits and other official project authorizations to eliminate or reduce adverse effects to endangered, threatened, or sensitive species or their critical habitats.
2. Complete restoration activities at individual project sites in a timely manner. This will reduce disturbance and/or displacement of wildlife species in the immediate project area.
3. Modifications to an approved work plan must be reviewed and approved by appropriate agency personnel and the landowner(s) before the work can be carried out or continued.
4. Use existing roadways or travel paths for access to project sites.
5. Avoid the use of heavy equipment and techniques that will result in excessive soil disturbances or compaction of soils, especially on steep or unstable slopes.
6. Vehicles and machinery shall cross streams and drainages at right angles to the main channel whenever possible.
7. Excavation or transport equipment/machinery shall be limited in capacity but sufficiently sized to complete required restoration activities. Equipment and machinery coming in contact with water shall be inspected daily and cleaned of grease, oil, petroleum products, or other contaminants.
8. Streams, riparian zones, and wetlands shall not be used as staging or refueling areas. Equipment shall be stored, serviced, and fueled away from aquatic habitats or other sensitive areas.
9. Native vegetation shall be planted on disturbed sites in accordance with project specifications. Native vegetation shall be salvaged from areas where ground disturbances will be occurring on projects. Salvaged vegetation shall then be replanted after the completion of project activities. The use of non-native vegetation is prohibited. Restoration planting techniques shall not cause major disturbances to soils and slopes. Hand planting is the preferred technique for all plantings. Plantings shall occur during the optimal seasonal period for the respective plant species involved. Planting site conditions shall be enhanced by bank sloping/grading, seedbed and site preparations, mulching, or fertilizing, as specified.
10. The sources of boulder and rock materials used for restoration projects shall be from non-streambed and non-wetland sources. Conifer and hardwood timber stands shall not be specifically harvested to supply woody materials for any restoration activity, unless the harvest is part of an approved silvicultural operation. Boulder, rock, and woody materials shall be collected during appropriate seasonal periods to reduce soil and slope disturbances.
11. A written contingency plan shall be developed for all project sites where hazardous materials (e.g., pesticides, herbicides, petroleum products) will be used or stored. Appropriate materials/supplies (e.g., shovel, disposal containers, absorbent materials, first aid supplies, clean water) shall be available on site

to cleanup any small scale accidental hazardous spill. Hazardous spills shall be reported. Emergency response, removal, transport, and disposal of hazardous materials shall be done in accordance with the U.S. Environmental Protection Agency. Hazardous materials and petroleum products shall be stored in approved containers or chemical sheds and be located at least 100 feet from surface water in an area protected from runoff.

12. The evaluation of herbicide, pesticide, and fertilizer use shall include the accuracy of applications, effects on target and non-target species, and the potential impacts to aquatic and terrestrial ecosystems. Treatments for the control or removal of invasive plants in riparian/wetland areas shall be limited to hand or wick applications by qualified personnel. Apply chemicals during calm, dry weather and maintain unsprayed buffer areas near aquatic habitats and other sensitive areas. Chemical applications must be avoided where seasonal precipitation or excess irrigation water is likely to wash residual toxic substances into waterways. All chemicals shall be handled in strict accordance with label specifications. Proper personal protection (e.g., gloves, masks, clothing) shall be used by all applicators. Obtain a copy of the material safety data sheet (MSDS) from the chemical manufacturer for detailed information on each chemical to be used. Refer to appropriate federal and state regulations concerning the use of chemicals. Chemicals shall only be considered when other treatments would be ineffective or cannot be applied.

13. Sedimentation and erosion controls shall be implemented on all project sites where the implementation of restoration activities will result in soil and/or slope disturbances. Soil and slope stabilization control structures/techniques must be bio-engineered to the extent possible. Structures/techniques shall be placed and/or anchored appropriately to prevent adverse impacts to down slope habitats. Re-vegetate disturbed areas with native vegetation as soon as possible in accordance with project specifications. Control structures/techniques may include but are not limited to silt fences, hay bale structures, seeding by hand and hydro-seeding, jute mats, and coconut fiber logs. Contact the local state forester, state extension service agent, or Soil and Water Conservation District for information or assistance on control structures/techniques.

14. Staging and stockpile areas shall be located on or immediately beside the project area whenever possible. Sediment and erosion controls shall be implemented around all stockpiled material and disturbed project sites to prevent the introduction of pollutants into water sources. This will reduce the disturbance and displacement potential to wildlife in the surrounding areas.

15. Excess excavated materials removed during the completion of a restoration activity shall be disposed of properly and/or stabilized to eliminate future environmental problems. Salvage of boulders, rock, and fill material is encouraged for use on nearby roads or other projects. Vegetation not salvaged shall be removed to a county approved disposal site or chipped and composted off site to prevent spread of noxious weeds. If specific uses are not available for project spoils, they will be placed in upland areas and contoured, with the assistance of an environmental engineer, to blend into the surrounding landscape. Under no circumstances will disposal sites be located in riparian, wetland, or floodplain areas unless used for dike construction. Dike construction would take place only to 1) restore historic hydrology when modifications on adjacent ownerships prevent re-contouring or use of other methods to restore the historic physical condition, or 2) prevent flooding of adjacent landowners' properties not involved in the project. Sedimentation and erosion controls shall be implemented to prevent adverse impacts to down slope habitats. Disposal sites should be re-vegetated with native vegetation as soon as possible.

16. Project coordinators shall ensure that all waste resulting from the completion of a project is removed and disposed of properly before work crews vacate the project site.

17. Structures containing concrete or wood preservatives shall be cured or dried before they are placed in streams, riparian zones, or wetlands. No wet concrete or runoff from cleaning tools that have wet concrete

slurry or lye dust shall enter aquatic habitats. Runoff control measures shall be employed, such as hay bales and silt fences, until the risk of aquatic contamination has ended.

18. Monitoring is required during project implementation and for at least one year following project completion to ensure that restoration activities implemented at individual project sites are functioning as intended and do not create unintended consequences to fish, wildlife, and plant species and their critical habitats or adversely impact human health and safety. Corrective actions, as appropriate, shall be taken to address potential and existing adverse effects to fish, wildlife, and plants.

19. Brightly-colored construction fencing shall be installed around isolated special status plants to avoid disturbance.

20. An environmental education program shall be presented to all construction personnel to brief them on the status of the special status species and the penalty for not complying with these requirements.

21. To protect special status species when threatened by proposed activities the Service will conduct the following activities: 1) trails, roads, and/or areas will be closed to ensure that human access does not disturb special status species using an adaptive management process; 2) prior to habitat and ground disturbing activities, potential habitat for special status species will be evaluated and, if appropriate, presence/absence surveys and additional mitigation measures taken (e.g., avoid location, change timing of action), if necessary, to ensure that planned activities do not disturb special status species; and 3) the Service will comply with all terms and conditions resulting from Section 7, Endangered Species Act consultation when specific projects are undertaken.

#### **Riparian/Wetland and Upland/Woodland Restoration BMPs:**

22. Bank stabilizing vegetation removed or altered because of restoration activities shall be replanted with native vegetation and protected from further disturbance until new growth is well established. Native shrubs and trees from local ecotypes shall also be included in the reclamation of disturbed sites. Waste organic materials (e.g., discarded lumber, woody vegetation) shall not be used to stabilize soils and slopes in disturbed areas. Metal refuse or debris (e.g., petroleum containers, car bodies) shall not be used for streambank protection; this violates both state and federal regulations. Also, broken asphalt and tires shall not be used due to potential seepage of petroleum and other toxic chemicals. Concrete is not recommended for bank stabilization projects. In-stream materials (e.g., stream debris and gravels) shall not be used to replace or restore eroded streambanks. Stabilization projects shall employ bioengineering methods to the greatest extent possible.

23. Sedimentation and erosion controls shall be implemented on site at all times during wetland restoration or creation activities to maintain the water quality of adjacent water sources.

24. Restoration activities that require prescribed burning of slash material or invasive vegetation shall be planned in coordination with the refuge manager and in accordance with the approved Fire Management Plan. Non-burning alternatives shall be considered whenever possible.

25. Slash materials shall be gathered by hand or with light machinery to reduce soil disturbances and compaction of soils. Avoid accumulating or spreading slash in upland draws, depressions, intermittent streams, and springs. Slash control and disposal activities shall be conducted in a way that reduces the occurrence of debris in streams. These practices will eliminate or reduce debris torrents, avalanches, flows, and slides.

26. Appropriate timber yarding system shall be used during silvicultural operations to eliminate or reduce soil disturbances and compaction of soils.

27. Snags shall be retained on project sites for cavity dependent wildlife species whenever possible.
28. If abandoned and decommissioned roadways are re-vegetated, native species propagated from on-site sources shall be used in accordance with the Habitat Management Plan. Ensure that drainage patterns on these roadways will not result in increased sedimentation rates or erosion to down slope habitats. Drainage improvements shall be constructed and stabilized before the rainy season. Water energy dissipaters (e.g., water-bars and rolling dips) shall be installed along roadways and on all cross drain outfalls. Excavated road materials shall not be side-cast or spread in upland draws, depressions, intermittent streams, wetlands, and springs.
29. Seedlings, cuttings, and other plant propagules shall be sourced from reputable suppliers or growers. Hardwood and conifer seedlings have specific storage, handling, and planting requirements different from seedlings. Seeds used to grow seedlings shall be collected on the restoration project site. Seedling competition shall be reduced by clearing grasses, forbs, and woody shrubs from around each seedling for a minimum distance of 3 feet. Appropriate methods shall be employed to protect seedlings from animal, insect, and environmental damages. Planted seedlings shall be periodically examined for damages and diseases. Contact your local state forester or extension service agent for additional information or assistance.
30. Retain the appropriate amount of down and decaying woody debris to provide for wildlife habitats and nutrient recycling. Project coordinators should be aware of potential wildfire hazards in project areas because of retained woody debris.
31. When necessary for invasive plant removal or habitat restoration, trees shall be felled away from streams, riparian zones, and wetlands whenever possible. Tree falling on steep slopes shall not be done or done in an appropriate manner to avoid damage to surrounding vegetation and soils. The proper yarding technique shall be employed on project sites to eliminate or reduce soil disturbances and compaction.
32. Fence designs (e.g., wire type and wire spacing) and installations shall not restrict the movement of any wildlife species; the use of woven wire fences shall be subject to the approval of the refuge manager. The quality and durability of fencing materials shall meet or exceed the intended management objectives. Fences shall not be constructed in areas where natural barriers restrict livestock movements. Refer to the Bureau of Land Management fencing handbook (BLM 1989) for additional information.
33. Livestock crossings and off-channel livestock watering facilities shall not be located in areas where compaction and/or damage may occur to sensitive soils, slopes, or vegetation due to congregating livestock. If livestock fords across streams are rocked to stabilize soils/slopes and prevent erosion, material and location shall be subject to the approval of the refuge manager. Crushed rock shall not be used to stabilize fords. Fords shall be placed on bedrock or stable substrates whenever possible.
34. Silvicultural activities (e.g., herbicide treatment, thinning, and harvesting) shall be limited or restricted on steep slopes and highly erodible soils to prevent accelerated soil erosion and increased sedimentation rates.
35. Fill material used on project sites shall be from non-streambed and non-wetland sources that are free of fines. Deposition of materials shall not violate state or federal regulations, standards, or guidelines as set forth by local Soil and Water Conservation Districts, U.S. Army Corps of Engineers, or other regulatory agencies.

**Air Quality BMPs:**

36. All disturbed areas shall be effectively stabilized of dust emissions using water, approved chemical stabilizer/suppressant, tarp or other suitable cover or vegetation ground cover.

37. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions by applying water or by pre-soaking.

38. Following the addition of materials to or the removal of materials from the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions using sufficient water or approved chemical stabilizer/suppressant.



NOV 15 2012



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Ventura Fish and Wildlife Office  
2493 Portola Road, Suite B  
Ventura, California 93003




IN REPLY REFER TO:  
08EVEN00-2012-1-0527

November 8, 2012

## Memorandum

To: Chief, Refuge Planning, Region 8  
Sacramento, California

From:   
Assistant Field Supervisor, Ventura Fish and Wildlife Office  
Ventura, California

Subject: Intra-Service Informal Section 7 Consultation, Draft Comprehensive  
Conservation Plan, Hopper Mountain National Wildlife Refuge, Ventura County,  
California (FWS/R8/80230)

We have reviewed your request, dated September 26, 2012, and received in our office on September 28, 2012, for our concurrence that the subject project may affect but is not likely to adversely affect the federally endangered California condor (*Gymnogyps californianus*), least Bell's vireo (*vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*), and the threatened coastal California gnatcatcher (*Polioptila californica californica*) and California red-legged frog (*Rana draytonii*). Your request and our response are made pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et seq.).

The development of a Comprehensive Conservation Plan (CCP) for the Hopper Mountain National Wildlife Refuge (NWR) provides guidance for conducting general refuge operations, wildlife and habitat management, habitat enhancement and restoration, and visitor services. The CCP is intended to ensure that management actions are consistent with the purposes for which the refuge was established, the mandates of the Refuge System, and the refuges' goals and objectives. The purpose of this CCP is to describe the desired future conditions of Hopper Mountain NWR during over the next 15 years and provide guidance for achieving those conditions.

Hopper Mountain NWR is located in Ventura County, approximately 6 miles north of the community of Fillmore. This refuge was established in 1974 to protect the endangered California condor, its habitat, and other wildlife resources. Hopper Mountain NWR encompasses 2,471 contiguous acres.

The proposed project under the CCP includes continuing current refuge management practices already underway or currently funded at Hopper Mountain NWR. In addition, the following project activities would occur:

1. **Condor management support** – The U.S. Fish and Wildlife Service (Service) would expand condor monitoring, facilities, and coordination with neighbors. The Service would survey, map, and monitor condor roosts and expand remote population monitoring capabilities by providing an on-refuge remote telemetry station. The Service would also construct a new pole barn for equipment storage and replace unusable housing to increase temporary housing capacity for staff and volunteers by up to 8 individuals to a total capacity of up to 16. Coordination with regional neighbors would be expanded to promote natural foraging opportunities for condors and enhance foraging habitat. The Service would also seek to reduce the carbon footprint (emissions) from refuge operations.
2. **Wildlife and habitat management** – The Service would gather baseline data and conduct surveys for special status species, develop partnerships for research supporting refuge goals, implement more actions to enhance quality of grassland, riparian, southern California black walnut and oak woodland habitat for migratory and other birds and wildlife; implement more actions to prevent invasive plants and animals; develop an Integrated Pest Management Plan for early detection/rapid response; and for all habitat types, develop a Habitat Management Plan that considers climate change.
  - a. **Grassland:** The Service would use best management practices to reduce invasive plants, and use targeted grazing and prescribed fire to reduce fuel loads and manage habitat.
  - b. **Riparian:** The Service would develop an annual monitoring program; inventory springs; partner with and develop riparian management practices to share with oil and gas operators to protect riparian resources; replace the existing water control structure to improve adaptive management; manage water to improve wildlife value for special status species.
  - c. **Black walnut and oak woodland:** The Service would reduce fuel loads to sustain regeneration of woodlands and promote sustainable age class distribution.
3. **Visitor services** –The Service would develop a Visitor Services Plan, increase outreach and volunteer opportunities, update outreach materials, expand the refuge website, develop a refuge brochure and/or newsletter, coordinate with U.S. Forest Service on condor interpretation, offer at least 4 regular refuge tours annually, improve safety, and post the entire refuge boundary.

The Service would implement several best management practices (BMPs) to minimize impacts to special status species, as described in Attachment 1. For example, the following BMPs would be employed to protect special status species when threatened by proposed activities: 1) using an adaptive management approach, trails, roads, and/or areas would be closed to ensure that human access does not disturb special status species; and 2) prior to habitat and ground disturbing activities, potential habitat for special status species would be evaluated and, if appropriate, presence/absence surveys and additional mitigation measures taken (e.g., avoid location, change timing of action), if necessary, to ensure that planned activities do not disturb special status species. In addition, the Service would comply with all terms and conditions resulting from Section 7, Endangered Species Act consultation when specific projects are undertaken.

We concur with your determination that the proposed project may affect, but is not likely to adversely affect, the coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, California red-legged frog and California condor. We reached this conclusion because:

1. The protective measures listed in Appendix 1 would be implemented;
2. Vegetation control measures are currently implemented at the refuge and we believe they have not led to adverse effects to federally-listed species;
3. There are approximately 679 acres of coastal sage scrub on the refuge, the preferred habitat of the coastal California gnatcatcher. However, the coastal California gnatcatcher has never been documented onsite. The closest known population of the coastal California gnatcatcher is near the city of Moorpark, approximately 10 miles to the south. The species is also known to occur approximately 15 miles to the east, near the city of Santa Clarita. Because the coastal California gnatcatcher has never been documented on the refuge or in its vicinity, we believe it is unlikely that the coastal California gnatcatcher occurs onsite and adverse effects from the CCP are discountable;
4. The refuge supports a small, 1-acre fresh-water marsh which is surrounded by approximately 5 acres of willow-dominated wetlands (*Salix lasiolepis*). The wetlands cover less than 1% of the refuge land. Due to the small, isolated nature of the wetland, we believe it is unlikely the least Bell's vireo and southwestern willow flycatcher occur on the refuge. Adverse effects to the least Bell's vireo and southwestern willow flycatcher resulting from the implementation of the CCP are discountable;
5. The closest populations of the California red-legged frog are approximately 22 miles to the west in the Ventura River, approximately 20 miles to the east in the Santa Clara River, and 20 miles to the south at Ahmanson Ranch in Calabasas. Due to the isolated nature of the wetland on the refuge and because the species has not been documented onsite, we believe the California red-legged frog is currently absent from the refuge. However, during the implementation of the CCP, surveys would be conducted for the California red-legged frog on the refuge. Adverse effects to the California red-legged frog are resulting from the implementation of the CCP are discountable; and
6. Implementation of the CCP would result in beneficial effects to the California condor. Several enhanced condor management activities would be utilized to increase monitoring and survivorship, including: expanded population monitoring capabilities; mapping and protection of roost sites; upgrading support facilities and monitoring efforts (e.g., increase housing capacity to 16 residents); coordination with ranchers to allow condors to feed on natural livestock mortalities; enhanced volunteer programs and research; livestock grazing and ungulate management; and supporting research and monitoring efforts to identify and reduce the impacts to roost sites (e.g., insects, including such effects exacerbated by climate change) and foraging habitat (e.g., climate induced changes in habitat and ungulate population interactions). Such efforts would provide a long-term beneficial effect on condors and help achieve condor recovery goals.

This concludes informal consultation on the subject project pursuant to section 7(a)(2) of the Act. If the proposed action changes in any manner or if new information reveals the presence of listed species in the project area, we should be contacted immediately and all activities should be suspended until the appropriate level of consultation is completed. If you have any questions regarding this letter, please contact Colleen Mehlberg of my staff at (805) 644-1766, extension 221.

Attachment

## **Attachment 1: Best Management Practices**

Best Management Practices (BMPs) are designed to reduce adverse impacts to wildlife and plants and their critical habitats. BMPs shall be executed by all project coordinators. BMPs are listed by main project categories, but in practice, overlaps do exist among the categories.

### **General BMPs for all Project Categories:**

1. Follow all terms, conditions, and stipulations in regulatory permits and other official project authorizations to eliminate or reduce adverse effects to endangered, threatened, or sensitive species or their critical habitats.
2. Complete restoration activities at individual project sites in a timely manner. This will reduce disturbance and/or displacement of wildlife species in the immediate project area.
3. Modifications to an approved work plan must be reviewed and approved by appropriate agency personnel and the landowner(s) before the work can be carried out or continued.
4. Use existing roadways or travel paths for access to project sites.
5. Avoid the use of heavy equipment and techniques that will result in excessive soil disturbances or compaction of soils, especially on steep or unstable slopes.
6. Vehicles and machinery shall cross streams and drainages at right angles to the main channel whenever possible.
7. Excavation or transport equipment/machinery shall be limited in capacity but sufficiently sized to complete required restoration activities. Equipment and machinery coming in contact with water shall be inspected daily and cleaned of grease, oil, petroleum products, or other contaminants.
8. Streams, riparian zones, and wetlands shall not be used as staging or refueling areas. Equipment shall be stored, serviced, and fueled away from aquatic habitats or other sensitive areas.
9. Native vegetation shall be planted on disturbed sites in accordance with project specifications. Native vegetation shall be salvaged from areas where ground disturbances will be occurring on projects. Salvaged vegetation shall then be replanted after the completion of project activities. The use of non-native vegetation is prohibited. Vegetative planting techniques shall not cause major disturbances to soils and slopes. Hand planting is the preferred technique for all plantings. Plantings shall occur during the optimal seasonal period for the respective plant species involved. Planting site conditions shall be enhanced by bank sloping/grading, seedbed and site preparations, mulching, or fertilizing, as specified.
10. The sources of boulder and rock materials used for restoration projects shall be from non-streambed and non-wetland sources. Conifer and hardwood timber stands shall not be specifically harvested to supply woody materials for any restoration activity, unless the harvest is part of an approved silvicultural operation. Boulder, rock, and woody materials shall be collected during appropriate seasonal periods to reduce soil and slope disturbances.

11. A written contingency plan shall be developed for all project sites where hazardous materials (e.g., pesticides, herbicides, petroleum products) will be used or stored. Appropriate materials/supplies (e.g., shovel, disposal containers, absorbent materials, first aid supplies, clean water) shall be available on site to cleanup any small scale accidental hazardous spill. Hazardous spills shall be reported. Emergency response, removal, transport, and disposal of hazardous materials shall be done in accordance with the U.S. Environmental Protection Agency. Hazardous materials and petroleum products shall be stored in approved containers or chemical sheds and be located at least 100 feet from surface water in an area protected from runoff.

12. The evaluation of herbicide, pesticide, and fertilizer use shall include the accuracy of applications, effects on target and non-target species, and the potential impacts to aquatic and terrestrial ecosystems. Treatments for the control or removal of invasive plants in riparian/wetland areas shall be limited to hand or wick applications by qualified personnel. Apply chemicals during calm, dry weather and maintain unsprayed buffer areas near aquatic habitats and other sensitive areas. Chemical applications must be avoided where seasonal precipitation or excess irrigation water is likely to wash residual toxic substances into waterways. All chemicals shall be handled in strict accordance with label specifications. Proper personal protection (e.g., gloves, masks, clothing) shall be used by all applicators. Obtain a copy of the material safety data sheet (MSDS) from the chemical manufacturer for detailed information on each chemical to be used. Refer to appropriate federal and state regulations concerning the use of chemicals. Chemicals shall only be considered when other treatments would be ineffective or cannot be applied.

13. Sedimentation and erosion controls shall be implemented on all project sites where the implementation of restoration activities will result in soil and/or slope disturbances. Soil and slope stabilization control structures/techniques must be bio-engineered to the extent possible. Structures/techniques shall be placed and/or anchored appropriately to prevent adverse impacts to down slope habitats. Re-vegetate disturbed areas with native vegetation as soon as possible in accordance with project specifications. Control structures/techniques may include but are not limited to silt fences, hay bale structures, seeding by hand and hydro-seeding, jute mats, and coconut fiber logs. Contact the local state forester, state extension service agent, or Soil and Water Conservation District for information or assistance on control structures/techniques.

14. Staging and stockpile areas shall be located on or immediately beside the project area whenever possible. Sediment and erosion controls shall be implemented around all stockpiled material and disturbed project sites to prevent the introduction of pollutants into water sources. This will reduce the disturbance and displacement potential to wildlife in the surrounding areas.

15. Excess excavated materials removed during the completion of a restoration activity shall be disposed of properly and/or stabilized to eliminate future environmental problems. Salvage of boulders, rock, and fill material is encouraged for use on nearby roads or other projects. Vegetation not salvaged shall be removed to a county approved disposal site or chipped and composted off site to prevent spread of noxious weeds. If specific uses are not available for project spoils, they will be placed in upland areas and contoured, with the assistance of an environmental engineer, to blend into the surrounding landscape. Under no circumstances will disposal sites be located in riparian, wetland, or floodplain areas unless used for dike construction. Dike construction would take place only to 1) restore historic hydrology when modifications on adjacent ownerships prevent re-contouring or use of other methods to restore

the historic physical condition, or 2) prevent flooding of adjacent landowners' properties not involved in the project. Sedimentation and erosion controls shall be implemented to prevent adverse impacts to down slope habitats. Disposal sites should be re-vegetated with native vegetation as soon as possible.

16. Project coordinators shall ensure that all waste resulting from the completion of a project is removed and disposed of properly before work crews vacate the project site.

17. Structures containing concrete or wood preservatives shall be cured or dried before they are placed in streams, riparian zones, or wetlands. No wet concrete or runoff from cleaning tools that have wet concrete slurry or lye dust shall enter aquatic habitats. Runoff control measures shall be employed, such as hay bales and silt fences, until the risk of aquatic contamination has ended.

18. Monitoring is required during project implementation and for at least one year following project completion to ensure that restoration activities implemented at individual project sites are functioning as intended and do not create unintended consequences to fish, wildlife, and plant species and their critical habitats or adversely impact human health and safety. Corrective actions, as appropriate, shall be taken to address potential and existing adverse effects to fish, wildlife, and plants.

19. Brightly-colored construction fencing shall be installed around isolated special status plants to avoid disturbance.

20. An environmental education program shall be presented to all construction personnel to brief them on the status of the special status species and the penalty for not complying with these requirements.

21. To protect special status species when threatened by proposed activities the Service will conduct the following activities: 1) trails, roads, and/or areas will be closed to ensure that human access does not disturb special status species using an adaptive management process; 2) prior to habitat and ground disturbing activities, potential habitat for special status species will be evaluated and, if appropriate, presence/absence surveys and additional mitigation measures taken (e.g., avoid location, change timing of action), if necessary, to ensure that planned activities do not disturb special status species; and 3) the Service will comply with all terms and conditions resulting from Section 7, Endangered Species Act consultation when specific projects are undertaken.

#### **Riparian/Wetland and Upland/Woodland Restoration BMPs:**

22. Bank stabilizing vegetation removed or altered because of restoration activities shall be replanted with native vegetation and protected from further disturbance until new growth is well established. Native shrubs and trees from local ecotypes shall also be included in the reclamation of disturbed sites. Waste organic materials (e.g., discarded lumber, woody vegetation) shall not be used to stabilize soils and slopes in disturbed areas. Metal refuse or debris (e.g., petroleum containers, car bodies) shall not be used for streambank protection; this violates both state and federal regulations. Also, broken asphalt and tires shall not be used due to potential seepage of petroleum and other toxic chemicals. Concrete is not recommended for bank stabilization projects. In-stream materials (e.g., stream debris and gravels) shall not be used to replace or

restore eroded streambanks. Stabilization projects shall employ bioengineering methods to the greatest extent possible.

23. Sedimentation and erosion controls shall be implemented on site at all times during wetland restoration or creation activities to maintain the water quality of adjacent water sources.

24. Restoration activities that require prescribed burning of slash material or invasive vegetation shall be planned in coordination with the refuge manager and in accordance with the approved Fire Management Plan. Non-burning alternatives shall be considered whenever possible.

25. Slash materials shall be gathered by hand or with light machinery to reduce soil disturbances and compaction of soils. Avoid accumulating or spreading slash in upland draws, depressions, intermittent streams, and springs. Slash control and disposal activities shall be conducted in a way that reduces the occurrence of debris in streams. These practices will eliminate or reduce debris torrents, avalanches, flows, and slides.

26. Appropriate timber yarding system shall be used during silvicultural operations to eliminate or reduce soil disturbances and compaction of soils.

27. Snags shall be retained on project sites for cavity dependent wildlife species whenever possible.

28. If abandoned and decommissioned roadways are re-vegetated, native species propagated from on-site sources shall be used in accordance with the Habitat Management Plan. Ensure that drainage patterns on these roadways will not result in increased sedimentation rates or erosion to down slope habitats. Drainage improvements shall be constructed and stabilized before the rainy season. Water energy dissipaters (e.g., water-bars and rolling dips) shall be installed along roadways and on all cross drain outfalls. Excavated road materials shall not be side-cast or spread in upland draws, depressions, intermittent streams, wetlands, and springs.

29. Seedlings, cuttings, and other plant propagules shall be sourced from reputable suppliers or growers. Hardwood and conifer seedlings have specific storage, handling, and planting requirements different from seedlings. Seeds used to grow seedlings shall be collected on the restoration project site. Seedling competition shall be reduced by clearing grasses, forbs, and woody shrubs from around each seedling for a minimum distance of 3 feet. Appropriate methods shall be employed to protect seedlings from animal, insect, and environmental damages. Planted seedlings shall be periodically examined for damages and diseases. Contact your local state forester or extension service agent for additional information or assistance.

30. Retain the appropriate amount of down and decaying woody debris to provide for wildlife habitats and nutrient recycling. Project coordinators should be aware of potential wildfire hazards in project areas because of retained woody debris.

31. When necessary for invasive plant removal or habitat restoration, trees shall be felled away from streams, riparian zones, and wetlands whenever possible. Tree falling on steep slopes shall not be done or done in an appropriate manner to avoid damage to surrounding vegetation and soils. The proper yarding technique shall be employed on project sites to eliminate or reduce soil disturbances and compaction of soils.



32. Fence designs (e.g., wire type and wire spacing) and installations shall not restrict the movement of any wildlife species; the use of woven wire fences shall be subject to the approval of the refuge manager. The quality and durability of fencing materials shall meet or exceed the intended management objectives. Fences shall not be constructed in areas where natural barriers restrict livestock movements. Refer to the Bureau of Land Management fencing handbook (BLM 1989) for additional information.

33. Livestock crossings and off-channel livestock watering facilities shall not be located in areas where compaction and/or damage may occur to sensitive soils, slopes, or vegetation due to congregating livestock. If livestock fords across streams are rocked to stabilize soils/slopes and prevent erosion, material and location shall be subject to the approval of the refuge manager. Crushed rock shall not be used to stabilize fords. Fords shall be placed on bedrock or stable substrates whenever possible.

34. Silvicultural activities (e.g., herbicide treatment, thinning, and harvesting) shall be limited or restricted on steep slopes and highly erodible soils to prevent accelerated soil erosion and increased sedimentation rates.

35. Fill material used on project sites shall be from non-streambed and non-wetland sources that are free of fines. Deposition of materials shall not violate state or federal regulations, standards, or guidelines as set forth by local Soil and Water Conservation Districts, U.S. Army Corps of Engineers, or other regulatory agencies.

**Air Quality BMPs:**

36. All disturbed areas shall be effectively stabilized of dust emissions using water, approved chemical stabilizer/suppressant, tarp or other suitable cover or vegetative ground cover.

37. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions by applying water or by pre-soaking. 38. Following the addition of materials to or the removal of materials from the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions using sufficient water or approved chemical stabilizer/suppressant.

**INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM**

**Originating Person:** Sandy Osborn, Refuge Planning  
**Telephone Number:** (916) 414-6503  
**Date:** July 2013

- I. Region:** Pacific Southwest (Region 8)
- II. Service Activity (Program):** Bitter Creek and Blue Ridge NWRs, Draft Comprehensive Conservation Plan and Environmental Assessment (CCP/EA), March 2012.

**III. Pertinent Species and Habitat:**

- A. Listed species and/or their critical habitat with potential to occur within the action area:**

**Table 1. Threatened and Endangered Species List for Bitter Creek NWR.**

Threatened and Endangered Species in Kern, Ventura, and San Luis Obispo Counties					
TYPE	SCIENTIFIC NAME	COMMON NAME	CATEGORY	CRITICAL HABITAT PRESENT?	DOCUMENTED ON BCNWR?
<b>Plants</b>					
	<i>Caulanthus californicus</i>	California jewelflower	E	No	No
	<i>Eremalche kernensis</i>	Kern mallow	E	No	Yes
	<i>Monolopia congdonii</i>	San Joaquin woollythreads	E	No	No
<b>Invertebrates</b>					
	<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	T	No	No
	<i>Desmocerus californicus dimorphus</i>	valley elderberry longhorn beetle	T	No	No
	<i>Euproserpinus euterpe</i>	Kern primrose sphinx moth	T	No	No
<b>Birds</b>					
	<i>Gymnogyps californianus</i>	California condor	E	No	Yes
<b>Amphibians</b>					
	<i>Rana draytonii</i>	California red-legged frog	T	No	No
<b>Reptiles</b>					
	<i>Gambelia (=Crotaphytus) sila</i>	blunt-nosed leopard lizard	E	No	No
<b>Mammals</b>					
	<i>Dipodomys ingens</i>	giant kangaroo rat	E	No	No
	<i>Sorex ornatus relictus</i>	Buena Vista Lake shrew	E	No	No
	<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	E	No	Yes

**Table 2. Threatened and Endangered Species List for Blue Ridge NWR.**

Threatened and Endangered Species in Tulare County					
TYPE	SCIENTIFIC NAME	COMMON NAME	CATEGORY	CRITICAL HABITAT PRESENT?	DOCUMENTED ON BRNWR?
<b>Plants</b>					
	<i>Clarkia springvillensis</i>	Springville clarkia	T	No	No
<b>Invertebrates</b>					
	<i>Desmocerus californicus dimorphus</i>	valley elderberry longhorn beetle	T	No	No
<b>Fish</b>					
	<i>Hypomesus transpacificus</i>	delta smelt	T	No	No
<b>Birds</b>					
	<i>Gymnogyps californianus</i>	California condor	E	Yes	Yes
<b>Amphibians</b>					
	<i>Rana draytonii</i>	California red-legged frog	T	No	No
	<i>Rana muscosa</i> Northern CA DPS	mountain yellow-legged frog	PE	No <sup>1</sup>	No

DPS = Distinct Population Segment

<sup>1</sup>Proposed critical habitat for the northern DPS of mountain yellow-legged frog is outside Blue Ridge NWR.

**B. Proposed critical habitat within the action area: none**

**C. Candidate species within the action area.**

*Bitter Creek NWR:* none

*Blue Ridge NWR:* fisher (*Martes pennanti*) (C)

**D. Include species/habitat occurrence on a map.**

Bitter Creek NWR Threatened & Endangered Species Occurrence map is attached. Species occurrence is described below by refuge.

*1. Bitter Creek NWR:*

(a) Federally-listed species known to occur on Bitter Creek NWR.

(1) The Kern mallow (*E. parryi* subsp. *kernensis*) is known to occur on Bitter Creek NWR. Field surveys by USFWS staff and a local botanist found Kern mallow in Unit 11 (De Vries 2010) (see Threatened & Endangered Species Occurrence map attached). A collection of Kern mallow was found on a talus slope in Unit 11 at over 4,000 feet elevation (Voucher LG3918). Subsequent surveys conducted during 2010 resulted in the documentation of extensive populations of this species throughout Unit 11 in the California juniper woodland vegetation type (De Vries 2010). Focused surveys were also conducted in units 9, 10B, and 12, but Kern mallow was not found. Other refuge units have not had focused surveys. . Habitat for this species is present within all units of the refuge; therefore

Kern mallow has the potential to occur elsewhere on the refuge (De Vries 2010). Juniper woodland occurs primarily in Units 11, 6, and 7; with some juniper woodland extending from the northern boundary of Unit 11 into the southern portions of Unit 9 South.

(2) The California condor is known to occur on Bitter Creek NWR. Bitter Creek NWR has roosting and foraging habitat for the California condor. Maps of its occurrence may be obtained from the California Condor Recovery Program (CCRP).

(3) The San Joaquin kit fox is known to occur on Bitter Creek NWR. Bitter Creek NWR includes habitat for the San Joaquin kit fox (grassland and scrub land). Surveys and sightings from 1982 to 2013 have occasionally documented San Joaquin kit fox presence on the refuge (see Appendix D to the Final CCP/EA). Although kit fox have been documented on a relatively small portion of the refuge (see attached), the kit fox is associated with habitat that is more widespread on the refuge than the mapped observances. A 1994 USFWS study reported that San Joaquin kit fox were observed in 1988 and 1991 along Cerro Noroeste Road adjacent to Cliff Hudson's ranch (T10N, R23W, NW ¼ of NE ¼ of section 26). San Joaquin kit fox were observed at Spanish Spring (T10N, R23W) in 1992 and 1994. On March 6, 2013, a CCRP wildlife refuge specialist observed a San Joaquin kit fox on the far NW part of the refuge (see Threatened & Endangered Species Occurrence map attached).

(b) Federally-listed plants for which habitat occurs on Bitter Creek NWR, but the species have not been documented on the refuge are: endangered California jewelflower and San Joaquin woollythreads. Focused surveys for California jewelflower (*Caulanthus californicus*) and San Joaquin woollythreads (*Monolopia [=Lembertia] congdonii*), were conducted in the western portion of the refuge in Units 9, 10B, and 12 at elevations below approximately 3,500 feet using meandering transects. In 2010, these surveys were conducted on March 17 in portions of Unit 2; March 30 in Unit 12; March 24, April 6 and April 8 in Unit 10B; and on March 30 in Unit 9. Reference populations of California jewelflower and San Joaquin woollythreads at the Carrizo Plains National Monument were visited on March 12 and April 6, 2010; both of these species were in flower at the time of the reference population visits. Flowering period for California jewelflower and San Joaquin woollythreads is approximately February to April (De Vries 2010).

(1) California jewelflower was not observed during the 2009 and 2010 focused surveys of Units 9, 10B, and 12 of Bitter Creek NWR (De Vries 2010). Remaining units of the refuge have not been surveyed. Marginally suitable habitat is present within the refuge in grassland vegetation types at lower elevations in Bitter Creek Canyon in Unit 2; this area was not included in the focused surveys conducted in 2009 as the canyons could not be accessed during the time that this species was known to be in flower, and only a small portion of this area could be accessed during 2010 surveys. California jewelflower has limited potential to occur within the refuge in these lower canyon areas (De Vries 2010) of Unit 2 at Bitter Creek NWR.

(2) San Joaquin woollythreads was not observed during the 2009 and 2010 focused surveys of Units 9, 10B, and 12 of Bitter Creek NWR (De Vries 2010). Remaining units of the refuge have not been surveyed. Marginally suitable habitat is present within the refuge in grassland vegetation types at lower elevations in Bitter Creek Canyon in Unit 2; this area

was not included in the focused surveys in 2009 as the canyons could not be accessed during the time that this species was known to be in flower. Only a small portion of this area could be accessed during the appropriate flowering period in 2010. San Joaquin woollythreads has limited potential to occur within the refuge in these areas (De Vries 2010). In the refuge vicinity, San Joaquin woolly-threads is known from the Carrizo Plain approximately 10 miles northwest of the refuge (UCJEPS 2009).

(c) Federally-listed animals for which habitat occurs on Bitter Creek NWR, but the species have not been documented on the refuge are: the threatened Kern primrose sphinx moth, and the endangered blunt-nosed leopard lizard and giant kangaroo rat.

(1) Kern primrose sphinx moth. The Kern primrose sphinx moth may occur on Bitter Creek, especially on the lower drainages flowing north toward the central valley (Pers. comm. P. Jump). However, this moth may not be seen in surveys in any given year. The Service's 5-year review of the species recommends conducting surveys of suitable habitat for the Kern primrose sphinx moth in and around the Carrizo Plain and the Cuyama Valley that has not yet been extensively surveyed for the moth's presence. These areas should be surveyed coinciding with the Kern primrose sphinx moth flight period to determine presence/absence (USFWS 2007). Surveys would be needed to determine if the Kern primrose sphinx moth is present at Bitter Creek NWR.

(2) Blunt-nosed leopard lizard. Habitat exists for this species at the lower elevations of the refuge, closest to the San Joaquin Valley floor. There is one CNDDDB record for the blunt-nosed leopard lizard within 1 mile of the SW corner of Bitter Creek NWR (CDFW 2013). The record is from 1974. The species has not been observed on the refuge. Surveys would be needed to determine if the blunt-nosed leopard lizard is present at Bitter Creek NWR.

(3) Giant kangaroo rat. Habitat exists for this species at the lower elevations of the refuge, closest to the San Joaquin Valley floor. There are no records of the species' occurrence on the refuge. Surveys would be needed to determine if the giant kangaroo rat is present at Bitter Creek NWR.

(d) Federally-listed animals for which there may be habitat, but it is outside the known range of the species, and the species have not been documented at Bitter Creek NWR are: threatened valley elderberry longhorn beetle and vernal pool fairy shrimp, and the threatened California red-legged frog.

(1) Valley elderberry longhorn beetle (beetle). According to the 1984 Recovery Plan for the beetle, it feeds on at least one species of elderberry (*Sambucus*) and perhaps as many as three elderberry taxa. *S. glauca*, *S. caerulea*, and *S. Mexicana* may all be foodplants of the beetle (USFWS 1984). *Sambucus nigra* subsp. *caerulea* is present on Bitter Creek NWR (refuge plant lists are provided in Appendix E to the Final CCP/EA).

There are approximately 12 acres of riparian forest and riparian scrub on Bitter Creek NWR. Since the time of listing in 1980, surveys have identified approximately 190 locations of the beetle ranging from Shasta County south to Fresno County in the San Joaquin Valley (Barr 1991). Although records exist for Kern County (CDFG 2006), no specimens or observations of living beetles exist that support the assertion that the species

is found there (Talley et al. 2006). The CNDDDB has no record of the beetle occurring in the Ballinger and Santiago Creek quadrangles (where the refuge is located) and the closest documented occurrences are about 75 miles northwest of the refuge (CDFW 2013). Based on the range of the species, the beetle is unlikely to occur on Bitter Creek NWR. Surveys would be needed to determine if the Valley elderberry longhorn beetle is present at Bitter Creek NWR.

(2) Vernal pool fairy shrimp. Vernal pools, habitat for the vernal pool fairy shrimp, have not been found on Bitter Creek NWR during vegetation inventories. There are no recorded locations of this listed species at Bitter Creek NWR. The CNDDDB has no record of the vernal pool fairy shrimp occurring in the Ballinger and Santiago Creek quadrangles (where the refuge is located) (CDFW 2013). Based on the range of the species, the vernal pool fairy shrimp is not expected to occur on the refuge. Surveys would be needed to determine if the vernal pool fairy shrimp or its habitat are present at Bitter Creek NWR.

(3) California red-legged frog. There are no California Natural Diversity Database (CNDDDB) records of California red-legged frog found at Bitter Creek NWR and the closest documented occurrence is approximately 30 miles away (CDFW 2013). Therefore, the California red-legged frog is unlikely to occur at Bitter Creek NWR. Surveys would be needed to determine if the California red-legged frog or its habitat are present at Bitter Creek NWR.

(e) Federally-listed animals for which there is no habitat on Bitter Creek NWR. Species that are not expected to occur on the refuge based on their range and lack of habitat are: endangered Buena Vista Lake shrew.

## 2. *Blue Ridge NWR*:

(a) Federally-listed species known to occur on Blue Ridge NWR.

(1) The California condor is known to occur on Blue Ridge NWR. Blue Ridge NWR lands are within the Blue Ridge condor area in Tulare County and are designated as critical habitat for the California condor. Maps of its occurrence may be obtained from the California Condor Recovery Program (CCRP). Currently, Blue Ridge receives very infrequent use by the California condor (estimated at 1-2 days a year, if any).

(b) Federally-listed plant for which habitat occurs on Blue Ridge NWR, but the species has not been documented at the refuge is: threatened Springville clarkia.

(1) Springville clarkia. Elevations at Blue Ridge NWR range from 3,860 to 5,600 feet. According to the 5-year review of the Springville clarkia (USFWS 2009), this plant now occurs mostly on uphill slopes of road banks, on small decomposing granite domes, and in sunny openings between 1,080 and 4,000 feet within the blue oak (*Quercus douglasii*) woodland community (CNDDDB 2009). During the 2011 field work for vegetation mapping of the refuge, no blue oak or blue oak woodland community was found at Blue Ridge NWR. Because blue oak woodland is not present at Blue Ridge NWR, the Springville clarkia is not expected to occur on the refuge, however focused surveys would be needed to determine if Springville clarkia is present on Blue Ridge NWR.

(c) Federally-listed animals for which habitat occurs on Blue Ridge NWR, but the species has not been documented at the refuge are: threatened valley elderberry longhorn beetle (VELB).

(1) Valley elderberry longhorn beetle. *Sambucus nigra* subsp. *caerulea*, which may be a foodplant for the beetle, is present on Blue Ridge NWR (refuge plant lists are provided in Appendix E to the Final CCP/EA). It is not known whether the beetle or its emergence holes are present in the elderberry(s) at Blue Ridge NWR. At the time the Recovery Plan (USFWS 2006) was written, the valley elderberry longhorn beetle was known to occur in Sacramento, Yolo, Solano, and Merced Counties. Since listing, the beetle has been found from Shasta County south to Fresno County in the San Joaquin Valley (Barr 1991). Blue Ridge NWR supports several small riparian areas and wetlands, which may support elderberries. The CNDDDB has no record of the beetle occurring in the Dennison Peak quadrangle (where the refuge is located) and the closest documented occurrences are about 15 miles from the refuge (CDFW 2013). Surveys would be needed to determine if the Valley elderberry longhorn beetle is present on Blue Ridge NWR.

(d) Federally-listed animals for which there may be habitat, but the species have not been documented at Blue Ridge NWR are: threatened California red-legged frog.

(2) California red-legged frog. There are no CNDDDB records of California red-legged frog at Blue Ridge NWR and the nearest documented occurrence is about 85 miles southwest in the Temblor Range on the other side of the San Joaquin Valley (CDFW 2013). The Recovery Plan for the California red-legged frog states that they also frequently breed in artificial impoundments such as stock ponds. Some stock ponds support frogs despite a lack of emergent vegetation cover and the presence of non-native predators (N. Scott and G. Rathbun in litt. 1998). In the southern portion of the refuge, at least one spring has been documented, which has created a small wetland area dominated by rush. This wetland is a narrow channel that stretches for 100 yards or more, but is below tree cover and is too small to be identified in aerial photography. At the southern portion of the refuge, there is a small man-made pond (less than ¼-acre) and an associated small wetland area. Surveys would be needed to determine if the California red-legged frog or its habitat are present at Blue Ridge NWR.

(e) Federally-listed and proposed listed species for which there is no habitat on Blue Ridge NWR. Species that are not expected to occur on the refuge based on their range and lack of habitat are: the threatened delta smelt and proposed endangered mountain yellow-legged frog northern DPS.

(1) Delta smelt. There is no habitat for the delta smelt at Blue Ridge NWR and the proposed project activities would not affect water quality or quantity flowing into the Sacramento-San Joaquin Delta.

(2) Mountain yellow-legged frog, northern DPS. The listed entity is the southern Distinct Population Segment (DPS) of the *Rana muscosa* species; federally-listed as endangered. The northern DPS of the mountain yellow-legged frog is proposed for listing as endangered. Blue Ridge NWR is not included in the proposed critical habitat for the northern DPS or the critical habitat for the southern DPS. Because the mountain yellow-

legged frog seems to be absent from the smallest creeks, probably because these have insufficient depth for adequate refuge and overwintering habitat (Jennings and Hayes 1994), it is not expected to inhabit the small ephemeral drainages and small man-made pond at Blue Ridge NWR.

See section VIII, C., below, for informal conferencing on the Candidate species fisher (*Martes pennanti*).

Species occurrence is also discussed in the Final CCP, Chapter 3, Special Status Species sections for Bitter Creek and Blue Ridge NWRs. Vegetation/Landcover maps are included in the 2012 Draft CCP/EA and 2013 Final CCP/EA (Chapter 3).

**IV. Geographic area or station name and action:**

Station - Bitter Creek and Blue Ridge NWRs

Action - implementing the Comprehensive Conservation Plan (CCP)

**V. Location (attach map):**

Please see page 3 of the March 2012 Draft CCP.

**A. Ecoregion Number and Name:**

*Bitter Creek NWR*: Ecoregions 3 and 4, Central Valley/San Francisco Bay and Southern California Ecoregions.

*Blue Ridge NWR*: Ecoregion 3, Central Valley/San Francisco Bay Ecoregion.

**B. County and State:**

*Bitter Creek NWR*: Kern, Ventura, and San Luis Obispo Counties, California.

*Blue Ridge NWR*: Tulare County, California.

**C. Section, township and range (or latitude and longitude): -**

**D. Distance (miles) and direction to nearest town:**

*Bitter Creek NWR*: approximately 80 miles north of Los Angeles and approximately 10 miles southwest of Maricopa.

*Blue Ridge NWR*: approximately 11 miles north of Springville and approximately 17 miles northeast of Porterville.

**E. Species/habitat occurrence:**

*Bitter Creek NWR*: pages 58-73 of the March 2012 Draft CCP; see also section III. D., above, and the Threatened & Endangered Species Occurrence map (attached).

*Blue Ridge NWR*: pages 87-90 of the March 2012 Draft CCP.

**VI. Description of proposed action (attach additional pages as needed):**

*Bitter Creek NWR*: Draft CCP, Chapter 4, pages 95-96, and 112-132. For a partial list of major actions, see also Draft CCP, Chapter 5, pages 139-140.

We may implement grazing within approximately 3 years of CCP approval on refuge units that have already had focused surveys conducted for federally-listed plants: Units 9 West, 9 Central, and 9 South, 10B, and 12. Prior to initiating habitat modification actions



in Bitter Creek NWR management units that have not been previously surveyed (see III. D., above), focused plant surveys will be conducted to document presence/absence of federally-listed plants in each unit. If federally listed plants are found during surveys, the plants would be excluded from prescribed livestock grazing.

*Blue Ridge NWR*: Draft CCP, Chapter 4, pages 96, and 132-156. For a partial list of major actions, see also Draft CCP, Chapter 5, page 141.

## VII. Determination of effects:

### A. Explanation of effects of the action on species and critical habitats in items III. A, B, and C (attach additional pages as needed):

1. *Bitter Creek NWR*: Appendix B – Final EA (pages 63-74, Effects on the Bitter Creek NWR Biological Environment (Vegetation, Wildlife Resources, Special Status Species sections).

(a) California jewelflower, Kern mallow, and San Joaquin woollythreads. There is no empirical evidence of positive or negative effects of livestock grazing on these plants, however, Appendix 2 (attached) provides a summary of a 2012 literature review (USFWS 2013).

(b) Vernal pool fairy shrimp, Valley elderberry longhorn beetle, and Kern primrose sphinx moth. Management activities at Bitter Creek NWR that may affect the vernal pool fairy shrimp include surveying for these species and monitoring the effects of prescribed livestock grazing. In one Central Valley study site, grazing helped maintain aquatic diversity in vernal pools by increasing the pool ponding period, possibly due to soil compaction (Marty 2005). Although Bitter Creek NWR lies outside of the Valley counties where the Valley elderberry longhorn beetle has been found, management activities at Bitter Creek NWR will avoid and protect the elderberry foodplant for the Valley elderberry longhorn beetle. No elderberries will be removed. Management activities that may affect the Kern primrose sphinx moth include prescribed grazing and fencing.

To avoid, minimize, and reduce adverse impacts to special status species, best management practices (Appendix 1) would be implemented with CCP actions. For example, using an adaptive management approach, trails, roads, and/or areas would be closed to ensure that human access does not disturb special status species (if present); and 2) prior to habitat and ground disturbing activities, potential habitat for special status species would be evaluated and, if appropriate, presence/absence surveys and additional mitigation measures taken (e.g., avoid location, change timing of action), if necessary, to ensure that planned activities do not adversely affect special status species.

(c) California condor. Implementation of the CCP would result in beneficial effects to the California condor. At Bitter Creek and Blue Ridge NWRs several enhanced condor management activities would be utilized to increase condor monitoring and survivorship

including: providing sites for a remote telemetry station, surveying and mapping existing and historical roost sites, evaluating and monitoring threats to condor roost sites, minimizing human disturbance near condor roosting areas, and quantifying and maintaining current quantity and quality of condor foraging habitat. Management efforts at Bitter Creek and Blue Ridge NWR would provide a long-term beneficial effect on condors and help achieve condor recovery goals.

(d) California red-legged frog. Management activities at Bitter Creek NWR that may affect the California red-legged frog (if present) include fencing to protect riparian areas from the effects of prescribed cattle grazing and tamarisk removal. Water control structures will also be reduced and modified to restore natural flows. If the species occurs on the refuge, with implementation of best management practices (Appendix 1), disturbance to the species is expected to be of short-duration, temporary, and localized.

(e) Blunt-nosed leopard lizard. Adaptively managing suitable areas of Bitter Creek NWR to provide short grass vegetation with low RDM could improve habitat blunt-nosed leopard lizard. Management practices similar to and compatible with those used by BLM on the Carrizo Plain National Monument (NM) (neighboring the refuge to the northwest) will be implemented at Bitter Creek NWR to support San Joaquin Valley special status species. As at Carrizo Plain NM, to achieve a desired resource objective, it may be necessary to modify vegetation abundance, distribution, composition, and/or structure. The choice of whether to apply a vegetation management tool, or which tool to use, is based on existing conditions, the physical and biological processes at the site, the species targeted, the desired outcome, the type and influence of impacts, and the funding available. Following adaptive management practices such as these, efforts will be made so that the tool employed achieves the desired habitat objective, with a minimum of adverse effects to other resources.

Mowing around facilities and annual disking of 20-foot wide fire breaks along both sides of the public roads that bisect the refuge could adversely affect the blunt-nosed leopard lizard or its habitat, if present. In addition to the BMPs in Appendix 1, mowing will be done when temperatures are below 77 degrees Fahrenheit, when the species is inactive. Annual disking of fire breaks (20-foot wide) along Cerro Noroeste Road and Highway 33 has the potential to adversely affect blunt-nosed leopard lizard and its habitat. However, the frequency of past disturbance on the fire break, which appears in aerial imagery since at least 1994, decreased the likelihood that the species would inhabit the fire breaks. In addition, the disked fire break is intended to reduce the potential of wildfire from human-caused ignition sources along the roads, which would adversely affect lizard and other habitat. If the species occurs on the refuge, with implementation of the best management practices (Appendix 1), disturbance to the species is expected to be of short-duration, temporary, and localized.

(f) Giant kangaroo rat and San Joaquin kit fox. In the long term, management measures to enhance and restore mosaic grassland habitat through prescribed grazing may result in long-term positive benefits to special status species that utilize grassland areas, to the extent that these measures achieve stated objectives (Final EA page 71). The blunt-nosed leopard lizard and giant kangaroo rat can benefit from the openings in the vegetation

created during prescribed grazing (USFWS 1998). Enclosures would also be used to prevent grazing and destruction of shrub habitat important to prey species utilized by San Joaquin kit fox (USFWS 1998). If the species occurs on the refuge, with implementation of best management practices (Appendix 1), disturbance to the species is expected to be of short-duration, temporary, and localized.

2. *Blue Ridge NWR*: Appendix B – Final EA, (pages 86-90, Effects on the Blue Ridge NWR Biological Environment (Vegetation, Wildlife Resources, Special Status Species sections).

(a) Springville clarkia. Management activities at Blue Ridge NWR that may affect the Springville clarkia (if present) include ground disturbing activity associated with prescribed burning along the wildland urban interface and roads, vegetation thinning, some condor habitat management activities, invasive species control measures, and improvements to support opening existing roads and trails to public use. Implementation of the CCP includes surveys for the Springville clarkia. Best management practices discussed in Appendix 1 would reduce potential effects to non-target vegetation, resulting in short-term, localized adverse effects to the vegetation being removed or treated.

(b) Valley elderberry longhorn beetle. Although Blue Ridge NWR lies outside of the Valley counties where the beetle has been found, management activities at Blue Ridge NWR will avoid and protect the elderberry foodplant for the Valley elderberry longhorn beetle. No elderberries will be removed. Best management practices discussed in Appendix 1 would reduce potential effects to non-target vegetation, resulting in short-term, localized adverse effects to the vegetation being removed or treated.

(c) California condor. Critical habitat for the California condor occurs on the Blue Ridge NWR. The proposed actions are expected to maintain and enhance roosting habitat for the California condor over the long-term. See description of effects on California condor under Bitter Creek NWR (in this section, above).

(d) California red-legged frog. Management activities at Blue Ridge NWR that may affect the California red-legged frog (if present) include ground disturbing activity associated with prescribed burning along the wildland urban interface and roads, vegetation thinning, some condor habitat management activities, invasive species control measures, and improvements to support opening existing roads and trails to public use. These activities may result in short-term, localized increases in soil erosion and turbidity of surface water runoff, which could potentially affect intermittent streams and off-site receiving streams, and the man-made stock pond. Implementation of the CCP includes surveys for the California red-legged frog. Soil erosion control and water quality protection measures discussed in Appendix 1 would reduce potential effects to water quality, resulting in short-term, localized adverse effects to water quality.

**B. Explanation of actions to be implemented to reduce adverse effects:**

Best Management Practices - Appendix 1 to Appendix B – Draft EA (attached).

**VIII. Effect Determination and response requested: [\* = optional]**

**A. Listed species/designated critical habitat:**

<u>Determination</u>	<u>Response Requested</u>
<b>no effect</b>	
<i>Bitter Creek NWR:</i>	
Buena Vista Lake shrew ( <i>Sorex ornatus relictus</i> ) (E)	___ <b>Concurrence</b>

<u>Determination</u>	<u>Response Requested</u>
<b>may affect, but is not likely to adversely effect</b>	
<i>Bitter Creek NWR:</i>	
California jewelflower ( <i>Caulanthus californicus</i> ) (E)	___ <b>Concurrence</b>
Kern mallow ( <i>Eremalche kernensis</i> ) (E)	___ <b>Concurrence</b>
San Joaquin woollythreads ( <i>Monolopia congdonii</i> ) (E)	___ <b>Concurrence</b>
Vernal pool fairy shrimp ( <i>Branchinecta lynchi</i> ) (T)	___ <b>Concurrence</b>
Valley elderberry longhorn beetle ( <i>Desmocerus californicus dimorphus</i> ) (T)	___ <b>Concurrence</b>
California condor ( <i>Gymnogyps californianus</i> ) (E)	___ <b>Concurrence</b>
California red-legged frog ( <i>Rana draytonii</i> ) (T)	___ <b>Concurrence</b>
Blunt-nosed leopard lizard ( <i>Gambelia (=Crotaphytus) sila</i> ) (E)	___ <b>Concurrence</b>
Giant kangaroo rat ( <i>Dipodomys ingens</i> ) (E)	___ <b>Concurrence</b>
San Joaquin kit fox ( <i>Vulpes macrotis mutica</i> ) (E)	___ <b>Concurrence</b>
Kern primrose sphinx moth ( <i>Euproserpinus euterpe</i> ) (T)	___ <b>Concurrence</b>

<i>Blue Ridge NWR:</i>	
Springville clarkia ( <i>Clarkia springvillensis</i> ) (T)	___ <b>Concurrence</b>
Valley elderberry longhorn beetle ( <i>Desmocerus californicus dimorphus</i> ) (T)	___ <b>Concurrence</b>
California condor ( <i>Gymnogyps californianus</i> ) (E)	___ <b>Concurrence</b>
California red-legged frog ( <i>Rana draytonii</i> ) (T)	___ <b>Concurrence</b>

**B. Proposed species/proposed critical habitat:**

<u>Determination</u>	<u>Response Requested</u>
<b>no effect on proposed species</b>	
<i>Blue Ridge NWR:</i>	
Mountain yellow-legged frog ( <i>Rana muscosa</i> ) northern California DPS (PE)	___ <b>*Concurrence</b>

**C. Candidate species:**

Pursuant to FWS policy on intra-Service section 7 compliance, species that are candidates for listing are treated as if they are proposed for listing. Species proposed for listing are subject to the conferencing provision of the ESA [7(a) (4)]. Therefore, if the

lead FWS office or division determines that its proposed action may affect a candidate species, that agency, in informal conference with the appropriate ES office, must determine whether the action will jeopardize the continued existence of the species. If, during informal conferencing, the lead FWS office (division) determines that the action will not jeopardize the species, that determination is documented in a conference report. No further conference or consultation on those candidate species is required. For the purposes of this action (implementation of the CCP), the information provided in the Draft CCP/EA as part of this biological evaluation will serve as a conference report for the candidate species that may occur in the project area (i.e., Blue Ridge NWR).

Although the Blue Ridge NWR contains black oak forest and mixed conifer forest that is suitable fisher (*Martes pennanti*) habitat, the fisher has not been detected on the Blue Ridge NWR and the refuge is outside of the range of potential fisher habitat modeled in the California Wildlife Habitat Relationships (CWHR) program (CDFG 2010) and other studies modeling fisher habitat (Davis et al 2007). Future actions that may affect the fisher include fuel management actions and recreational opportunities for visitors. Implementing the CCP will require conducting presence/absence surveys for the fisher, and if fisher are detected on the refuge then further strategies will be developed to minimize activities in areas occupied by fisher. Ongoing strategies listed within the CCP that will protect the fisher and its habitat include: (1) protecting tree snags, (2) partnering to monitor potential forest pests to reduce the risk of stand-replacing wildfire, (3) and enhancing late-seral forest habitat characteristics. Although the remoteness and difficulty in accessing the Blue Ridge NWR limits potential visitor use, the refuge will only establish interpretive hiking trails on existing roads, trails, and fire roads to avoid further habitat fragmentation and human activity that may disturb fisher. Because the potential for fisher to occur on the Blue Ridge NWR is low and management strategies will avoid and minimize potential impacts to any fisher potentially using the refuge, it is not likely that activities on the refuge will adversely impact fisher or its habitat. Therefore, implementation of the CCP will not jeopardize the continued existence of the species.

### Determination

#### No jeopardy

Blue Ridge NWR:  
Fisher (*Martes pennanti*) (C)

  
signature

8/23/13  
date

**Michael Brady, Project Leader, Hopper Mountain NWR Complex**

## IX. References:

- Barr, C.B. 1991. The distribution, habitat and status of the valley elderberry longhorn beetle, *Desmocerus californicus dimorphus*. U.S. Fish and Wildlife Service, Sacramento, CA.
- California Department of Fish and Game (CDFG). 2006. California Natural Diversity Database (CNDDDB). Sacramento, California. Available at: <http://www.dfg.ca.gov/whdab/html/cnddb.html>.
- California Department of Fish and Game (CDFG). 2010. A status review of the fisher (*Martes pennanti*) in California. Report to the Fish and Game Commission, February 2010. xvi +104 pp. + app.
- California Department of Fish and Wildlife (CDFW). 2013. California Natural Diversity Database (CNDDDB). Sacramento, California. Accessed on July 29, 2013, at: <http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>
- Davis, F. W., C. Seo, and W. J. Zielinski. 2007. Regional variation in home-range-scale habitat models for fisher (*Martes pennanti*) in California. *Ecological Applications* 17(8): 2195–2213
- De Vries, P. 2010. [Results of the 2010 Reconnaissance and Focused Plant Surveys on the Bitter Creek National Wildlife Refuge, Kern and Ventura Counties, California.] Bitter Creek NWR Botanical Assessment, November 23, 2010. Memo to Mike Stockton, Bitter Creek NWR, c/o Hopper Mountain NWR Complex, Ventura, CA.
- Jennings, M.R., and M.P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova. 255 pages.
- Marty, J. 2005. Effects of cattle grazing on diversity in ephemeral wetlands. *Conservation Biology* 19:1626-1632
- Mazer, S.J., and B.A. Hendrickson. 1993. Demography, ecology, and reproductive biology of California jewelflower (*Caulanthus californicus*): Brassicaceae). California Department of Fish and Game, Sacramento, Unpubl. Rep., 113 p.
- Scott, N. and G. Rathbun. 1998. Essays provided to Ina Pisani in response to a working draft of California red-legged frog recovery plan.
- U.S. Fish and Wildlife Service (USFWS). 1984. Valley Elderberry Longhorn Beetle Recovery Plan. U.S. Fish and Wildlife Service, Portland, OR. 62 pp.
- USFWS. 1998. Recovery plan for upland species of the San Joaquin Valley, California. Region 1, Portland, Oregon.
- USFWS. 2002. Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, Oregon. viii + 173 pp.

USFWS. 2006. Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*), 5-Year Review: Summary and Evaluation. September 2006. Sacramento Fish and Wildlife Field Office. Sacramento, CA.

USFWS. 2007. Kern primrose sphinx moth (*Euproserpinus euterpe*), 5-Year Review: Summary and Evaluation. September 2007. Sacramento Fish and Wildlife Field Office. Sacramento, CA.

USFWS. 2009. *Clarkia springvillensis* (Springville Clarkia). 5-Year Review: Summary and Evaluation. September 2007. Sacramento Fish and Wildlife Field Office. Sacramento, CA.

USFWS. 2012. Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges, Draft Comprehensive Conservation Plan/Environmental Assessment (CCP/EA). March. Prepared by Hopper Mountain National Wildlife Refuge Complex, Ventura, CA and Pacific Southwest Region, Sacramento, CA.

USFWS. 2013. Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges, Final Comprehensive Conservation Plan/Environmental Assessment (CCP/EA). Prepared by Hopper Mountain National Wildlife Refuge Complex, Ventura, CA and Pacific Southwest Region, Sacramento, CA.

University of California, Berkeley, Jepson Herbarium (UCJEPS). 2009. Consortium of California Herbaria (Data provided by the participants of the Consortium of California Herbaria). available online at <http://ucjeps.berkeley.edu/consortium/>. Accessed Spring 2009 through Summer 2010.

## **APPENDIX 1: Best Management Practices**

Best Management Practices (BMPs) are designed to reduce adverse impacts to wildlife and plants and their critical habitats. BMPs shall be executed by all project coordinators. BMPs are listed by main project categories, but in practice, overlaps do exist among the categories.

### **General BMPs for all Project Categories:**

1. Follow all terms, conditions, and stipulations in regulatory permits and other official project authorizations to eliminate or reduce adverse effects to endangered, threatened, or sensitive species or their critical habitats.
2. Complete restoration activities at individual project sites in a timely manner. This will reduce disturbance and/or displacement of wildlife species in the immediate project area.
3. Modifications to an approved work plan must be reviewed and approved by appropriate agency personnel and the landowner(s) before the work can be carried out or continued.
4. Use existing roadways or travel paths for access to project sites.
5. Avoid the use of heavy equipment and techniques that will result in excessive soil disturbances or compaction of soils, especially on steep or unstable slopes.
6. Vehicles and machinery shall cross streams and drainages at right angles to the main channel whenever possible.
7. Excavation or transport equipment/machinery shall be limited in capacity but sufficiently sized to complete required restoration activities. Equipment and machinery coming in contact with water shall be inspected daily and cleaned of grease, oil, petroleum products, or other contaminants.
8. Streams, riparian zones, and wetlands shall not be used as staging or refueling areas. Equipment shall be stored, serviced, and fueled away from aquatic habitats or other sensitive areas.
9. Native vegetation shall be planted on disturbed sites in accordance with project specifications. Native vegetation shall be salvaged from areas where ground disturbances will be occurring on projects. Salvaged vegetation shall then be replanted after the completion of project activities. The use of non-native vegetation is prohibited. Restoration planting techniques shall not cause major disturbances to soils and slopes. Hand planting is the preferred technique for all plantings. Plantings shall occur during the optimal seasonal period for the respective plant species involved. Planting site conditions shall be enhanced by bank sloping/grading, seedbed and site preparations, mulching, or fertilizing, as specified.
10. The sources of boulder and rock materials used for restoration projects shall be from non-streambed and non-wetland sources. Conifer and hardwood timber stands shall not be specifically harvested to supply woody materials for any restoration activity, unless the harvest is part of an approved silvicultural operation. Boulder, rock, and woody materials shall be collected during appropriate seasonal periods to reduce soil and slope disturbances.
11. A written contingency plan shall be developed for all project sites where hazardous materials (e.g., pesticides, herbicides, petroleum products) will be used or stored. Appropriate materials/supplies (e.g., shovel, disposal containers, absorbent materials, first aid supplies, clean water) shall be available on site



to cleanup any small scale accidental hazardous spill. Hazardous spills shall be reported. Emergency response, removal, transport, and disposal of hazardous materials shall be done in accordance with the U.S. Environmental Protection Agency. Hazardous materials and petroleum products shall be stored in approved containers or chemical sheds and be located at least 100 feet from surface water in an area protected from runoff.

12. The evaluation of herbicide, pesticide, and fertilizer use shall include the accuracy of applications, effects on target and non-target species, and the potential impacts to aquatic and terrestrial ecosystems. Treatments for the control or removal of invasive plants in riparian/wetland areas shall be limited to hand or wick applications by qualified personnel. Apply chemicals during calm, dry weather and maintain unsprayed buffer areas near aquatic habitats and other sensitive areas. Chemical applications must be avoided where seasonal precipitation or excess irrigation water is likely to wash residual toxic substances into waterways. All chemicals shall be handled in strict accordance with label specifications. Proper personal protection (e.g., gloves, masks, clothing) shall be used by all applicators. Obtain a copy of the material safety data sheet (MSDS) from the chemical manufacturer for detailed information on each chemical to be used. Refer to appropriate federal and state regulations concerning the use of chemicals. Chemicals shall only be considered when other treatments would be ineffective or cannot be applied.

13. Sedimentation and erosion controls shall be implemented on all project sites where the implementation of restoration activities will result in soil and/or slope disturbances. Soil and slope stabilization control structures/techniques must be bio-engineered to the extent possible. Structures/techniques shall be placed and/or anchored appropriately to prevent adverse impacts to down slope habitats. Re-vegetate disturbed areas with native vegetation as soon as possible in accordance with project specifications. Control structures/techniques may include but are not limited to silt fences, hay bale structures, seeding by hand and hydro-seeding, jute mats, and coconut fiber logs. Contact the local state forester, state extension service agent, or Soil and Water Conservation District for information or assistance on control structures/techniques.

14. Staging and stockpile areas shall be located on or immediately beside the project area whenever possible. Sediment and erosion controls shall be implemented around all stockpiled material and disturbed project sites to prevent the introduction of pollutants into water sources. This will reduce the disturbance and displacement potential to wildlife in the surrounding areas.

15. Excess excavated materials removed during the completion of a restoration activity shall be disposed of properly and/or stabilized to eliminate future environmental problems. Salvage of boulders, rock, and fill material is encouraged for use on nearby roads or other projects. Vegetation not salvaged shall be removed to a county approved disposal site or chipped and composted off site to prevent spread of noxious weeds. If specific uses are not available for project spoils, they will be placed in upland areas and contoured, with the assistance of an environmental engineer, to blend into the surrounding landscape. Under no circumstances will disposal sites be located in riparian, wetland, or floodplain areas unless used for dike construction. Dike construction would take place only to 1) restore historic hydrology when modifications on adjacent ownerships prevent re-contouring or use of other methods to restore the historic physical condition, or 2) prevent flooding of adjacent landowners' properties not involved in the project. Sedimentation and erosion controls shall be implemented to prevent adverse impacts to down slope habitats. Disposal sites should be re-vegetated with native vegetation as soon as possible.

16. Project coordinators shall ensure that all waste resulting from the completion of a project is removed and disposed of properly before work crews vacate the project site.

17. Structures containing concrete or wood preservatives shall be cured or dried before they are placed in streams, riparian zones, or wetlands. No wet concrete or runoff from cleaning tools that have wet concrete

slurry or lye dust shall enter aquatic habitats. Runoff control measures shall be employed, such as hay bales and silt fences, until the risk of aquatic contamination has ended.

18. Monitoring is required during project implementation and for at least one year following project completion to ensure that restoration activities implemented at individual project sites are functioning as intended and do not create unintended consequences to fish, wildlife, and plant species and their critical habitats or adversely impact human health and safety. Corrective actions, as appropriate, shall be taken to address potential and existing adverse effects to fish, wildlife, and plants.

19. Brightly-colored construction fencing shall be installed around isolated special status plants to avoid disturbance.

20. An environmental education program shall be presented to all construction personnel to brief them on the status of the special status species and the penalty for not complying with these requirements.

21. To protect special status species when threatened by proposed activities the Service will conduct the following activities: 1) trails, roads, and/or areas will be closed to ensure that human access does not disturb special status species using an adaptive management process; 2) prior to habitat and ground disturbing activities, potential habitat for special status species will be evaluated and, if appropriate, presence/absence surveys and additional mitigation measures taken (e.g., avoid location, change timing of action), if necessary, to ensure that planned activities do not disturb special status species; and 3) the Service will comply with all terms and conditions resulting from Section 7, Endangered Species Act consultation when specific projects are undertaken.

#### **Riparian/Wetland and Upland/Woodland Restoration BMPs:**

22. Bank stabilizing vegetation removed or altered because of restoration activities shall be replanted with native vegetation and protected from further disturbance until new growth is well established. Native shrubs and trees from local ecotypes shall also be included in the reclamation of disturbed sites. Waste organic materials (e.g., discarded lumber, woody vegetation) shall not be used to stabilize soils and slopes in disturbed areas. Metal refuse or debris (e.g., petroleum containers, car bodies) shall not be used for streambank protection; this violates both state and federal regulations. Also, broken asphalt and tires shall not be used due to potential seepage of petroleum and other toxic chemicals. Concrete is not recommended for bank stabilization projects. In-stream materials (e.g., stream debris and gravels) shall not be used to replace or restore eroded streambanks. Stabilization projects shall employ bioengineering methods to the greatest extent possible.

23. Sedimentation and erosion controls shall be implemented on site at all times during wetland restoration or creation activities to maintain the water quality of adjacent water sources.

24. Restoration activities that require prescribed burning of slash material or invasive vegetation shall be planned in coordination with the refuge manager and in accordance with the approved Fire Management Plan. Non-burning alternatives shall be considered whenever possible.

25. Slash materials shall be gathered by hand or with light machinery to reduce soil disturbances and compaction of soils. Avoid accumulating or spreading slash in upland draws, depressions, intermittent streams, and springs. Slash control and disposal activities shall be conducted in a way that reduces the occurrence of debris in streams. These practices will eliminate or reduce debris torrents, avalanches, flows, and slides.

26. Appropriate timber yarding system shall be used during silvicultural operations to eliminate or reduce

soil disturbances and compaction of soils.

27. Snags shall be retained on project sites for cavity dependent wildlife species whenever possible.

28. If abandoned and decommissioned roadways are re-vegetated, native species propagated from on-site sources shall be used in accordance with the Habitat Management Plan. Ensure that drainage patterns on these roadways will not result in increased sedimentation rates or erosion to down slope habitats. Drainage improvements shall be constructed and stabilized before the rainy season. Water energy dissipaters (e.g., water-bars and rolling dips) shall be installed along roadways and on all cross drain outfalls. Excavated road materials shall not be side-cast or spread in upland draws, depressions, intermittent streams, wetlands, and springs.

29. Seedlings, cuttings, and other plant propagules shall be sourced from reputable suppliers or growers. Hardwood and conifer seedlings have specific storage, handling, and planting requirements different from seedlings. Seeds used to grow seedlings shall be collected on the restoration project site. Seedling competition shall be reduced by clearing grasses, forbs, and woody shrubs from around each seedling for a minimum distance of 3 feet. Appropriate methods shall be employed to protect seedlings from animal, insect, and environmental damages. Planted seedlings shall be periodically examined for damages and diseases. Contact your local state forester or extension service agent for additional information or assistance.

30. Retain the appropriate amount of down and decaying woody debris to provide for wildlife habitats and nutrient recycling. Project coordinators should be aware of potential wildfire hazards in project areas because of retained woody debris.

31. When necessary for invasive plant removal or habitat restoration, trees shall be felled away from streams, riparian zones, and wetlands whenever possible. Tree falling on steep slopes shall not be done or done in an appropriate manner to avoid damage to surrounding vegetation and soils. The proper yarding technique shall be employed on project sites to eliminate or reduce soil disturbances and compaction.

32. Fence designs (e.g., wire type and wire spacing) and installations shall not restrict the movement of any wildlife species; the use of woven wire fences shall be subject to the approval of the refuge manager. The quality and durability of fencing materials shall meet or exceed the intended management objectives. Fences shall not be constructed in areas where natural barriers restrict livestock movements. Refer to the Bureau of Land Management fencing handbook (BLM 1989) for additional information.

33. Livestock crossings and off-channel livestock watering facilities shall not be located in areas where compaction and/or damage may occur to sensitive soils, slopes, or vegetation due to congregating livestock. If livestock fords across streams are rocked to stabilize soils/slopes and prevent erosion, material and location shall be subject to the approval of the refuge manager. Crushed rock shall not be used to stabilize fords. Fords shall be placed on bedrock or stable substrates whenever possible.

34. Silvicultural activities (e.g., herbicide treatment, thinning, and harvesting) shall be limited or restricted on steep slopes and highly erodible soils to prevent accelerated soil erosion and increased sedimentation rates.

35. Fill material used on project sites shall be from non-streambed and non-wetland sources that are free of fines. Deposition of materials shall not violate state or federal regulations, standards, or guidelines as set forth by local Soil and Water Conservation Districts, U.S. Army Corps of Engineers, or other regulatory agencies.

**Air Quality BMPs:**

36. All disturbed areas shall be effectively stabilized of dust emissions using water, approved chemical stabilizer/suppressant, tarp or other suitable cover or vegetation ground cover.

37. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions by applying water or by pre-soaking.

38. Following the addition of materials to or the removal of materials from the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions using sufficient water or approved chemical stabilizer/suppressant.

## APPENDIX 2: Listed plants that may occur on Bitter Creek NWR and potential effects of grazing.

Species	Habitat <sup>1</sup>	Potential Effects of Livestock Grazing and Associated Threats	Potential Effects Comparative Rating	Source, Type and Quality of Information Available
<i>Caulanthus californicus</i> (California jewelflower) (E)	Chenopod scrub, pinyon and juniper woodland (below 3,280 ft., dry plains and slopes)	Grazing during certain growth stages is believed to be detrimental (Mazer and Hendrickson 1993). <sup>2</sup> CNPS lists grazing as a threat to this species. <sup>1</sup>	-2 (probably adverse)	Experimental, scientific, or management report based on multi-year monitoring program
<i>Eremalche parryi</i> subsp. <i>kernensis</i> (Kern mallow) (E)	Chenopod scrub, valley and foothill grassland	Light grazing may have positive effects on seedling establishment and plant survival, but grazing may also reduce reproductive potential of individual plants. <sup>2</sup> CNPS lists grazing as a serious threat to this species. <sup>1</sup>	+2 (probably beneficial if not excessive)/ -1 (possibly adverse)	Experimental, scientific, or management report based on multi-year monitoring program
<i>Monolopia</i> (=Lembertia) <i>congdonii</i> (San Joaquin woolly-threads) (E)	Chenopod scrub, valley and foothill grassland (sandy)	Seedlings did well under winter/spring grazing and clipping on two of three sites in a one-year study. Grazing during flowering may be detrimental to reproduction. <sup>2</sup> CNPS lists grazing and trampling as serious threats to this species. <sup>1</sup>	+2 (probably beneficial if not excessive)/ -2 (probably adverse)	Detailed descriptive data, management report based on short-term monitoring program

<sup>1</sup> California Native Plant Society (2012). Inventory of rare and endangered plants, v7-06d 10-03-06. Accessed online August 2012 and April 2013 (<http://www.rareplants.cnps.org>).

<sup>2</sup> U.S. Fish and Wildlife Service (USFWS 1998).

FE: Federally-listed as endangered; Potential effects of livestock grazing: +3= Beneficial if not excessive; +2= Probably beneficial if not excessive; +1= Possibly beneficial if not excessive; 0= Neutral; -1=Possibly adverse; -2= Probably adverse; -3=Adverse. Source: UC Berkeley, Range Ecology Lab.



In Reply Refer to:  
FWS/R8/AES

## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Pacific Southwest Region  
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SEP 06 2013

### Memorandum

To: Chief, Refuge Planning, Region 8  
Sacramento, California

From: Michael Fris, Assistant Regional Director, Ecological Services, Region 8

Subject: Intra-Service Informal Section 7 Consultation, Draft Comprehensive Conservation Plan, Bitter Creek National Wildlife Refuge in Kern, San Luis Obispo, and Ventura Counties; and Blue Ridge National Wildlife Refuge, Tulare County (FWS/R8/80230)

We have reviewed your request dated July 24, 2013, for our concurrence that the subject project on the Bitter Creek National Wildlife Refuge (NWR) and Blue Ridge NWR may affect but is not likely to adversely affect the following species and critical habitat. Your request and our response are made pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et seq.).

#### **Bitter Creek NWR:**

California jewelflower (*Caulanthus californicus*) (E)  
Kern mallow (*Eremalche kernensis*) (E)  
San Joaquin woollythreads (*Monolopia congdonii*) (E)  
Vernal pool fairy shrimp (*Branchinecta lynchi*) (T)  
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (T)  
Kern primrose sphinx moth (*Euproserpinus euterpe*) (T)  
California condor (*Gymnogyps californianus*) (E)  
California red-legged frog (*Rana draytonii*) (T)  
Blunt-nosed leopard lizard (*Gambelia (=Crotaphytus) sila*) (E)  
Giant kangaroo rat (*Dipodomys ingens*) (E)  
San Joaquin kit fox (*Vulpes macrotis mutica*) (E)

**Blue Ridge NWR:**

- Springville clarkia (*Clarkia springvillensis*) (T)
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (T)
- California condor (*Gymnogyps californianus*) (E)
- California condor critical habitat
- California red-legged frog (*Rana draytonii*) (T)

The development of a Comprehensive Conservation Plan (CCP) for the Bitter Creek and Blue Ridge NWRs provides guidance for conducting general refuge operations, wildlife and habitat management, habitat enhancement and restoration, and visitor services. The CCP is intended to ensure that management actions are consistent with refuge purposes, goals and objectives, and other refuge mandates of the Refuge System. The purpose of the CCP is to describe the desired future conditions of Bitter Creek and Blue Ridge NWRs during the next 15 years and provide guidance for achieving those conditions.

Both NWRs are in California. Bitter Creek NWR was established in 1985 and includes 14,097 acres, primarily in Kern County and extending into San Luis Obispo and Ventura Counties. Blue Ridge NWR was established in 1982 and includes 897 acres in Tulare County in the foothills of the Sierra Nevada Mountains. These two refuges of the Hopper Mountain NWR Complex in southern California were created under the authority of the Act, primarily to restore the California condor population to its native range.

The proposed project under the CCP includes continuing refuge management practices already underway or currently funded at Bitter Creek and Blue Ridge NWRs. Project activities include condor management support, wildlife and habitat management (including prescribed grazing and vegetation control) and expansion of visitor services. We reviewed information on the details of the project activities in the March 2012 *Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges, Draft Comprehensive Conservation Plan and Environmental Assessment*.

**Minimization measures for both refuges:**

For both Bitter Creek and Blue Ridge NWRs, the Service would implement several best management practices (BMPs) to minimize impacts to special status species (including proposed and listed species), as described in Appendix 1. For example, the following BMPs would be employed to protect special status species when threatened by proposed activities: 1) using an adaptive management approach, trails, roads, and/or areas would be closed to ensure that human access does not disturb special status species; and 2) prior to habitat and ground disturbing activities, potential habitat for special status species would be evaluated and, if appropriate, presence/absence surveys and additional minimization measures taken (e.g., avoid location, change timing of action), if necessary to ensure that planned activities do not disturb special status species. In addition, some actions may require project-level section 7 consultation if it is determined that the project may affect proposed or listed species or critical habitat. This could occur if there are project-specific effects that are not addressed by the BMPs in Appendix 1. If applicable, the Service would propose and implement additional measures to avoid and minimize those effects and comply with all terms and conditions resulting from section 7 consultations when specific projects are undertaken.

**Concurrence:**

We have reviewed the July 2013 *Intra-Service Section 7 Biological Evaluation Form* for the proposed project. We concur with your determination that the proposed project may affect, but is not likely to adversely affect the species and critical habitat listed on pages 1 and 2 of this memorandum.

We concur with your determination because:

1. The protective measures listed in Appendix 1 would be implemented.
2. Vegetation control measures are currently implemented at Bitter Creek and Blue Ridge NWRs, and we believe they have not adversely affected federally listed species or critical habitat. For both refuges, when herbicides or pesticides are used, the Service follows standard BMPs, adheres to all EPA application requirements, and follows the Service's Pesticide Use Proposal (PUP) process regulations. If listed species or critical habitat may be affected by herbicide or pesticide use, the NWR completes a separate section 7 consultation on that action.
3. The following species-specific measures will be implemented:

**Federally-listed plants:**

- For all listed plants on units at Bitter Creek and Blue Ridge NWRs for which focused surveys have been conducted and the species was not detected, we concur that those species are not likely to occur on those Refuge Units and therefore, are not likely to be adversely affected by project activities on those units. Prior to initiating project activities, such as prescribed grazing or vegetation control measures, focused plant surveys will be conducted on management units that have not been previously surveyed, to document the status of federally-listed plants in the fenced unit. Refuge units with prescribed grazing or vegetation control measures will be monitored for federally listed plants. If focused surveys or monitoring finds listed plants on a Refuge unit, the Refuge Manager will remove grazing or modify vegetation control measures to protect the listed plants.

**Federally listed animals:**

- Vernal pool fairy shrimp are not currently known to occur on the Bitter Creek NWR. Plant surveys conducted throughout Bitter Creek NWR between March 2009 and October 2010 (De Vries 2009 and De Vries 2010) and vegetation mapping by the Service for the CCP during 2009 and 2010 did not detect vernal pools at Bitter Creek NWR. Because the species or its habitat have not been documented onsite, we believe the vernal pool fairy shrimp is currently absent from the refuge. However, during implementation of the CCP, surveys will be conducted for vernal pools and listed species on Bitter Creek NWR, and if listed species are found, those vernal pools will be avoided.
- The California Natural Diversity Database has no records of the Valley elderberry



longhorn beetle (beetle) at either refuge (CDFW 2013). *Sambucus nigra* subsp. *caerulea*, (elderberry; the beetle's host plant) is present at both NWRs. It is not known whether the beetle or emergence holes are present in the elderberries. Prior to any project activities in riparian habitats, those habitats will be surveyed for elderberry. If elderberry is found, the shrubs will be marked and avoided.

- The host plant for the threatened Kern primrose sphinx moth, contorted suncup (*Camissonia contorta*), has been observed on Bitter Creek NWR. Project activities include conducting surveys for special status species, including Kern primrose sphinx moth in the saltbush scrub plant community (in the northeastern portion of the refuge). If surveys discover the moth or the contorted suncup, the plants will be marked and protected from disturbance.
- California condor occurs at both refuges; critical habitat for the California condor occurs on the Blue Ridge NWR. Implementation of the proposed project would result in beneficial effects to the California condor. At Bitter Creek NWR, several enhanced condor management activities would be utilized to increase condor monitoring and survivorship, including: provide a site for a remote telemetry station, adding 1,000-square-foot condor treatment facility, enhance condor foraging and roosting habitat, improve condor predator management, upgrading support facilities and monitoring efforts (e.g., increase housing capacity to up to 9 residents); coordination with ranchers to allow condors to feed on natural livestock mortalities and with hunters about leaving non-lead carcasses or gut piles in the field; enhanced volunteer programs and research; prescribed livestock grazing and ungulate management; and supporting research and monitoring efforts to identify and reduce the impacts to roost sites (e.g., including such effects exacerbated by climate change) and foraging habitat (e.g., climate induced changes in habitat and ungulate population interactions).

At Blue Ridge NWR several enhanced condor management activities would be utilized to increase condor monitoring, including: provide a site for a remote telemetry station, survey and map existing and historical roost sites on the refuge, evaluate and monitor threats to condor roost sites, minimize human disturbance near condor roosting areas, and quantify and maintain current quantity and quality of condor foraging habitat. Such efforts at Bitter Creek and Blue Ridge NWRs would provide long-term, wholly beneficial effects on condors and help achieve condor recovery goals.

- Blue Ridge NWR lands are within the Blue Ridge condor area in Tulare County and are designated as critical habitat for the California condor. Maintaining and enhancing roosting habitat for the condor over the long-term helps achieve the Recovery Strategy 3.32 of the California Condor Recovery Plan to protect known roosting sites on public lands (Service 1996). Management activities at Blue Ridge NWR that will benefit condor critical habitat include: implementing a Fire Management Plan that focuses on natural fire regimes; selective thinning operations and understory prescribed burns to develop old-growth characteristics in the mixed conifer forests and reducing the risks of catastrophic fire that could adversely affect roost trees; integrated pest management for

invasive plants; and coordinating with US Forest Service to use their pest insect monitoring on the refuge. Vegetation control measures at Blue Ridge NWR include periodic thinning of understory vegetation and pile burning in accordance with the approved Fire Management Plan, to conserve and improve the roosting habitat quality at the refuge. Interpretive hiking trails would be designated along existing roads, trails or fire roads, separated from roost trees by steep, rugged, and brushy terrain to minimize and avoid human disturbance to roost trees. Because of the measures to avoid disturbing roost trees, any effects to condor critical habitat are expected to be discountable.

- Based on its range and lack of habitat, the California red-legged frog is not expected to occur on Bitter Creek NWR. California red-legged frog surveys will be done in accordance with revised guidance on field surveys for the California red-legged frog (Service 2005). Other actions include fencing to protect riparian areas and modifications to water control structures to restore some natural flows, which may benefit this species if it occurs in the area. If California red-legged frog is found, work in these areas will stop or be reduced to avoid harming the frog. With implementation of the surveys and BMPs, effects to this species resulting from the proposed project at Bitter Creek NWR are discountable.

At Blue Ridge NWR, there may be adequate habitat for the California red-legged frog, though no occurrence records exist. Besides assessing the water sources and flow regimes for the riparian habitats, project activities are not expected to disturb riparian and wetland areas that may provide habitat for the frog at Blue Ridge NWR. Surveys will be conducted at Blue Ridge NWR in accordance with survey guidance for this species (Service 2005). With implementation of the California red-legged frog surveys and BMPs, effects to this species resulting from the implementation of the CCP at Blue Ridge NWR are discountable.

- Management activities such as grazing at Bitter Creek NWR are expected to improve potential habitat quality for the blunt-nosed leopard lizard. In addition to the BMPs in Appendix 1, mowing will be done when temperatures are below 77 degrees Fahrenheit, when the blunt-nosed leopard lizard is inactive. Annual disking of fire breaks (20-foot wide) along Cerro Noroeste Road and Highway 33 has the potential to adversely affect blunt-nosed leopard lizard and its habitat. However, the frequency of past disturbance on the fire break, which appears in aerial imagery since at least 1994, decreased the likelihood that the species would inhabit the fire breaks. In addition, the disked fire break is intended to reduce the potential of wildfire from human-caused ignition sources along the public roads, which would adversely affect lizard and other wildlife habitat. With implementation of the BMPs, adverse effects to this species resulting from project activities at Bitter Creek NWR are discountable.
- Habitat modifications such as providing increased short grass cover, are likely to improve the habitat quality for the giant kangaroo rat. Any mechanical vegetation management activities will occur during the daytime, when giant kangaroo rats are expected to be in

their burrows and would not be exposed to the disturbance. With implementation of the BMPs, adverse effects to this species resulting from project activities are discountable.

- Efforts to reduce the height of grasslands are expected to improve San Joaquin kit fox habitat. Any mechanical vegetation management activities will occur during the daytime, when San Joaquin kit foxes are expected to be in their dens and would not be exposed to the disturbance. With implementation of the BMPs, adverse effects to this species resulting from project activities are discountable.

This concludes informal consultation on the subject project pursuant to section 7(a)(2) of the Act. If the proposed action changes in any manner or if new information reveals the presence of listed species in the project area, we should be contacted immediately and all activities should be suspended until the appropriate level of consultation is completed. If you have any questions regarding this letter, please contact Jana Affonso of my staff at 916-414-6593.

Attachment

cc:

Field Supervisor, Ventura Fish and Wildlife Office  
Field Supervisor, Sacramento Fish and Wildlife Office  
Brady (Hopper Mountain NWR Complex)

References:

California Department of Fish and Wildlife (CDFW). 2013. California Natural Diversity Database (CNDDDB). Sacramento, California. Accessed on July 29, 2013, at: <http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>

De Vries, P. 2009. [Results of the 2009] Reconnaissance and Focused Plant Surveys on the Bitter Creek National Wildlife Refuge, Kern and Ventura Counties, California. Internal report to the U.S. Fish & Wildlife Service. [Report dated July 3, 2009; revised as to the plant Compendium (Appendix B in the Report) on March 17, 2010.]

De Vries, P. 2010. [Results of the 2010 Reconnaissance and Focused Plant Surveys on the Bitter Creek National Wildlife Refuge, Kern and Ventura Counties, California.] Bitter Creek NWR Botanical Assessment, November 23, 2010. Memo to Mike Stockton, Bitter Creek NWR, c/o Hopper Mountain NWR Complex, Ventura, CA.

U.S. Fish and Wildlife Service (Service). 1996. Recovery Plan for the California Condor, Third Revision. Region 1, Portland, Oregon. 62pp.

U.S. Fish and Wildlife Service. 2005. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog. August 2005.

U.S. Fish and Wildlife Service. 2011. Buena Vista Lake Orate Shrew (*Sorex ornatus relictus*). 5-Year Review: Summary and Evaluation. September 2011. Sacramento Fish and Wildlife Office, Sacramento, CA.

U.S. Fish and Wildlife Service. 2012. Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges, Draft Comprehensive Conservation Plan/Environmental Assessment (CCP/EA). Prepared by Hopper Mountain National Wildlife Refuge Complex, Ventura, CA and Pacific Southwest Region, Sacramento, CA.

Personal Communications:

Jump, Peter M. 2012. Dr. Peter Jump, entomological consultant. May 22, 2012, personal communication to Elizabeth L. Painter, Ph.D. Included in the Draft CCP/EA (Service 2012).

# APPENDIX 1: Best Management Practices

Best Management Practices (BMPs) are designed to reduce adverse impacts to wildlife and plants and their critical habitats. BMPs shall be executed by all project coordinators. BMPs are listed by main project categories, but in practice, overlaps do exist among the categories.

## General BMPs for all Project Categories:

1. Follow all terms, conditions, and stipulations in regulatory permits and other official project authorizations to eliminate or reduce adverse effects to endangered, threatened, or sensitive species or their critical habitats.
2. Complete restoration activities at individual project sites in a timely manner. This will reduce disturbance and/or displacement of wildlife species in the immediate project area.
3. Modifications to an approved work plan must be reviewed and approved by appropriate agency personnel and the landowner(s) before the work can be carried out or continued.
4. Use existing roadways or travel paths for access to project sites.
5. Avoid the use of heavy equipment and techniques that will result in excessive soil disturbances or compaction of soils, especially on steep or unstable slopes.
6. Vehicles and machinery shall cross streams and drainages at right angles to the main channel whenever possible.
7. Excavation or transport equipment/machinery shall be limited in capacity but sufficiently sized to complete required restoration activities. Equipment and machinery coming in contact with water shall be inspected daily and cleaned of grease, oil, petroleum products, or other contaminants.
8. Streams, riparian zones, and wetlands shall not be used as staging or refueling areas. Equipment shall be stored, serviced, and fueled away from aquatic habitats or other sensitive areas.
9. Native vegetation shall be planted on disturbed sites in accordance with project specifications. Native vegetation shall be salvaged from areas where ground disturbances will be occurring on projects. Salvaged vegetation shall then be replanted after the completion of project activities. The use of non-native vegetation is prohibited. Restoration planting techniques shall not cause major disturbances to soils and slopes. Hand planting is the preferred technique for all plantings. Plantings shall occur during the optimal seasonal period for the respective plant species involved. Planting site conditions shall be enhanced by bank sloping/grading, seedbed and site preparations, mulching, or fertilizing, as specified.
10. The sources of boulder and rock materials used for restoration projects shall be from non-streambed and non-wetland sources. Conifer and hardwood timber stands shall not be specifically harvested to supply woody materials for any restoration activity, unless the harvest is part of an approved silvicultural operation. Boulder, rock, and woody materials shall be collected during appropriate seasonal periods to reduce soil and slope disturbances.

11. A written contingency plan shall be developed for all project sites where hazardous materials (e.g., pesticides, herbicides, petroleum products) will be used or stored. Appropriate materials/supplies (e.g., shovel, disposal containers, absorbent materials, first aid supplies, clean water) shall be available on site to cleanup any small scale accidental hazardous spill. Hazardous spills shall be reported. Emergency response, removal, transport, and disposal of hazardous materials shall be done in accordance with the U.S. Environmental Protection Agency. Hazardous materials and petroleum products shall be stored in approved containers or chemical sheds and be located at least 100 feet from surface water in an area protected from runoff.

12. The evaluation of herbicide, pesticide, and fertilizer use shall include the accuracy of applications, effects on target and non-target species, and the potential impacts to aquatic and terrestrial ecosystems. Treatments for the control or removal of invasive plants in riparian/wetland areas shall be limited to hand or wick applications by qualified personnel. Apply chemicals during calm, dry weather and maintain unsprayed buffer areas near aquatic habitats and other sensitive areas. Chemical applications must be avoided where seasonal precipitation or excess irrigation water is likely to wash residual toxic substances into waterways. All chemicals shall be handled in strict accordance with label specifications. Proper personal protection (e.g., gloves, masks, clothing) shall be used by all applicators. Obtain a copy of the material safety data sheet (MSDS) from the chemical manufacturer for detailed information on each chemical to be used. Refer to appropriate federal and state regulations concerning the use of chemicals. Chemicals shall only be considered when other treatments would be ineffective or cannot be applied.

13. Sedimentation and erosion controls shall be implemented on all project sites where the implementation of restoration activities will result in soil and/or slope disturbances. Soil and slope stabilization control structures/techniques must be bio-engineered to the extent possible. Structures/techniques shall be placed and/or anchored appropriately to prevent adverse impacts to down slope habitats. Re-vegetate disturbed areas with native vegetation as soon as possible in accordance with project specifications. Control structures/techniques may include but are not limited to silt fences, hay bale structures, seeding by hand and hydro-seeding, jute mats, and coconut fiber logs. Contact the local state forester, state extension service agent, or Soil and Water Conservation District for information or assistance on control structures/techniques.

14. Staging and stockpile areas shall be located on or immediately beside the project area whenever possible. Sediment and erosion controls shall be implemented around all stockpiled material and disturbed project sites to prevent the introduction of pollutants into water sources. This will reduce the disturbance and displacement potential to wildlife in the surrounding areas.

15. Excess excavated materials removed during the completion of a restoration activity shall be disposed of properly and/or stabilized to eliminate future environmental problems. Salvage of boulders, rock, and fill material is encouraged for use on nearby roads or other projects. Vegetation not salvaged shall be removed to a county approved disposal site or chipped and composted off site to prevent spread of noxious weeds. If specific uses are not available for project spoils, they will be placed in upland areas and contoured, with the assistance of an environmental engineer, to blend into the surrounding landscape. Under no circumstances will disposal sites be located in riparian, wetland, or floodplain areas unless used for dike construction. Dike construction would take place only to 1) restore historic hydrology when modifications on adjacent ownerships prevent re-contouring or use of other methods to restore

the historic physical condition or 2) prevent flooding of adjacent landowners' properties not involved in the project. Sedimentation and erosion controls shall be implemented to prevent adverse impacts to down slope habitats. Disposal sites should be re-vegetated with native vegetation as soon as possible.

16. Project coordinators shall ensure that all waste resulting from the completion of a project is removed and disposed of properly before work crews vacate the project site.

17. Structures containing concrete or wood preservatives shall be cured or dried before they are placed in streams, riparian zones, or wetlands. No wet concrete or runoff from cleaning tools that have wet concrete slurry or lye dust shall enter aquatic habitats. Runoff control measures shall be employed, such as hay bales and silt fences, until the risk of aquatic contamination has ended.

18. Monitoring is required during project implementation and for at least one year following project completion to ensure that restoration activities implemented at individual project sites are functioning as intended and do not create unintended consequences to fish, wildlife, and plant species and their critical habitats or adversely impact human health and safety. Corrective actions, as appropriate, shall be taken to address potential and existing adverse effects to fish, wildlife, and plants.

19. Brightly-colored construction fencing shall be installed around isolated special status plants to avoid disturbance.

20. An environmental education program shall be presented to all construction personnel to brief them on the status of the special status species and the penalty for not complying with these requirements.

21. To protect special status species when threatened by proposed activities the Service will conduct the following activities: 1) trails, roads, and/or areas will be closed to ensure that human access does not disturb special status species using an adaptive management process; 2) prior to habitat and ground disturbing activities, potential habitat for special status species will be evaluated and, if appropriate, presence/absence surveys and additional mitigation measures taken (e.g., avoid location, change timing of action), if necessary, to ensure that planned activities do not disturb special status species; and 3) the Service will comply with all terms and conditions resulting from Section 7, Endangered Species Act consultation when specific projects are undertaken.

#### **Riparian/Wetland and Upland/Woodland Restoration BMPs:**

22. Bank stabilizing vegetation removed or altered because of restoration activities shall be replanted with native vegetation and protected from further disturbance until new growth is well established. Native shrubs and trees from local ecotypes shall also be included in the reclamation of disturbed sites. Waste organic materials (e.g., discarded lumber, woody vegetation) shall not be used to stabilize soils and slopes in disturbed areas. Metal refuse or debris (e.g., petroleum containers, car bodies) shall not be used for streambank protection; this violates both state and federal regulations. Also, broken asphalt and tires shall not be used due to potential seepage of petroleum and other toxic chemicals. Concrete is not recommended for bank stabilization projects. In-stream materials (e.g., stream debris and gravels) shall not be used to replace or

restore eroded streambanks. Stabilization projects shall employ bioengineering methods to the greatest extent possible.

23. Sedimentation and erosion controls shall be implemented on site at all times during wetland restoration or creation activities to maintain the water quality of adjacent water sources.

24. Restoration activities that require prescribed burning of slash material or invasive vegetation shall be planned in coordination with the refuge manager and in accordance with the approved Fire Management Plan. Non-burning alternatives shall be considered whenever possible.

25. Slash materials shall be gathered by hand or with light machinery to reduce soil disturbances and compaction of soils. Avoid accumulating or spreading slash in upland draws, depressions, intermittent streams, and springs. Slash control and disposal activities shall be conducted in a way that reduces the occurrence of debris in streams. These practices will eliminate or reduce debris torrents, avalanches, flows, and slides.

26. Appropriate timber yarding system shall be used during silvicultural operations to eliminate or reduce soil disturbances and compaction of soils.

27. Snags shall be retained on project sites for cavity dependent wildlife species whenever possible.

28. If abandoned and decommissioned roadways are re-vegetated, native species propagated from on-site sources shall be used in accordance with the Habitat Management Plan. Ensure that drainage patterns on these roadways will not result in increased sedimentation rates or erosion to down slope habitats. Drainage improvements shall be constructed and stabilized before the rainy season. Water energy dissipaters (e.g., water-bars and rolling dips) shall be installed along roadways and on all cross drain outfalls. Excavated road materials shall not be side-cast or spread in upland draws, depressions, intermittent streams, wetlands, and springs.

29. Seedlings, cuttings, and other plant propagules shall be sourced from reputable suppliers or growers. Hardwood and conifer seedlings have specific storage, handling, and planting requirements different from seedlings. Seeds used to grow seedlings shall be collected on the restoration project site. Seedling competition shall be reduced by clearing grasses, forbs, and woody shrubs from around each seedling for a minimum distance of 3 feet. Appropriate methods shall be employed to protect seedlings from animal, insect, and environmental damages. Planted seedlings shall be periodically examined for damages and diseases. Contact your local state forester or extension service agent for additional information or assistance.

30. Retain the appropriate amount of down and decaying woody debris to provide for wildlife habitats and nutrient recycling. Project coordinators should be aware of potential wildfire hazards in project areas because of retained woody debris.

31. When necessary for invasive plant removal or habitat restoration, trees shall be felled away from streams, riparian zones, and wetlands whenever possible. Tree falling on steep slopes shall not be done or done in an appropriate manner to avoid damage to surrounding vegetation and soils. The proper yarding technique shall be employed on project sites to eliminate or reduce soil disturbances and compaction.



32. Fence designs (e.g., wire type and wire spacing) and installations shall not restrict the movement of any wildlife species; the use of woven wire fences shall be subject to the approval of the refuge manager. The quality and durability of fencing materials shall meet or exceed the intended management objectives. Fences shall not be constructed in areas where natural barriers restrict livestock movements. Refer to the Bureau of Land Management fencing handbook (BLM 1989) for additional information.

33. Livestock crossings and off-channel livestock watering facilities shall not be located in areas where compaction and/or damage may occur to sensitive soils, slopes, or vegetation due to congregating livestock. If livestock fords across streams are rocked to stabilize soils/slopes and prevent erosion, material and location shall be subject to the approval of the refuge manager. Crushed rock shall not be used to stabilize fords. Fords shall be placed on bedrock or stable substrates whenever possible.

34. Silvicultural activities (e.g., herbicide treatment, thinning, and harvesting) shall be limited or restricted on steep slopes and highly erodible soils to prevent accelerated soil erosion and increased sedimentation rates.

35. Fill material used on project sites shall be from non-streambed and non-wetland sources that are free of fines. Deposition of materials shall not violate state or federal regulations, standards, or guidelines as set forth by local Soil and Water Conservation Districts, U.S. Army Corps of Engineers, or other regulatory agencies.

**Air Quality BMPs:**

36. All disturbed areas shall be effectively stabilized of dust emissions using water, approved chemical stabilizer/suppressant, tarp or other suitable cover or vegetation ground cover.

37. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions by applying water or by pre-soaking.

38. Following the addition of materials to or the removal of materials from the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions using sufficient water or approved chemical stabilizer/suppressant.

# Appendix G – Wilderness Review

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## **Wilderness Inventory for Hopper Mountain, Bitter Creek and Blue Ridge National Wildlife Refuges**

### **Wilderness Review Process**

The purpose of a wilderness review is to identify and recommend for Congressional designation National Wildlife Refuge System (Refuge System) lands and waters that merit inclusion in the National Wilderness Preservation System (NWPS). Wilderness reviews are a required element of CCPs and are conducted in accordance with the refuge planning process outlined in Part 602, National Wildlife Refuge System Planning policy (FW 1 and 3), including interagency and tribal coordination, public involvement, and National Environmental Policy Act (NEPA) compliance. Other key policies related to the management of National Wildlife Refuges are included in Chapter 1 of the CCP.

There are three phases to a wilderness review: inventory, study, and recommendation. The wilderness inventory identifies those lands within the refuge that might have wilderness character and satisfy the definition of wilderness. Each unit must be roadless and be either greater than 5,000 acres; a roadless island of any size; or less than 5,000 acres but of sufficient size to be practicably managed as wilderness. More information is provided in the section on Identification of Roadless Areas and Roadless Islands. The inventory preliminarily classifies each unit of land that meets these requirements as a wilderness study area (WSA).

The wilderness study further evaluates each WSA for values, resources, and uses to determine if each one merits recommendation from the Service to the Secretary of the Interior as wilderness. The recommendation phase consists of forwarding or reporting recommendations for wilderness designation from the Director through the Secretary and the President to Congress in a wilderness study report.

This appendix summarizes the wilderness inventory for Hopper Mountain, Blue Ridge and Bitter Creek national wildlife refuges (NWRs).

### **Inventory Criteria**

The wilderness inventory is a broad look at the planning area to identify WSAs. These are roadless areas that meet the minimum criteria for wilderness identified in Section 2(c) of the Wilderness Act.

*“A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed*

*so as to preserve its natural conditions, and which: (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological or other features of scientific, educational, scenic, or historical value."*

A WSA must appear natural, provide outstanding opportunities for solitude or primitive recreation, meet the size criteria, and may provide other supplemental values. The process for identification of roadless areas at the Refuge and application of the wilderness criteria are described in the following sections.

### **Identification of Roadless Areas and Roadless Islands**

Identification of roadless areas and roadless islands required gathering and evaluating land status maps, land uses, road inventory data, and aerial photographs for the Refuge. "Roadless" refers to the absence of improved roads suitable and maintained for public travel by means of motorized vehicles primarily intended for highway use. Only lands currently owned by the Service in fee title are discussed in this inventory.

### **Evaluation of the Naturalness Criteria**

In addition to being roadless, a WSA must meet the naturalness criteria. Section 2(c) defines wilderness as an area that "... generally appears to have been affected primarily by the forces of nature with the imprint of man's work substantially unnoticeable." The area must appear natural to the average visitor rather than "pristine." The presence of historic landscape conditions is not required. An area may include some human impacts provided they are substantially unnoticeable in the unit as a whole. Significant human-caused hazards, such as the presence of unexploded ordnance from military activity, and the physical impacts of refuge management facilities and activities are also considered in evaluation of the naturalness criteria. An area may not be considered unnatural in appearance solely on the basis of the "sights and sounds" of human impacts and activities outside the boundary of the unit.

### **Evaluation of Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation**

In addition to meeting the size and naturalness criteria, a WSA must provide outstanding opportunities for solitude or primitive recreation. The area does not have to possess outstanding opportunities for both solitude and primitive and unconfined recreation and does not need to have outstanding opportunities on every acre. Further, an area does not have to be open to public use and access to qualify under this criteria; Congress has designated a number of wilderness areas in the Refuge System that are closed to public access to protect resource values.

Opportunities for solitude refer to the ability of a visitor to be alone and secluded from other visitors in the area. Primitive and unconfined recreation means non-motorized, dispersed outdoor recreation activities that are compatible and do not require developed facilities or mechanical transport. These primitive recreation activities may provide opportunities to experience challenge and risk, self reliance, and adventure.

These two “opportunity elements” are not well defined by the Wilderness Act but, in most cases, can be expected to occur together. However, an outstanding opportunity for solitude may be present in an area offering only limited primitive recreation potential. Conversely, an area may be so attractive for recreation use that experiencing solitude is not an option.

### **Evaluation of the Size Criteria**

Roadless areas or roadless islands meet the size criteria if any one of the following standards applies:

- An area with over 5,000 contiguous acres. State and private lands are not included in making this acreage determination.
- A roadless island of any size. A roadless island is defined as an area surrounded by permanent waters or that is markedly distinguished from the surrounding lands by topographical or ecological features.
- An area of less than 5,000 contiguous federal acres that is of sufficient size as to make practicable its preservation and use in an unimpaired condition and of a size suitable for wilderness management.
- An area of less than 5,000 contiguous federal acres that is contiguous with a designated wilderness, recommended wilderness, or area under wilderness review by another federal managing agency such as the Forest Service, National Park Service, or Bureau of Land Management.

### **Evaluation of Supplemental Values**

Supplemental values are defined by the Wilderness Act as “...ecological, geological, or other features of scientific, educational, scenic, or historic value.” These values are not required for wilderness but their presence should be documented.

### **Inventory Findings:**

#### **Bitter Creek NWR**

As documented below, none of the lands within Bitter Creek NWR meet the criteria necessary for a WSA.

Bitter Creek NWR contains a total of 14,097 acres, owned in fee title by the Service. At Bitter Creek, there are 49 miles of maintained roadways which divide the Refuge into ten roadless segments. The largest Service-owned segment of roadless land at Bitter Creek NWR consists of 2,967 acres. Bitter Creek NWR does contain features of scientific, educational, scenic, and historical value, and it does offer outstanding opportunities for primitive or unconfined recreation or solitude.

However, Bitter Creek NWR does not meet the overall criteria for recommendation as a wilderness area because:

- much of Bitter Creek NWR has been impacted by man and
- the roadless areas do not encompass 5,000 contiguous acres

## Blue Ridge NWR

As documented below, none of the lands within Blue Ridge NWR meet the criteria necessary for a WSA.

Blue Ridge NWR contains a total of 897 acres owned in fee title by the Service. At Blue Ridge, there is one maintained roadway (Co. Rte 276) that enters and exits the north end of the Refuge. Blue Ridge NWR does contain features of scientific, educational, scenic, and historical value. However, Blue Ridge NWR does not meet the overall criteria for recommendation as a wilderness area because:

It does not encompass 5,000 contiguous acres.

## Hopper Mountain NWR

As documented below, Hopper Mountain NWR meets the criteria necessary for a WSA.

The Refuge is contiguous with the Sespe Wilderness, which is managed by the U.S. Forest Service. The United States Congress designated the Sespe Wilderness in 1992, which consists of 219,700 acres.

Hopper Mountain NWR contains a total of 2,471 acres, owned in fee title by the Service. At the Refuge, there is one maintained 5.2 mile-long roadway that enters the north end of the Refuge and provides access to oil well pads and the base of operations for the California Condor Recovery Program. Though the Refuge is less than 5,000 acres, because it is contiguous with the Sespe Wilderness, designated and managed by the U.S. Forest Service, the Refuge meets the size criteria, as it is sufficient size to be managed as wilderness. Aside from the size criteria, the Refuge:

- Generally appears to have areas affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; and
- has outstanding opportunities for solitude.

## **Wilderness Study**

Hopper Mountain NWR was found to possess the required wilderness characteristics defined by the Wilderness Act and will be further evaluated through the refuge planning process to determine its suitability for designation, management, and preservation as wilderness.

Considerations in this evaluation included:

- Quality of wilderness values
- Evaluation of resource values, public uses, and associated management concerns; and
- Capability for management as wilderness or “manageability.”

This information provides a basis to compare the impacts of a range of management alternatives and determine the most appropriate management direction for each WSA.

## **Evaluation of Wilderness Values**

The following information considers the quality of the WSA’s mandatory and supplemental wilderness characteristics.

### **Size Criteria**

Though the Refuge is less than 5,000 acres, because it is contiguous with the Sespe Wilderness, a portion of the Refuge can be considered of sufficient size for wilderness recommendation. It is of sufficient size to be managed as wilderness.

### **Naturalness Criteria**

The Refuge hosts a variety of habitats which support diverse groups of plant and animal species: 900 acres of grassland that is part of historic condor foraging range, 1,049 acres of chaparral and coastal sage scrub, 350 acres of oak and walnut woodland, 110 acres of riparian habitat and 3 acres of fresh water marsh.

Currently, there are 3 active drilling pads (for oil and/or gas), 1 pad used for storage, and 1 inactive pad on the Refuge. The 3 active oil pumping pads in the northwest portion of the Refuge contain producing wells, pumpjacks, and storage facilities. All 5 pads were developed prior to Refuge establishment. The Service does not own the mineral (oil and gas) rights within Hopper Mountain NWR. These rights, along with the right of entry and right of way to develop them, were specifically excluded when the Service purchased the lands. Oil drilling activities on the Refuge are covered by 2 conditional use permits (#3470 and #2250) issued by Ventura County.

The Refuge serves as a base of operations for the California Condor Recovery Program (Recovery Program). Facilities used by the Recovery Program are situated on approximately two acres and include a 1,600-square-foot barn, a 1,800-square-foot house, an 800-square-foot cabin, several metal trailer buildings, several tool sheds, and a 20,000-gallon water tank.

The Refuge has a new condor treatment facility attached to a condor flight pen. Together they are about 2,000 square feet. There are also two 2,500-gallon water tanks near the flight pen. This area occupies approximately 1.5 acres.

### **Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation**

The Refuge is closed to public use. There are opportunities for solitude or primitive and unconfined recreation; though it is possible that in some areas sights and sounds from the road may interfere with solitude, depending on the proximity, type and amount of traffic on the road at the time.

### **Supplemental Values**

The landscape can provide the visitor with an interest in geology and ecology a glimpse into an area where the California condor still flies the sky. The Refuge provides safe roosting and foraging habitat for endangered California condors and protects other threatened and endangered species.

### **Evaluation of Manageability and Other Resource Values and Uses**

There are sections of Hopper Mountain NWR that have wilderness values. However, due to the necessity to use all terrain vehicles (ATVs) and trucks to provide access to condor sites and condors, wilderness designation would create an administrative burden at the Refuge. ATVs and other motor vehicles such as pickup trucks are used for monitoring, tracking, feeding and moving California condors. Designating wilderness would significantly restrict management practices and California Condor Recovery Program activities on the Refuge, impeding the Service's ability to meet Refuge and System goals and objectives. Radio telemetry use continues throughout the Refuge. Three existing active oil pumping platforms could affect the perception of "naturalness". The fact that the Refuge has a maintained road would further complicate wilderness designation, as the road is active and almost splits the Refuge into two units. Fire suppression, fuels reduction, and the associated vehicle use is also a concern. In 2003 and 2007, significant portions of the Refuge were affected by wildfire.

### **Alternative A (Current Management – No Action)**

Under this alternative, the Hopper Mountain NWR would be considered unsuitable for wilderness designation. This alternative would continue current refuge management practices already underway or currently funded. Vehicles are used regularly for condor management. The Refuge would continue the current direction of managing habitat, wildlife and people. In pursuing the habitat goal, Alternative A would manage habitats largely as they are managed at present. No major changes would be initiated by the Service.

### **Alternative B (Preferred Alternative)**

Alternative B, Hopper Mountain NWR condor management support – All actions in Alternative A plus expand monitoring and maximize condor survivorship; evaluate the historic-era barn and build a new pole barn for equipment storage; replace unusable housing to increase housing capacity by up to 8 individuals to a total capacity of up to 16; expand coordination with regional neighbors to promote natural foraging opportunities for condors; expand coordination with neighboring landowners to enhance foraging habitat; survey, map and monitor condor roosts; enhance nest habitat quality by maintaining the Refuge as closed to public use, reduce the carbon footprint (emissions) from Refuge operations.



Alternative B, Hopper Mountain NWR wildlife and habitat management – Gather baseline data and conduct surveys for special status species, develop partnerships for research supporting Refuge goals, more actions to enhance quality of grassland, riparian, southern California black walnut and oak woodland habitat for migratory and other birds and wildlife; more actions to prevent invasive plants and animals; develop an Integrated Pest Management (IPM) Plan for early detection and rapid response; and for all habitat types develop a Habitat Management Plan (HMP) that considers climate change.

Grassland: Use best management practices to reduce invasive plants, and evaluate the use of targeted grazing and prescribed fire to reduce fuel loads and manage habitat.

Riparian: Develop an annual monitoring program; inventory springs; partner with and develop riparian management practices to share with oil/gas operators to protect riparian resources; replace existing water control structure to improve adaptive management; manage water to improve wildlife value for special status species.

Black walnut and oak woodland: Reduce fuel loads to sustain regeneration of woodlands and promote sustainable age class distribution.

Alternative B, Hopper Mountain NWR visitor services – All actions in Alternative A plus develop a Visitor Services Plan, increase outreach and volunteer opportunities, update outreach materials, expand the Refuge website, develop a Refuge brochure and/or newsletter, coordinate with U.S. Forest Service on condor interpretation, offer at least 4 regular Refuge tours annually, improve safety, and post the entire Refuge boundary.

### **Alternative C**

Alternative C, Hopper Mountain NWR *condor management support* – Expand monitoring (same as Alternative B) plus increase condor volunteer monitoring activities; twice per year trap and evaluate health of condors (same as Alternative A); provide sites to support Recovery Program activities to maximize survivorship (same as Alternative A); increase temporary quarters' capacity by adding 2 RV hookups; release up to 10 tagged condors per year (same as Alternative A); promote conservation of working landscapes and coordinate with neighboring landowners to promote natural feeding opportunities (same as Alternative A); survey, map, and monitor roost sites (same as Alternative B); and develop roost management practices (same as Alternative B).

Alternative C, Hopper Mountain NWR *habitat management* –

Grassland: Same as Alternative B plus inventory vernal pool plant and aquatic invertebrate species; and develop a vernal pool management program as part of the HMP.

Riparian and wetland: Same as Alternative B plus monitor water quality and quantity; use IPM, but without chemical techniques.

Black walnut and oak woodland: Same as Alternative A for fire protection plus create additional fuel breaks around select walnut stands. Same as Alternative B for habitat management plus promote recruitment by seed collection and banking; use targeted seasonal grazing to reduce competition with walnut and oak seedlings; and support research on invasive plants and manage invasives without using chemicals.

Alternative C, Hopper Mountain NWR *visitor services* – strategies for Alternative C for outreach, include the same as Alternative B plus form outreach partnerships with City of Fillmore and schools; for visitor use, include limited guided tours, working with Friends groups

to conduct walks (same as Alternative A) plus study options for public access and determine feasibility of wildlife-dependent recreation; and for volunteers, include the same actions as Alternative B.

**The following table illustrates the current Hopper Mountain NWR management activities.**

**Hopper Mountain Wilderness Study Area Management Activities**

Mgmt Activity	Equipment/Frequency/time of year
Invasive Weed Treatments	Equipment used: hand shovels used to uproot reed canarygrass near the wetland; large rolls of black plastic to cover horehound plants in the summer months killing the plants with heat. Usually conducted during summer months depending on the availability of personnel.
Fire Treatments	Each year, prior to summer, a local fire department is contracted to remove vegetation around all structures using brush mowers, weed cutters, and a tractor with a brush mowing attachment. All cut vegetation is placed into large piles and then burned, when conditions are appropriate, or mulched. County fire engines and helicopters used for fire suppression are on stand-by at the Refuge to extinguish any possible fire outbreaks during the operation. Fire crews also use hand tools to create bare ground fire breaks around the main compound and the condor facility. Early in the spring when vegetation is beginning to sprout, the fire department also uses all terrain vehicles with herbicide tanks with glyphosate herbicide (such as Roundup) to spray vegetation around all structures (including the condor facility, ranch house, barn, solar panels, and storage buildings). This reduces the amount of mowing required later in the summer. In total, approximately 15 acres of vegetation is cut or cleared around the structures on the Refuge. A 2-foot strip of vegetation along each side of the main 2-mile Refuge road is also cut to allow the road to act as a potential fire break. The main road is also occasionally graded as needed by the fire department using a road grader. This fire treatment is all done annually, usually taking approximately five working days with up to 20 wildfire personnel to complete the project. Vehicles used for pre-season fire treatment are confined to existing roads. In addition, hand-held weed eaters are used to trim ATV trails annually.
Water Management	Currently no intensive wetland management. Runoff water during spring rains is diverted from the Refuge access road and drainages near the house and cabin to the wetland area. This preserves the road and protects the structures while adding a small amount of water to the wetland. Drinking water is pumped from a natural spring by a solar powered water pump to a large 20,000 gallon above ground storage tank near the house and cabin. Fifteen thousand gallons from this tank are reserved for fire suppression and five thousand gallons are reserved for use in the house and cabin. There are 4 fire hose stations used to fight wildfires. The water used for the house and cabin is first passed through a water filtration and treatment system. The natural spring also provides water for the water tanks near the condor treatment facility. There is also a fire hose station at the condor facility. The water from the storage tank is used mainly for fire suppression and also for facility clean up and drinking/bathing water for condors.
Biological Surveys	Currently no biological surveys take place on the Refuge, only condor monitoring and management. In the past, lines of mist nets were used to

	survey Neotropical migrant songbirds and other resident birds using the Refuge. Mist netting may resume again within the next 1-2 years.
Access to Neighboring Lands	ATVs and hiking trails are used on the Refuge and to access adjacent U.S. Forest Service lands and private property to monitor condor nesting activity.
Oil and Gas Lands	Currently, there are 3 active drilling pads (for oil and/or gas), 1 pad used for storage, and 1 inactive pad on the Refuge. The leasees of this property are permitted to use a two track road to access the land (on existing roads). Land may be accessed via truck (standard pickup or oil tank-trucks) or ATV year-round depending on road conditions. The use is limited to conducting oil/gas related work.
Condor-related Activities (see below)	

### **Current Condor Management Activities at Hopper Mountain National Wildlife Refuge**

Hopper Mountain National Wildlife Refuge (NWR) makes up a very small portion of the overall range of the California condor. However, the Refuge is central to nesting, foraging and roosting habitat heavily utilized by the reintroduced condors released from a number of locations in Southern California, including the Refuge itself. Its location makes the Refuge an ideal field station for many current condor management operations. In general, condor field operations involve the use of refuge roads, ATV trails and hiking trails that allow field personnel access to telemetry observation points, nest observation points, feeding sites, or blinds in order to detect, observe or trap condors in the area. Staff is housed at the Refuge year-round with two to four people there each week. Staff and volunteers use the ranch house (bunkhouse) and cabin facilities when staying overnight on the Refuge (see Wilderness Review Map). There are three primary management activities that take place on the Refuge and surrounding lands. Nest management activities can take place from late January until early November on locations that are frequently off-Refuge, Refuge roads and refuge ATV and hiking trails allow access to these areas. Telemetry takes place both on and off the Refuge at overlooks and high points that allow for optimal scans.

With the Hopper Mountain NWR being central to nesting activity, the majority of condor management activities are related to monitoring condor breeding activity and nest guarding. Nest guarding is an adaptive nest management strategy where nests are closely monitored and any detected threats are mitigated using direct treatments. This nest management program is a partnership with the Santa Barbara Zoo and was initiated in 2007. The program requires biologists to closely follow the breeding and nesting behavior from start to finish for each nest. It utilizes Service condor field staff, Santa Barbara Zoo personnel, and many volunteers in order to achieve adequate coverage for nest observations. Since 2007, the number of nests has varied between three and six. The life of a successful nest is about 8 months. During that time, each nest may be watched by 5 to 10 observers from a pool of about 20 individuals. Nest sites will often change from year to year so the nest observation points (OPs) (shown on Wilderness Review Map) and the trails used to access them will often change with each season. Trailheads to nest OPs are usually accessible by a number of ATV trails located on the Refuge. Nest guarding also involves regular periodic nest entries so that chicks may be given a physical exam and nests can be cleaned of any foreign items known to harm the chick. The same ATV and

hiking trails are also often used during nest entries but the approach to the nest beyond the observation point most often requires cross-country travel. Still, these trails play an important role in allowing for timely access to nests. Only properly trained personnel are allowed to use ATVs; all others must travel by foot on any of the ATV trails.

Another common condor monitoring activity on the Refuge is the use of radio telemetry. Field staff or volunteers use handheld telemetry equipment to scan for individual condors in order to detect presence or absence in the area. Scans occur from one of four standard locations that provide optimal coverage of the surrounding landscape. Three of these locations are accessible by truck but the fourth can only be reached by either hiking or ATV. Telemetry is normally performed multiple times every day of the year.

The final refuge operation that pertains to condor management is the trapping and handling of the free flying condor population. Trapping is performed by baiting condors at a feeding station where there is either a walk-in trap or flight pen capable of trapping condors. There is a single active bait station located on the Refuge. This station uses a walk-in trap for trapping purposes. The site is enclosed with an electric fence and has a large blind nearby so the trap may be operated without the condor viewing the operator. The feeding site and blind are accessible via an ATV trail or by hiking. The trail is also large enough so a 4x4 truck or SUV may use it for infrequent site or blind maintenance. The flight pen provides the capability to trap and hold individual condors for a longer period of time in order to treat birds that have been exposed to lead. Feeding and trapping occurs relatively infrequently at Hopper Mountain NWR when compared to Bitter Creek NWR. Over the last three years, there have been about 50 carcasses dropped at the bait station each year. All of these carcasses are dropped at night under the cover of darkness. Most of these drops are during the two trapping seasons, which begin in June and November and last for one to two months.

## **Conclusion**

Hopper Mountain NWR is unsuitable for wilderness designation over the long term, due to the reasons listed above; wilderness designation would be inconsistent with Refuge purposes, the Refuge System mission, and California Condor Recovery Program goals.

