

Appendix I – Preparers

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Appendix J – Climate

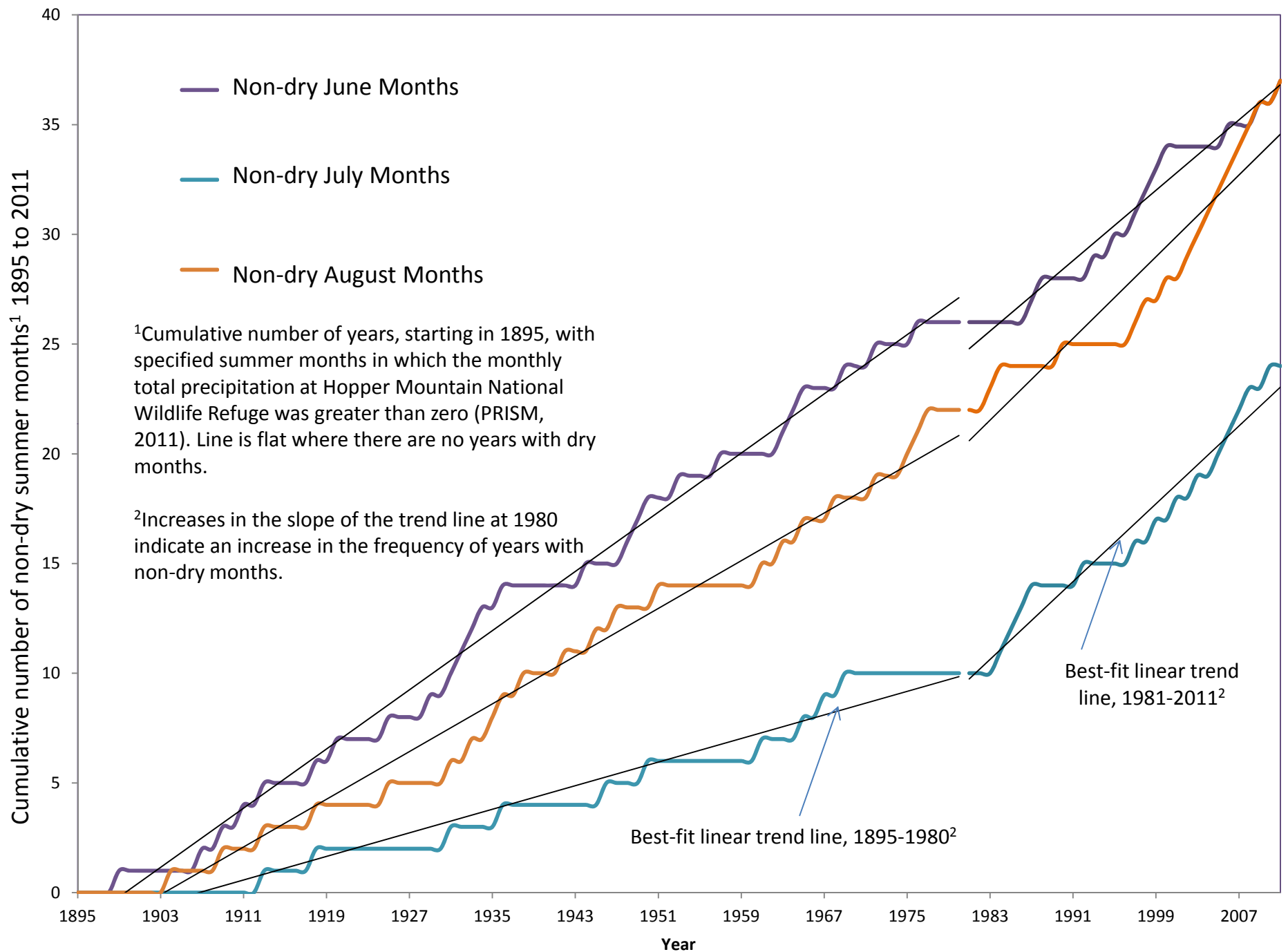


Figure 1. Visual trends in the cumulative number of dry summer months at Hopper Mountain National Wildlife Refuge

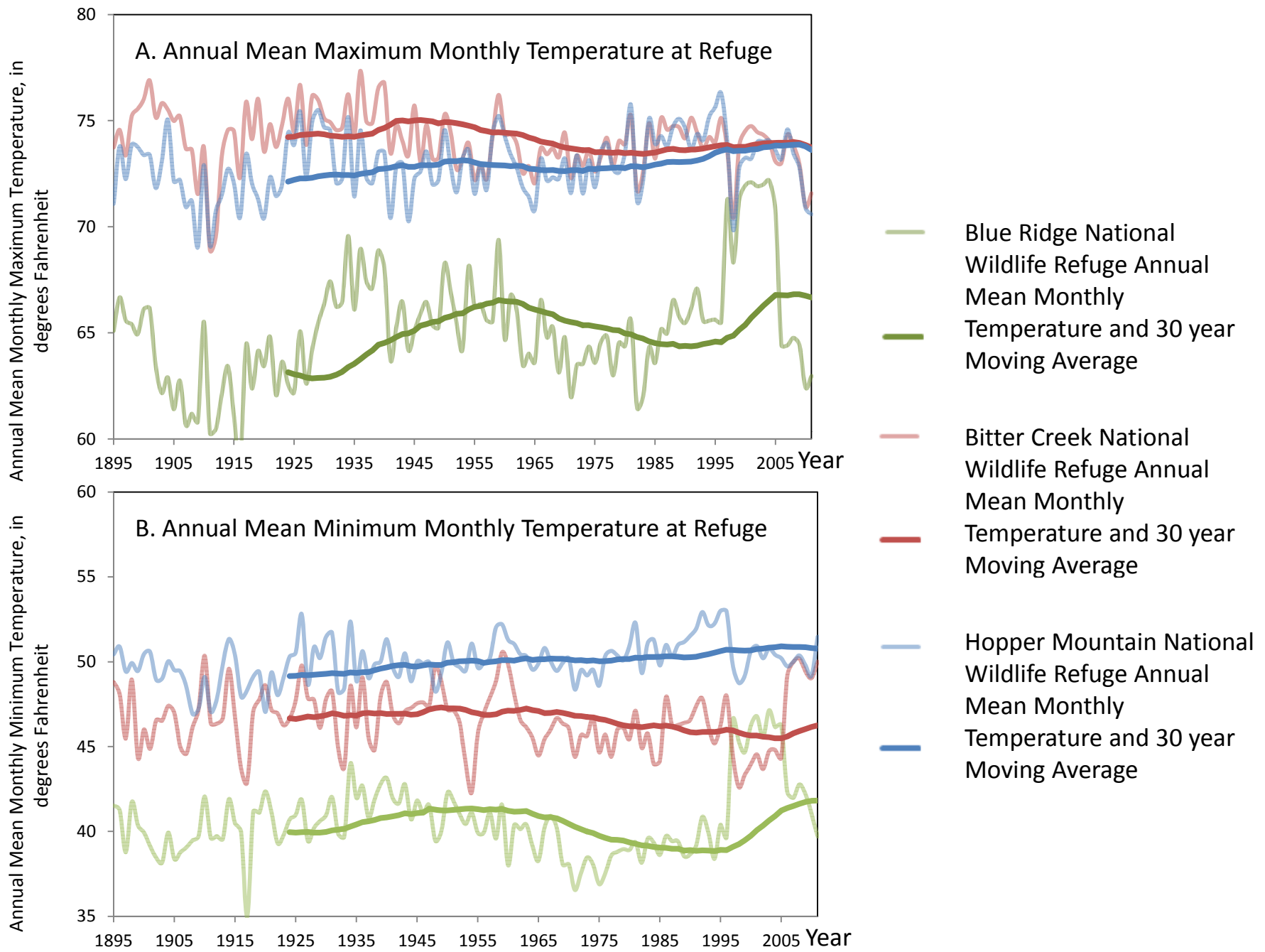


Figure 2. Visual trends in annual mean minimum and maximum monthly temperature at Blue Ridge, Bitter Creek, and Hopper Mountain National Wildlife Refuges

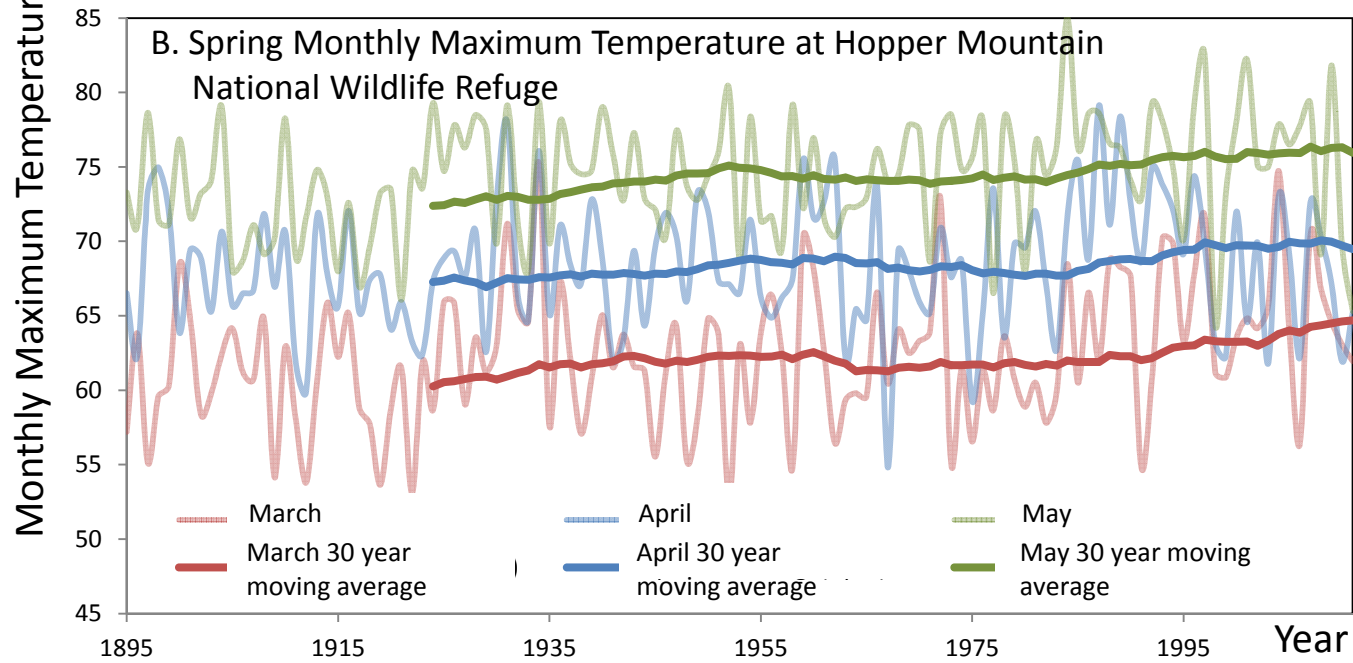
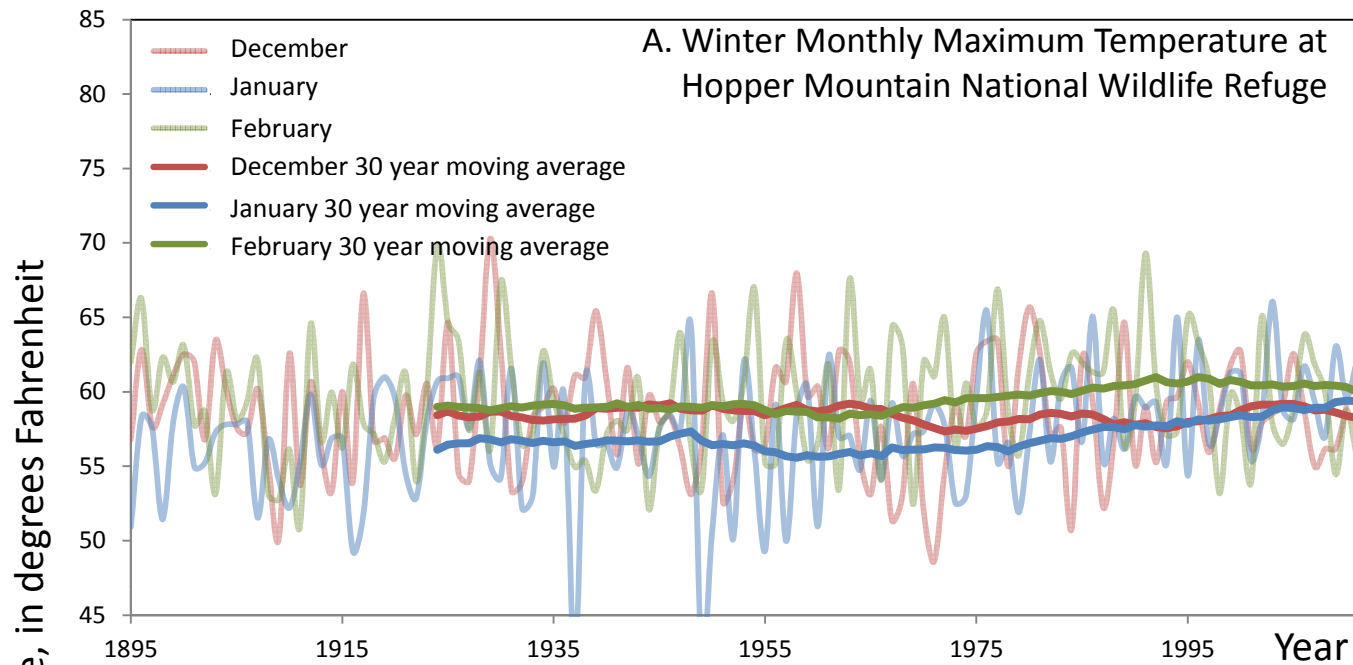


Figure 3. Visual trends in winter and spring monthly maximum temperature at Hopper Mountain National Wildlife Refuge

Minimum and Maximum Monthly Temperature for Selected Months at Bitter Creek National Wildlife Refuge

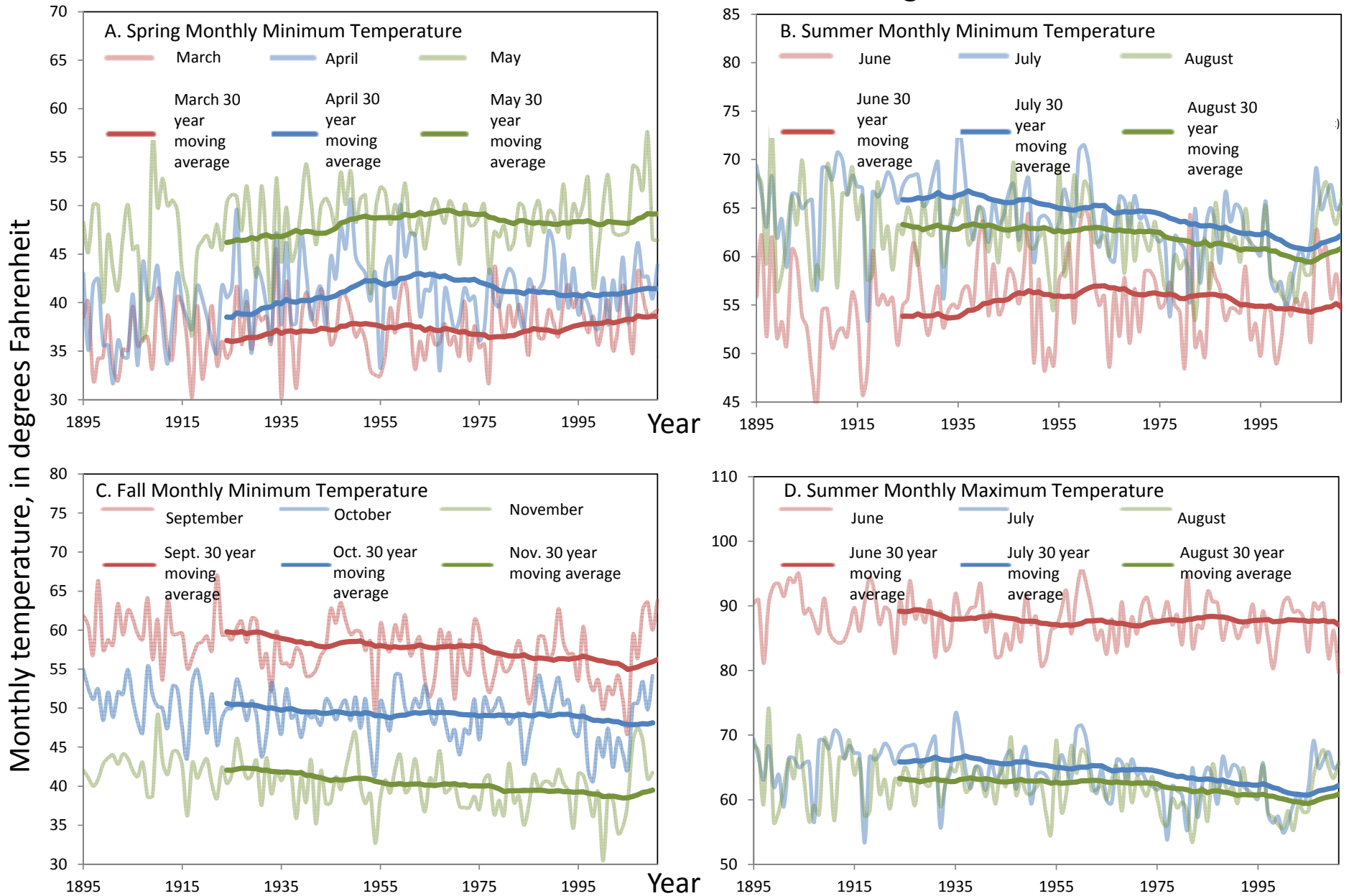


Figure 4. Visual trends in maximum and minimum monthly temperature for selected months and seasons at Bitter Creek National Wildlife Refuge

Appendix K – Public Involvement
and
Responses to Comments
on the March 2012 Draft Comprehensive
Conservation Plan/Environmental Assessment

Appendix K – Public Involvement

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Hopper Mountain, Bitter Creek and Blue Ridge National Wildlife Refuges

Comprehensive Conservation Plan and Environmental Assessment Scoping Summary Report

Prepared by U.S. Fish and Wildlife Service
Pacific Southwest Region

August 2010

**Hopper Mountain, Bitter Creek and Blue Ridge
National Wildlife Refuges
Comprehensive Conservation Plan and Environmental Assessment
Scoping Summary Report
August 2010**

The following summary represents input from individuals, organizations, elected officials, and a local agency concerning issues to be considered in developing the draft Comprehensive Conservation Plan (CCP) for Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges. During the winter and spring of 2010, background information about the CCP process was posted to the Hopper Mountain National Wildlife Refuge Complex (Complex) website, circulated via news release, and mailed to known interested parties to gather input and comments. The Notice of Intent to Prepare a Comprehensive Conservation Plan and Environmental Assessment was published in the Federal Register on April 6, 2010. Public scoping meetings were held in Fillmore on April 20, Taft on April 28, and Porterville on May 6. Approximately 71 people attended the meeting in Taft, one person attended the meeting in Porterville, and zero people attended the meeting in Fillmore. In addition to holding public meetings, Fish and Wildlife Service (Service) staff responded to a number of letters and emails submitted to the Complex asking for clarification on planning issues.

The scoping comment period ended on May 21, 2010. Verbal comments were recorded at the public meetings, and written comments were submitted via letters and emails (19), completed issues workbooks (4), comment cards (1), meeting evaluations (6), and a petition letter with 276 signatures (hereafter referred to as the petition signatories or petitioners). All of the scoping comments are summarized below. In some cases, the comment text is a quote from a particular letter, while other comments are paraphrased from one or more sources. Many comments were made by more than one respondent, which is reflected qualitatively in this summary. Three categories are used to approximate the number of responses that addressed a particular point: a few, several, and many. A copy of all the original comments is maintained on file at Complex headquarters.

Service staff also reviewed the comments that were received in 2008, during the public comment period on the 2008 Environmental Assessment and Compatibility Determination for the Bitter Creek National Wildlife Refuge Proposed Habitat Management and Restoration Plan (2008 Bitter Creek NWR Habitat Management EA). Comments on the 2008 Bitter Creek NWR Habitat Management EA have been incorporated into the CCP scoping process and are represented in this summary. Duplicate comments are not repeated in the summary, but substantive comments from the 2008 Bitter Creek NWR Habitat Management EA that were not otherwise included in comments received during the 2010 scoping period are summarized at the end of each section.

The comments are organized into 12 topic areas. These topics provide a basis for developing a range of alternatives to be considered in the planning process. The comments will be important in formulating the objectives and strategies for each alternative considered in the draft CCP, which, when completed, will guide management of the three refuges for the next 15 years.

WILDLIFE MANAGEMENT

Many of the respondents were supportive of the refuges' purpose: to protect habitat for the endangered California condor. A few comments recommended that no management action be taken that does not contribute to condor recovery. Many individuals encouraged the use of grazing as a condor management activity, as further discussed in the following section. Other suggestions included the continuation of "clean feeding" and the purchase of cows or calves from an on-site rancher for use as feed for condors. One comment expressed concern that there was not enough "naturally dead" wildlife to support the condors.

However, one individual did disapprove of the California Condor Recovery Program, stating that the area has an ample number of turkey vultures and that funding for the program could be better spent on children's health issues. Another comment questioned whether condors are actually a native species.

Comments regarding other threatened and endangered species were more mixed. Several individuals and conservation organizations made general statements about the importance of managing for listed species and said that sensitive and rare species must be addressed in the CCP. One person questioned the Service's representation of current conditions with respect to the blunt-nosed leopard lizard, stating that it is not a current or historic resident of Bitter Creek National Wildlife Refuge (NWR), that there have been no confirmed sightings of the lizard, and that the refuge is not lizard habitat due to elevation, terrain, and dense forage growth. The petition that was submitted expanded upon this concern and requested that the Service stop listing the blunt-nosed leopard lizard, giant kangaroo rat, and Kern mallow as residents, indicating that the refuge was not their habitat and there had been no confirmed sightings of any of the species.

Comments about native ungulates (e.g., tule elk, pronghorn antelope, and mule deer) also varied. Several individuals and conservation organizations recommended the reintroduction of native ungulates, while other respondents, including those who signed the petition, were not in favor of elk and antelope. One individual said that elk and antelope are not significant historical residents of the refuge, have a negative impact on neighboring private property, pose a hazard to motorists, and are not necessary components for condor recovery or refuge biodiversity. The petition requested that the CCP make clear that tule elk migrated to the refuge via private property and were part of a herd reintroduced in the Wind Wolves Preserve to the east.

One letter recommended that the refuge undertake surveys of resident and migratory birds and asked that the CCP recognize the decrease in many bird populations, address threats to grassland birds, and provide a focus on maintaining bird habitat. A letter from a group of conservation organizations stated that no management changes should be implemented until comprehensive surveys of vertebrates and invertebrates have been completed and the impacts of proposed changes have been thoroughly reviewed.

Two comments addressed wildlife corridors. An individual noted that the connective nature of Bitter Creek NWR could lead to its use by wildlife that migrates from lower elevation habitat due to the impacts of global warming. A group of conservation organizations suggested that the CCP identify the role that the refuges can play in important wildlife corridors, the relationship between each planning unit and any other important habitats in the vicinity, and methods to collect and disseminate information about wildlife movement paths.

Finally, a group of conservation organizations asked that the Service include a thorough discussion of the need for and alternatives to the use of wildlife guzzlers. If they are determined not to be necessary, the CCP should include a plan for their removal.

Comments Specific to the 2008 Bitter Creek NWR Habitat Management EA. Comments included additional points about wildlife management. One comment stated that the condor feeding program attracted predators to the refuge, and another suggested that condors would benefit from the management of competing predators like coyotes. One response said that the refuge's low ungulate population was caused by predation and was not the result of displacement of ungulates by cattle. Two individuals disapproved of condor recovery efforts, stating that extinction is a natural process. Several comments noted that ranching and the local economy should be higher priorities than wildlife management.

HABITAT MANAGEMENT

Vegetation

Several comments called for inventories and monitoring programs to establish the location and density of existing plant species, determine the desired plant community, and evaluate the impact of future management practices. Comments from conservation organizations included specific recommendations: that inventories include lichens, mosses, vascular and nonvascular plants, and invasive species; that surveys determine the extent of biological soil crust; that the CCP include maps of vegetation communities and habitat types; and that the CCP describe the schedule and methodology of proposed monitoring programs.

Several comments were in favor of restoring the refuges to pre-settlement conditions. A group of conservation organizations requested that the CCP evaluate the effect of certain land use activities, such as road construction and maintenance, grazing, mowing, and burning, on the establishment and spread of invasive species, and that it outline a plan for continuing eradication efforts. They also recommended that the Service include plans for restoring native tree, herbaceous plant, and grass species. Another conservation organization urged the Service to consider restoration without intervention by mechanical, chemical, or grazing disturbances (no livestock, no burning, no mowing, and no herbicide). The letter stated that the use of fire, livestock grazing, and herbicides would add to program costs, strain monitoring efforts, require that special care be taken to protect sensitive and riparian areas, and impose ecological costs to the area's wildlife. The organization instead recommended a program of active seeding or replanting native plants where appropriate. One individual recommended manual removal of non-native plants as funding permits. Comments at one public meeting noted that spraying may have a negative effect on water sources and suggested that the refuge be a part of a Weed Management Area.

A few comments questioned both the need and the Service's ability to return the land to pre-settlement conditions. One individual noted that pre-settlement conditions are unknown and called for the Service to instead set achievable and measurable restoration goals.

One person expressed concern that a single plan cannot address the management needs of all three refuges, given their differing geology, soil types, precipitation patterns, and ecology. The comment recommended the preparation of a forage management plan for each site, and also

noted that the Department of Fish and Game's California Natural Diversity Database is a weak source of information on plant locations.

Finally, three conservation organizations stated that their volunteer programs would welcome the opportunity to assist the Service with habitat restoration projects.

Comments Specific to the 2008 Bitter Creek NWR Habitat Management EA. Many comments on the 2008 Bitter Creek NWR Habitat Management EA addressed mowing and herbicide application. Several comments described widespread spraying and mowing as expensive, inefficient, and impractical. Several expressed concern about the potential impacts of spraying and mowing on native plants, wildlife, and air and water quality. One response recommended the use of herbicide only in selected areas. Another individual stated that mowing should take place when the grass is green and that nesting birds must be protected. A letter from two conservation organizations requested a comprehensive plan for removal of non-native plants.

Livestock Grazing

Scoping comments reflected conflicting opinions on cattle grazing at Bitter Creek NWR. A number of respondents, including the petition signatories, were in favor of grazing, some were opposed, and others recommended that it be allowed only when necessary to attain a specific ecological goal.

Many comments in support of grazing discussed its long history and important cultural role in the area, noting that grazing preceded the establishment of the refuge by over 100 years. Many responses emphasized the economic benefits of grazing, stating that the reduction or elimination of grazing would have negative economic impacts for Kern County residents and businesses conducted on public land. It was also noted that grazing generated income for the refuge, instead of being an expense like other management options.

Many of the individuals in favor of grazing suggested that it was compatible with and beneficial for the protection of the California condor. Several comments stated that ranch land provides condors with good habitat and an ample food source, namely cattle carcasses and still-born calves, and expressed concern that eliminating grazing would negatively impact the condors by removing the food source. The petitioners requested that the CCP vision statement make clear that the refuge land was purchased because it was a cattle ranch that was providing food for the condor. Including grazing in the vision statement was also mentioned at one of the public meetings.

Several comments also stated that grazing plays a positive role in vegetation management. Several comments stated that un-grazed land created a heightened wildfire risk, posing a threat to plants, wildlife, and people and imposing a potential cost on Kern County taxpayers. One individual was concerned that removing grazing had a negative impact on the plants and wildlife that thrived on grazed ground.

A few comments specifically requested that grazing be restored to the refuge immediately. Two individuals stated that the removal of grazing in October 2005 violated federal law and Service procedures because it was done without a signed compatibility determination.

Several comments addressed changes to the potential grazing program. One person requested that contracts be honored if grazing is returned to the refuge and proposed that the CCP disclose previous grazing contract violations in order to analyze past problems and improve the grazing program. Another individual said that a long-term cow/calf operation would provide the program with continuity and stability. Additional recommendations included mapping of grazed areas, a full study of previous grazing practices, fair distribution of allotments, hiring of a range manager, and the consideration of predators like coyotes.

Other comments either questioned or refuted the compatibility of grazing with the purpose of the refuge. Several people stressed that wildlife needs should come before grazing or commercial interests. One commenter recommended that all grazing management decisions be based on the habitat needs of refuge wildlife, and that grazing only be applied if and when necessary to attain a specific ecological goal. There were several suggestions, from individuals and organizations, for reintroduction of native ungulates as an alternative to cattle grazing, noting that these species served as a historic food source for condors. One individual recommended sheep grazing as appropriate for the refuge's steep terrain.

Several responses from individuals and organizations emphasized the negative impacts of grazing and stated that overgrazing was a major concern. A few comments enumerated the effects of previous overgrazing on the refuge, including habitat degradation, stream bank erosion, introduction and spread of invasive species, diminished plant diversity, disruption of native wildlife, trampling and consumption of native plants, and damage to archeological and cultural sites. Two comments stated that grazing burdened refuge staff and resources.

Two letters from organizations supported an immediate end to year-round grazing on the refuge, but the organizations provided differing recommendations regarding seasonal grazing. Both mentioned the scientific debate over whether seasonal grazing is effective for reducing the presence of nonnative plants or meeting other management needs. One letter provided a list of recommended steps for the Service to follow if it decides, upon a review of the scientific literature, to pursue seasonal grazing. The other letter specifically recommended against seasonal grazing, citing research that indicates grazing is ineffective at reducing invasive species, does not benefit listed species, and negatively impacts the population of native ungulates.

Comments Specific to the 2008 Bitter Creek NWR Habitat Management EA. Comments on the 2008 Bitter Creek NWR Habitat Management EA made similar arguments in support of, conditional support of, or opposition to grazing. Many responses discussed differences between year-round cow/calf operations and seasonal grazing using steers. Many comments in favor of year-round grazing said that mature cows are behaviorally better suited to graze the refuge's challenging terrain and that steers would be prone to injury and could carry diseases and bring in invasive plants. It was also stated that seasonal grazing would exclude upper elevations that cannot be grazed in the winter, leading to increased fire risk, and that year-round grazing would be necessary to reduce the amount of residual dry matter to the desired level. Several responses said that year-round grazing could meet refuge objectives if improvements were made to how the program operated.

Many comments on the 2008 Bitter Creek NWR Habitat Management EA urged that local ranchers be consulted on grazing program design, and several comments called for the hiring of an independent certified range specialist. A ranching trade organization suggested that the

Service and the grazing operator work with the Natural Resources Conservation Service to develop a grazing management plan. The trade organization also asked that funds derived from the grazing program be reinvested in the property to ensure long-term health of the infrastructure.

Several comments on the 2008 Bitter Creek NWR Habitat Management EA in favor of seasonal grazing said that removing grazing entirely from non-native grasslands could have negative impacts on native plants and wildlife. Many responses mentioned the scientific uncertainty regarding grazing outcomes and emphasized the importance of a flexible grazing program that can adapt to changing conditions. Close monitoring and enforcement of the program were also recommended. Prescribed grazing was cited as a highly effective management tool on the Wind Wolves Preserve.

Two additional negative impacts of cattle grazing were raised in comments on the 2008 Bitter Creek NWR Habitat Management EA: that it inhibits the reproduction of oaks and that fences restrict wildlife movement. One comment suggested that the Service consider sheep as an alternative to stocker cattle, because sheep can provide intensive grazing in a limited area, avoid riparian areas and sensitive canyons, and reduce the need for internal fencing.

FIRE MANAGEMENT

Fire management also generated conflicting opinions. The majority of comments regarding fire management were strongly opposed to prescribed burns. The most common concern, raised by many individuals, elected representatives, and the Kern County Planning Department, was that prescribed burns would have a negative impact on air quality and result in adverse health effects for Kern County residents.

Several comments emphasized that the San Joaquin Valley already has very poor air quality, suggesting that prescribed burns are not appropriate or would require a higher level of environmental review than in other areas of California. One elected representative noted that the San Joaquin Valley Air Pollution Control District is developing rules that would severely restrict agricultural burning, at great cost to farmers, and asked that the refuge avoid burning as well in consideration of the region's air quality challenges.

Many comments stated that prescribed burns would lead to an increased risk of wildfires, which could result in loss of life, economic livelihood, and beneficial property use as well as harm plants and wildlife on the refuge. There was concern that Kern County would bear the costs of fire suppression activities, managing prescribed burns, and potentially fighting wildfires. A few people suggested that replacing traditional grazing practices with prescribed burns would have negative impacts on native plants and animals and increase the spread of invasive species.

Several comments specifically called for the elimination of prescribed burns from consideration as a management tool. Several others requested a more detailed environmental review, including consultation with the Environmental Protection Agency and the San Joaquin Valley Air Pollution Control District, the consideration of cumulative effects of prescribed burns in combination with an expanded wildfire season, and/or the preparation of a full Environmental Impact Statement.

One individual spoke in favor of prescribed burns as a tool for invasive plant management. A group of conservation organizations asked the Service to identify and describe the natural and

historic role of fire within the refuges. They suggested that the CCP process provides a good opportunity to revise the refuges' fire management plans, and recommended that analysis include the location of existing and proposed fuel breaks, use of prescribed fire, mowing, and other vegetation treatments, wildland fire use, and Minimum Impact Suppression Techniques. The organizations acknowledged that prescribed burning may play a role in restoring the health of grassland/coniferous forest communities within the refuge complex, but cited significant scientific disagreement about the need for, frequency of, and impacts of prescribed burns. They recommended prescribed burning only be used if, based on the best available science, it is determined to be necessary to restore a historic fire regime or to restore native habitat.

Comments Specific to the 2008 Bitter Creek NWR Habitat Management EA. Many expressed similar concerns about prescribed burns. Several responses mentioned additional negative impacts of prescribed burns, including soil erosion, decreased water quality, and damage to fences. Several comments said that burning grass was a waste of a valuable natural resource that should instead be used to feed cattle. In contrast, many comments were received in favor of Alternative D of the EA, which included prescribed burns as a secondary strategy for habitat management. Several comments were received in favor of Alternative C of the EA, which included prescribed burns as the primary strategy.

OTHER LAND MANAGEMENT ISSUES

The comment letter from a group of conservation organizations addressed four additional land management issues: oil and gas development, private in-holdings, water resources, and wilderness review.

With respect to oil and gas development, the organizations noted that while the Service may or may not possess the authority to regulate aspects of the extractive process, it does have enforcement authority under the Endangered Species Act for take of endangered species. They requested that the CCP provide mechanisms and authority to remediate oil and gas activities on the refuges and adjacent lands and ensure that activities on existing or proposed drilling pads near or inside the refuges are not harming listed species. They also provided a list of recommended actions for addressing oil and gas development in the CCP.

The organizations suggested that the CCP assess the extent of access roads to private in-holdings and evaluate how the Service can allow access to these parcels in a way that is compatible with refuge purposes. They recommended that the CCP identify a program to acquire private in-holdings from willing sellers within the boundaries of the refuge.

The organizations also requested that a basic water resources assessment be conducted for the refuges. The assessment should include an inventory of refuge water rights, document the types and uses of the rights, determine whether those rights are sufficient to meet the purposes of the refuge, and describe threats to water quality and quantity.

Finally, the organizations urged the Service to include a wilderness review in the CCP to determine whether wilderness designation may be appropriate for portions of Bitter Creek or Hopper Mountain NWRs. They requested that, if necessary, the Service assess the need for roads or other infrastructure and include plans and authority to remove unnecessary structures or roads such that wilderness designation is no longer precluded.

WILDLIFE-DEPENDENT RECREATION

A few people were concerned about the lack of visitor services at the refuges and requested that recreation and interpretation opportunities be addressed during the development of the CCP. A group of conservation organizations recommended that the CCP evaluate limited, carefully managed, and guided public access opportunities, but declare certain areas off-limits where public access is incompatible with wildlife protection. Two comments expressed support for public access if the Service has adequate staff and funding to ensure that the use is compatible with the refuges' primary purpose. Additional suggestions included wildlife viewing opportunities, supervised condor viewing trips, volunteer programs, and a monthly designated access day.

A few comments supported the continued closure of the refuges, at least in the near term. One individual requested that the Service install signage to indicate why the refuge is closed to public access and provide a phone number to call to report violations. Two people listed off-road vehicle access or trespass as an issue of major concern. One person listed hunting as an issue of major concern, and two comments recommended that hunting not be allowed. A group of conservation organizations requested that the CCP evaluate the extent of poaching and trespass and contain specific actions to reduce such illegal activity, including increased law enforcement presence.

Comments Specific to the 2008 Bitter Creek NWR Habitat Management EA. Several comments addressed public use. One comment stated that the refuge does not provide a public benefit because it does not allow public access. Two comments noted that condor viewing and wildflower viewing are tourist activities that have economic value. One person suggested that the presence of an on-site grazing operator could help control unauthorized public use of the refuge.

ENVIRONMENTAL EDUCATION

Several responses encouraged the development of educational programs for school children and the general public. One individual expressed concern about the lack of school funding for such educational activities. Another comment suggested that refuge staff and volunteers visit schools to provide outreach about the value of protecting and enhancing refuges. It was also recommended that the Service educate the public about economic benefits provided by the refuge and distribute brochures to local chambers of commerce.

CULTURAL RESOURCES

Several comments addressed cultural resources. One individual listed cultural/historical resource preservation as an issue of major concern. Two comments requested that the refuges be surveyed for Native American and post-settlement cultural resources. One individual praised the area's old adobe buildings, barns, and corrals as reflections of Western heritage and expressed disappointment that they were not protected and were torn down to convert the land to pre-settlement conditions. A conservation organization requested that the CCP and associated NEPA document identify and describe the refuges' archaeological and historical resources and analyze any direct, indirect, and cumulative impacts to these resources resulting from proposed plan actions.

CLIMATE CHANGE

Two comment letters from conservation organizations stated that the potential impacts of climate change should be a central consideration in the development of the CCP. Both letters suggested that climate change be addressed throughout the CCP, including in the following sections: Refuge Vision Statement; Legal and Policy Guidance; Planning Issues; Geographic/Ecosystem Setting; and Refuge Resources, Cultural Resources, and Public Uses. One of the letters made three additional recommendations. First, that the CCP outline a plan to inventory and monitor climate change-related variables and trends. Secondly, that the CCP include climate change information in environmental education and interpretation programs. And third, that the CCP initiate a process to define and minimize ongoing environmental threats like habitat fragmentation, invasive species, and pollution.

GENERAL CCP FRAMEWORK

Many comments, including the petition, called for the CCP to be science based. It was suggested that the Service convene an independent panel to review the CCP, consisting of biologists and wildlife experts instead of range management specialists. One comment requested that the Service adopt an ecosystem approach, and another individual stated that “wildlife comes first” is an appropriate underlying philosophy on which to base the CCP. A group of conservation organizations recommended that the CCP emphasize endangered species protection over all other uses.

Many responses, including the petition and letters from conservation organizations, said that the CCP must comply with Service policy and federal law. Laws cited include the National Wildlife Refuge System Improvement Act, Endangered Species Act, National Environmental Policy Act, and National Historic Preservation Act.

Many comments emphasized that the CCP must be fair and balanced and avoid predetermined outcomes. Several comments expressed concern that the Service is biased against ranchers, cattle, and grazing. The petition asked that such bias not be allowed to influence the planning process. In contrast, a few individuals urged the Service to prioritize wildlife and stand up to grazing interests.

One letter stated that the goals and objectives discussed at the scoping meeting were too broad and abstract. It recommended that the goals and objectives be more precise and measurable, like those in the Independent Rangeland Review report for Bitter Creek NWR, and suggested that the CCP include both short- and long-term goals. The petition also requested that the Service set attainable and measurable restoration goals.

The petition listed several additional recommendations for the CCP: that it define a series of terms, including “native,” “exotic,” “alien,” “non-native,” “restoration,” and “year-round grazing;” that it avoid prejudicial and subjective statements; that it identify statements based on incomplete or unavailable information; and that it be concise, understandable, and available to the public upon request.

PUBLIC INVOLVEMENT

Public involvement in the decision-making process was an issue of major concern raised by many during the 2010 CCP scoping period. Many comments, from members of the public and elected representatives, reflected dissatisfaction with the 2008 Bitter Creek NWR Habitat

Management EA. Several respondents said that they had requested that the Service hold public hearings on the 2008 Bitter Creek NWR Habitat Management EA in 2008. One stated that the EA was deficient because it did not address issues that would have come forth in a more open and transparent public process. Several comments expressed concern that the Service implemented management changes without the benefit of public input, and one suggested that the management plan established in 1984 be put into place until a new plan is developed after more comprehensive public hearings.

Several responses requested that all previous comments on the 2008 Bitter Creek NWR Habitat Management EA be incorporated into the CCP process and reviewed by the project team. Many people expressed a desire for increased collaboration and transparency moving forward, and several comments called for the Service to show greater accountability to refuge neighbors and local residents. There were several requests for additional public meetings and updates and for the direct involvement of refuge neighbors as part of the CCP process. Several people asked for access to previous planning documents, including the 2008 Bitter Creek NWR Habitat Management EA, a record of public comments, and the Independent Rangeland Review report. The Kern County Board of Supervisors requested cooperating and participating agency status, with the Kern County Planning Department designated as the reviewing department.

Several comments stated that the planning process was too long, noting that it is costly and inefficient and prevents active refuge management. A few comments, including the petition, called for the timely and cost-effective completion of planning documents. There was a request for access to the refuge's budget and expenditure information. Two comments stated that the Service is in noncompliance with federal requirements for management activities and program planning, and requested that the CCP be implemented by 2012.

ADMINISTRATION AND OPERATION ISSUES

One comment noted that the Complex brochure identifies the Snedden ranch as part of Bitter Creek NWR and asked that it be corrected. Another requested that the land acquisition boundary not be shown on any publicly-available maps. It was also expressed that Refuge staff should not treat the land as their own, and should instead manage it in a manner that will benefit the local community.

Responses to Comments

on the March 2012

*Draft Comprehensive Conservation Plan/
Environmental Assessment*

1. Introduction

This appendix contains a detailed summary of all comments received in response to the Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges, Draft Comprehensive Conservation Plan and Environmental Assessment (Draft CCP/EA) during the 60-day public comment period. For more information on public involvement for the CCP/EA, please see section 2.2 in chapter 2 of the CCP.

All comments were reviewed and organized to facilitate an objective analysis, management, and presentation of the comments (see section 2.0 of this appendix). For the purposes of this appendix, the word “letter” is generally used to refer to any comment received, whether by letter, facsimile, electronic mail, comment sheet, or verbally. A database was created to help analyze the subject matter and extent of the range of comments received. The names and affiliations of all people who commented are listed in section 3.0. Comments received and the Service’s responses are included in section 5.0. In cases where a comment indicated a minor typographical or editorial error in the Draft CCP/EA, the change was made in the final CCP/EA, but no response is included in this summary.

2. Quantitative Analysis of Comments Received

2.1 Summary of Comments Received on the Draft CCP/EA and the Response Process

The Service received a total of 25 comment letters (via letter, facsimile, and e-mail) on the Draft CCP/EA during the comment period.

2.1.1 Public Review and Comment Period

The comment period was from April 11, 2012, to June 11, 2012. To facilitate public review and comment on the Draft CCP/EA, the refuge mailed a planning update (newsletter) to the mailing list of over 250 parties including: individual members of the public, neighboring landowners, agencies, organizations, and elected officials. The update invited the public to contact the Refuge Manager with any questions or requests for additional information about the alternatives in the Draft CCP/EA. On April 11, 2012, a Notice of Availability was published in the Federal Register announcing the public comment period and that the Draft CCP/EA was available for viewing and downloading online at: <http://www.fws.gov/hoppermountain/>. Electronic copies (compact disks) were also made available upon request. During the comment period, the Draft CCP/EA was available for review at the Hopper Mountain National Wildlife Refuge Complex’s Headquarters in Ventura, the Fillmore Library, Ventura County Library - E.P. Foster Branch, Kern County Library - Taft Branch, Porterville Public Library, Tulare County Library - Springville Branch, and the Pacific Southwest Region’s Refuge Planning office in Sacramento, California. The Draft CCP/EA was also available at the Service’s Conservation Library at the National Conservation Training Center in Shepherdstown, West Virginia. A copy of the Draft CCP/EA was also distributed to the State Clearinghouse.

2.1.2 Affiliations

Table 1 provides a summary of the affiliations of those who commented on the Draft CCP/EA. Names and affiliations of the commenters are listed in section 3.0. Many of the comments received

had letterhead and signatures from various agencies, organizations, and businesses; however, when the entity was not specifically represented in the comment, the comment was left in the “general public” affiliation type.

Table 1. Commenter Affiliation

| Affiliation Type | Number of Letters Received |
|-------------------------|-----------------------------------|
| State agencies | 1 |
| Organizations | 6 |
| General public | 18 |
| TOTAL | 25 |

2.1.3 Comment Media

Comments were received by the Service in both letter and e-mail formats during the comment process.

The distribution of comment media type is summarized in Table 2. If an individual submitted a comment letter using more than one of type media, then it was counted as a single entry in Table 2. For example, if an individual e-mailed a comment letter and sent the same letter via US mail, it was counted as one entry in this analysis. In one case, one commenter submitted the same letter by facsimile and US mail, which was counted as one entry in this analysis. The Refuge management considered all comments received as part of the decision-making process.

Table 2. Type of Comment Media Used

| Type of Media | Number Received |
|----------------------|------------------------|
| Letter | 10 |
| E-mail | 15 |
| TOTAL | 25 |

2.2 Quantitative Summary of Comments Received

Section 5.0 of this appendix presents a summary of specific comments received, followed by the Service’s responses. Comments were identified within the letters and e-mails. Twenty-five letters were received (totaling over 200 pages). The letters contained 787 separable comments. Refuge staff have reviewed every letter received during the comment process and the information contained in those comments was used to help develop the final CCP/EA and refine the Preferred Alternative.

It is important to note that each comment letter may have contained more than one issue. A single comment letter typically included multiple comments on multiple issues. The majority of the comments focused on habitat management (including grazing, fire management, and protection of special status plants). Many of these issues were also identified during the CCP scoping process. The Scoping Summary Report is provided at the beginning of this appendix.

3. Comment Authors

3.1 Agencies

State Agency

State of California, Central Valley Flood Protection Board

(transmitted by State Clearinghouse and Planning Unit,

Signature

James Herota
(Staff Environmental Scientist)

Scott Morgan, Director)

3.2 Organizations

Organization

Center for Biological Diversity
Defenders of Wildlife/Los Padres Forest Watch
[The] Kern Audubon Society
KernTax
Miramar International - Bakersfield
Western Watersheds Project

Signature

Ileene Anderson
Kim Delfino/Jeff Kuyper
Harry Love
Michael Turnipseed
Cece Shanyfelt
Michael J. Connor, Ph.D.

3.3 Public

Caulfield
Chapman
De Vries
Fox
Hamber
Johnson and Steinbeck
Kearns
Lockhart
Munro

Painter
Phillips
Sheehey
Snedden household A
Snedden household B
Stockton
Unger
Wotherspoon
Wright

4. Summary of Changes

The substantive changes to the CCP/EA are described in the responses to comments.

5. Comments and the Service's Responses

This section provides copies of the comment letters received on the Draft CCP/EA and summaries of the individual comments received verbally during the public open houses on the Draft CCP/EA. The Service's responses to the comments are also included. A copy of the original comments received on the Draft CCP/EA is on file at the Service's Refuge Conservation Planning branch office, Pacific Southwest Region, in Sacramento, California.

Following the comment letters in this appendix are comment summaries that present the substantive comments received verbally at the public open houses. In many cases, the comment summary is a quote from a particular comment; in some cases, very similar comments were combined or paraphrased to make them more concise. Therefore, there is some overlap between comment summaries. Every effort was made to present all substantive comments in the summaries.

The Service's responses are included on the pages facing the comment letters and comment summaries.

REC'D JUN 5 2012

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY

EDMUND G. BROWN JR., GOVERNOR

CENTRAL VALLEY FLOOD PROTECTION BOARD

3310 El Camino Ave., Rm. 151
 SACRAMENTO, CA 95821
 (916) 574-0609 FAX: (916) 574-0682
 PERMITS: (916) 574-2380 FAX: (916) 574-0682



June 4, 2012

Ms. Sandy Osborn
 U.S. Department of the Interior
 2800 Cottage Way, W-1832 Refuge Planning
 Sacramento, California 95825

Subject: Draft Comprehensive Conservation Plan for Hopper Mountain, Bitter Creek and Blue Ridge NW Refuges
SCH Number: 20121044002
Document Type: Environmental Assessment

Dear Ms. Osborn:

Staff of the Central Valley Flood Protection Board (Board) has reviewed the subject document and provides the following comments:

The proposed project is located within the regulated area(s) or stream(s), Porter Slough and the Tule River which are under the jurisdiction of the Central Valley Flood Protection Board. The Board is required to enforce standards for the construction, maintenance and protection of adopted flood control plans that will protect public lands from floods. The jurisdiction of the Board includes the Central Valley, including all tributaries and distributaries of the Sacramento River and the San Joaquin River, and designated floodways (Title 23 California Code of Regulations (CCR), Section 2).

A Board permit is required prior to starting the work within the Board's jurisdiction for the following:

- The placement, construction, reconstruction, removal, or abandonment of any landscaping, culvert, bridge, conduit, fence, projection, fill, embankment, building, structure, obstruction, encroachment, excavation, the planting, or removal of vegetation, and any repair or maintenance that involves cutting into the levee (CCR Section 6);
- Existing structures that predate permitting or where it is necessary to establish the conditions normally imposed by permitting. The circumstances include those where responsibility for the encroachment has not been clearly established or ownership and use have been revised (CCR Section 6);
- Vegetation plantings will require the submission of detailed design drawings; identification of vegetation type; plant and tree names (i.e. common name and scientific name); total number of each type of plant and tree; planting spacing and irrigation method that will be utilized within the project area; a complete vegetative management plan for maintenance to prevent the interference with flood control, levee maintenance, inspection, and flood fight procedures (CCR Section 131).

*U.S. Fish & Wildlife Service Response***1. Central Valley Flood Protection Board, California Natural Resources Agency, State of California**

Response 1-1. Comment noted. The Service will comply with the Central Valley Flood Protection Board's requirements to obtain a Board permit prior to starting the actions within the Board's jurisdiction.

U.S. Fish & Wildlife Service Response

[response provided on previous page]

Ms. Sandy Osborn
June 4, 2012
Page 2 of 2

Vegetation requirements in accordance with Title 23, Section 131 (c) states "Vegetation must not interfere with the integrity of the adopted plan of flood control, or interfere with maintenance, inspection, and flood fight procedures."

The accumulation and establishment of woody vegetation that is not managed has a negative impact on channel capacity and increases the potential for levee over-topping. When a channel develops vegetation that then becomes habitat for wildlife, maintenance to initial baseline conditions becomes more difficult as the removal of vegetative growth is subject to federal and State agency requirements for on-site mitigation within the floodway.

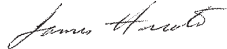
1
cont

Hydraulic Impacts - Hydraulic impacts due to encroachments could impede flood flows, reroute flood flows, and/or increase sediment accumulation. The Project should include measures for channel and levee improvements and maintenance to prevent and/or reduce hydraulic impacts. Off-site mitigation outside of the State Plan of Flood Control should be used when mitigating for vegetation removed within the project location.

The permit application and Title 23 CCR can be found on the Central Valley Flood Protection Board's website at <http://www.cvfpb.ca.gov/>. Contact your local, federal and State agencies, as other permits may apply.

If you have any questions, please contact me by phone at (916) 574-0651, or via email at jherota@water.ca.gov.

Sincerely,



James Herota
Staff Environmental Scientist
Flood Projects Improvement Branch

cc: Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, California 95814



EDMUND G. BROWN JR.
GOVERNOR

STATE OF CALIFORNIA
GOVERNOR'S OFFICE of PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT

REC'D MAY 1 1 2012



KEN ALEX
DIRECTOR

May 10, 2012

Sandy Osborn
U.S. Department of the Interior, Fish and Wildlife Service
2800 Cottage Way, W-1832 Refuge Planning
Sacramento, CA 95825

Subject: Draft Comprehensive Conservation Plan (CCP)/EA for Hopper Mountain, Bitter Creek, & Blue Ridge NWRefuges
SCH#: 2012044002

Dear Sandy Osborn:

The State Clearinghouse submitted the above named Environmental Assessment to selected state agencies for review. The review period closed on May 9, 2012, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

U.S. Fish & Wildlife Service Response

Document Details Report
State Clearinghouse Data Base

REC'D MAY 1 1 2012

SCH# 2012044002
Project Title Draft Comprehensive Conservation Plan (CCP)/EA for Hopper Mountain, Bitter Creek, & Blue Ridge
Lead Agency NWRefuges
U.S. Department of the Interior

Type EA Environmental Assessment
Description Draft Comprehensive Conservation Plan for Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges describes how the US Fish & Wildlife Service proposes to manage the three refuges for the next 15 years. The proposed project description is consistent with sound principles of fish and wildlife management, conservation, legal mandates, and our policies. In addition to outlining broad management direction on conserving wildlife and their habitats, CCPs identify wildlife-dependent recreational opportunities available to the public, including opportunities for hunting, fishing, wildlife observation and photography, environmental education and interpretation.

Lead Agency Contact

Name Sandy Osborn
Agency U.S. Department of the Interior, Fish and Wildlife Service
Phone 916 414 6503 **Fax**
email
Address 2800 Cottage Way, W-1832 Refuge Planning
City Sacramento **State** CA **Zip** 95825

Project Location

County Ventura, San Luis Obispo, Tulare
City Ventura, Porterville
Region
Lat / Long
Cross Streets
Parcel No. multiple
Township **Range** **Section** **Base**

Proximity to:

Highways Hwy 126, 33/166
Airports
Railways
Waterways
Schools Fillmore schools
Land Use Federal Lands (USA)

Project Issues Air Quality; Archaeologic-Historic; Biological Resources; Economics/Jobs; Forest Land/Fire Hazard; Minerals; Public Services; Toxic/Hazardous; Vegetation; Water Quality; Wetland/Riparian; Cumulative Effects

Reviewing Agencies Resources Agency; Department of Fish and Game, Region 4; Department of Fish and Game, Region 5; Cal Fire; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Caltrans, Division of Transportation Planning; State Water Resources Control Board, Division of Water Quality; Regional Water Quality Control Board, Region 3; Regional Water Quality Control Board, Region 4; Regional Water Quality Control Bd., Region 5 (Fresno); Native American Heritage Commission

Date Received 04/10/2012 **Start of Review** 04/10/2012 **End of Review** 05/09/2012

Note: Blanks in data fields result from insufficient information provided by lead agency.



Penny Caulfield
 <penny.caulfield07@g
 mail.com>

06/10/2012 10:13 AM

To: fw8plancmments@fws.gov, vince.fong@mail.house.gov,
 kyle.lombardi@mail.house.gov
 cc:
 Subject: Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife
 Refuges Draft Comprehensive Conservation Plan and Environmental
 Assessment, March 2012

Dear U.S. Wildlife Service:

I have reviewed your latest plan (final draft?) for your management of the Bitter Creek Refuge. I have also attended a couple of your local hearings on this refuge during the last few years. I would like to address a couple of issues with your plan.

1 First, after repeatedly saying prescribed burning would be removed from your management plan
 2 for Bitter Creek, use of fire is still present in the plan. Is this a mistake? Have you not heard the
 3 public? Are you crazy? I have serious doubts that you can pull off a "controlled" burn in this
 4 area, especially since your management of this area has set you, and your neighbors, up for a
 5 flaming catastrophe. Why you haven't used a common sense approach like livestock grazing to
 6 reduce the fire hazard at Bitter Creek Refuge is beyond me. Besides, if our valley air quality is
 so poor that I'm often not allowed a fire in my fireplace, what would your setting the south end
 of the valley ablaze do to the quality of my air?

Second, you want \$4.5 million to build an administrative office for the Bitter Creek Refuge?! As
 a tax payer, I'm outraged! Don't you already have an office and quarters on Bitter Creek? Are
 you that out of touch with the reality of our national and state economic situations?

Third, almost \$1 million for "wildlife friendly" fencing? I remember you doing a lot of this
 fencing 8 - 10 years ago. I'm wildly unfriendly about your lack of maintenance on that which we
 taxpayers already paid for.

Please keep you word and reconsider your wasteful use of dwindling taxpayer assets. I can see
 I'm going to have to keep a closer eye on you!

Sincerely,

John Caulfield

U.S. Fish & Wildlife Service Response

2. Caulfield, J.

Response 2-1. Prescribed fire for habitat management is not being proposed at Bitter Creek NWR; it is proposed at Hopper Mountain NWR and Blue Ridge NWR. There is a mistake in Table 2-2, Draft Environmental Assessment, March 2012, page 17, column for Alternative B (Preferred), last row, 4th bullet, which erroneously reads: "Evaluate use of prescriptive livestock grazing and prescribed fire to reduce invasive plants as part of IPM Plan." In the Final EA, this text is corrected to read: "Evaluate use of prescribed livestock grazing to reduce invasive plants as part of IPM Plan." Response 6-9 provides more information.

Response 2-2. Although grazing may reduce the amount of vegetation available to burn, grazing is not being used primarily to reduce fuels. Grazing cannot completely eliminate the risk of fire.

Response 2-3. Prescribed burning for habitat management is not being proposed at Bitter Creek NWR. The approved Fire Management Plan for Bitter Creek NWR allows for pile burning. Pile burning is a low risk use of fire, used only under specific conditions as permitted by the air quality district. Response 17-1 provides more information.

Response 2-4. The cost estimate in Chapter 5 of the Draft CCP was based on US Fish and Wildlife Service's 2012 Standard Design Justification, which is a tool useful in estimating costs for construction within the next 15 years. The CCP covers a 15-year management period. The Final CCP includes a revised cost estimate that reflects a smaller building and other assumptions to reduce the cost estimate by more than half. Although an estimate is provided in the CCP, Government funding is prioritized and allocated at national and regional levels. As stated inside the cover of all CCPs, "[CCPs] detail program planning levels that are sometimes substantially above current budget allocations and, as such, are primarily for Service strategic planning and program prioritization purposes. The plans do not constitute a commitment for staffing increases, operational and maintenance increases, or funding..."

The temporary office trailer located on Bitter Creek NWR is a modified cargo container used temporarily for staff; it is not a visitor station, and is located too close to sensitive California Condor Recovery Program activities to be compatible for visitor use. The Hopper Mountain NWR Complex headquarters office is located in Ventura, over 1.5 hours away from Bitter Creek NWR. A building is needed on the refuge for on-site administration and as a visitor contact station to enhance the visitor experience and increase educational/interpretive opportunities on the refuge.

Response 2-5. Based upon updated research, the anticipated cost of fencing is expected to be less than the original estimate; Chapter 5 and Table 5-1 were revised accordingly for the Final CCP. Response 2-4 provides more information on costs estimates.

Response 2-6. Same as responses 2-4 and 2-5.



CENTER for BIOLOGICAL DIVERSITY

Because life is good.

protecting and restoring natural ecosystems and imperiled species through
science, education, policy, and environmental law

via email and USPS

6/11/2012

Pacific Southwest Region
U.S. Fish and Wildlife Service
2800 Cottage Way, W-1832 (Refuge Planning)
Sacramento, CA 95825-1846
fw8plancomments@fws.gov

Re: Comments the Draft Comprehensive Conservation Plan and Environmental Assessment (CCP/EA) for the Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges.

To whom it concerns,

Please accept these comments on comment the Draft Comprehensive Conservation Plan and Environmental Assessment (CCP/EA) for the Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges. The Center for Biological Diversity ("Center") is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over 320,000 members and on-line activists throughout California and the western United States. The Center has worked to protect the rare species and their critical habitats and other environmental resources of the California for years.

The Center recognizes the need for a document to guide implementation of refuge activities and is generally supportive of the creation and implementation such guidance documents. The Center is supportive of the on-going activities related directly to condors and their recovery, which has been a great success story. In general we support the goals and objectives as presented in the CCP for condor recovery. However, in the case of the Hopper Mountain, Bitter Creek and Blue Ridge NWRs, we believe a CCP for *each* of the National Wildlife Refuges established for the recovery of California Condors would better serve the resources. This combined CCP and DEA tries to cover all of the refuges, each of which are complex management units in and of themselves and each of which have their individual management challenges. Because of this, the CCP/DEA is overly ambitious and ends up actually failing to adequately comply with the National Environmental Policy Act ("NEPA"). The DEA provides inadequate analysis of the effects of proposed actions on the biological resources based on the complexity of the affected resources, and at a minimum, the impacts of the proposed actions should be more thoroughly analyzed in an Environmental Impact Statement. In the following sections, we provide comments on the Comprehensive Conservation Plan (CCP), the Draft Environmental Assessment (DEA), the Compatibility Suitability Determinations and the Draft Grazing Plan

Arizona • California • Nevada • New Mexico • Alaska • Oregon • Washington • Illinois • Minnesota • Vermont • Washington, DC

Ileene Anderson, Biologist
8033 Sunset Boulevard, #447 • Los Angeles, CA 90046-2401
tel: (323) 654.5943 fax: (323) 650.4620 email: ianderson@biologicaldiversity.org
www.BiologicalDiversity.org

U.S. Fish & Wildlife Service Response

3. Center for Biological Diversity

Response 3-1. The Service often combines CCPs for refuges that are managed within the same refuge complex for economies of scale. Much of Chapters 1, 2, and 5 are common to all CCPs. And, portions of all CCP chapters are common to all 3 refuges. By combining the 3 refuges into 1 CCP further savings are possible in printing, distribution, public workshops expenses, and staff time on the Draft CCP/EA. The Council on Environmental Quality's National Environmental Policy Act (NEPA) Regulations does not contain a detailed discussion regarding the format and content of an Environmental Assessment. The direct, indirect, and cumulative effects of each alternative to the CCP are analyzed in the Draft and Final EAs. The EA is part of the Service's decision making process in accordance with NEPA. An EIS is required by NEPA if significant environmental impacts are anticipated.

Response 3-2. Before it became a refuge, the Bitter Creek area was originally recognized as important for the California condor. The commenter is correct in that the 1996 California Condor Recovery Plan (Recovery Plan) (USFWS 1996) identifies Bitter Creek NWR as one of 9 key California condor foraging areas to be preserved near their nests and roosts. Tule elk on Bitter Creek NWR today were originally dispersed from the privately owned Wind Wolves Preserve (Preserve) to the east of the refuge. The elk were part of two herds reintroduced at the Preserve. We determined that we could not meet our threatened and endangered species and migratory bird objectives for the refuge through native ungulate (tule elk and/or pronghorn) grazing alone. It is unlikely that the refuge would support sufficient populations of native ungulates to achieve habitat objectives for grassland structure. The California Department of Fish and Wildlife (formerly Department of Fish and Game) favors free-roaming as opposed to captive herds. Given that Bitter Creek shares borders with private lands and is adjacent to a highway, establishing a free-roaming herd there would be problematic.

Hopper Mountain NWR and Bitter Creek NWR (about 2,400 and 14,000 acres, respectively) comprise a very small portion of the home range of a single condor. Neither supplemental feeding nor natural livestock mortalities at the refuges is sufficient to support the condor population. A condor's monthly home range is hundreds of square miles. Studies during the 1980s showed that the last California condors remaining in the wild prior to 1987 comprised a single population of birds occupying a range of 4,942,000 acres (USFWS1996). The range for condors is currently expanding as their numbers and management activities have expanded throughout their historic range in California. Therefore, the two refuges are a part of a much larger region inhabited by condors. We are committed to work cooperatively with the Preserve managers (who manage the tule elk herd) and ensure the refuge continues to provide one of the key California condor foraging areas identified in the Recovery Plan.

U.S. Fish & Wildlife Service Response

Response 3-2 is provided on the previous page.

Comprehensive Conservation Plan

2 While we generally support the broad goals proposed in the CCP, the objectives are often too vaguely identified to achieve goals and in some cases are in direct conflict with proposed actions. For example the grazing plan for Bitter Creek NWR is in direct conflict with the Service's guidance documents for Bitter Creek. The California Condor Recovery Plan states that for Bitter Creek, "As a refuge, its primary management emphasis should be to support native ungulates as a food source for condors."¹ (Recovery Plan at 29). This same goal is reiterated in the Service's Spotlight Species Action Plan for California condor (2009), which states "funding for the establishment and management of a native, wild ungulate population (e.g. pronghorn) on Bitter Creek NWR would allow for an accessible, sustainable and natural food source for California Condors in the surrounding area."² Indeed the CCP recognizes that Tule elk already use the refuge (at 21) yet fails to provide guidance on their continued management. Despite being specifically called out for management in the 2009 Species Action Plan, pronghorn are not even addressed.

3 While the CCP's Goal 2 for Bitter Creek NWR is to "Protect and enhance Bitter Creek NWR grasslands to promote ecologically sound conditions to support a diversity of migratory birds and special status species" (CCP at 117), a list of 14 special status animals and two special status plants (with unavailable reference to additional plant species) follow. The first objective (2.1) are surveys for the species, which clearly is key to developing a comprehensive conservation plan to begin with, and actually that objective should have been done prior to the developing the CCP. Objective 2.2 proposes to provide habitat to a suite of rare grassland species with some very specific vegetation heights (1-4 inches) and incredibly, a measure for Residual Dry Measure (RDM) without any reference to supporting data that these parameters are key for these rare species habitat. In fact, all of the San Joaquin special status species require a mosaic in their habitat, including widely spaced shrubs³, cover sites and soils that allow for escape burrows (for some species). While patches of bare ground are desirable within the habitat, an overall low RDM and cover of only 1-4 inches will not provide the necessary resources for these species. Grazing intensity to reach the proposed height and RDM could actually be detrimental to a number of the special status species as documented on nearby Carrizo Plain National Monument (see comments below).

6 Surprisingly, except for condors, no goals are identified specifically for actively recovering other rare species in the CCP.

7 As noted in our comments below on the grazing plan, Objective 2.3 focuses on management of the grasslands on the Bitter Creek NWR based on dividing it into thirds and managing it as "high", "medium" and "low", which seems arbitrary and certainly does not appear to have any ecological basis. In fact, it echoes range management objectives. As a NWR, the Service has an opportunity to manage for ecological health, based on a more complex set of objectives, which need to be developed, based on hydrogeomorphology, soils, precipitation

1 http://ecos.fws.gov/docs/recovery_plan/960425.pdf

2 http://ecos.fws.gov/docs/action_plans/doc3163.pdf

3 http://ecos.fws.gov/docs/recovery_plan/980930a.pdf

Response 3-3. Comment noted. Chapter 4, section 4.7, page 134 of the Draft CCP, Blue Ridge Objective 2.1 includes collection of baseline information (data) about the presence and distribution of special status species on the refuge. The 3 refuges addressed in this CCP include over 23,000 acres. While conducting exhaustive inventories of the 3 refuges prior to beginning the CCP would be ideal, the Service has not had, and does not expect to receive, sufficient funding or personnel to conduct resource surveys prior to developing CCPs for each refuge. Acquiring baseline scientific information about refuge resources through surveys is a priority for the Service and is included in the CCP for each of the refuges to help inform management decisions. Additionally, monitoring of refuge resources is included in the strategies and the future Habitat Management Plans (HMPs) for each refuge.

In the past, inventory and monitoring efforts on these 3 refuges have focused almost exclusively on the California condor. In addition to the monitoring done for the condor, the CCP includes strategies for an Avian Monitoring Plan (for birds other than the condor), annual riparian and wetland monitoring, and objectives for native black walnut, oak woodland, coastal sage scrub, grasslands HMPs that would include monitoring (page 96, 106, 107, 109 of the Draft CCP, respectively). For example, strategies for monitoring resources at Hopper Mountain NWR include 3.3.5; at Bitter Creek NWR include 2.3.4, 2.3.7, 3.1.3, 5.2.1; and at Blue Ridge NWR include 2.1.4, 2.2.2, and 2.2.3.

Response 3-4. As explained in Chapter 4 of the Draft CCP, in Rationale 2.2, Bitter Creek NWR Objective 2.2 is modeled after adaptive management practices used successfully at the neighboring Carrizo Plain National Monument. BLM's Carrizo Plain National Monument Approved Resource Management Plan and Record of Decision (2010) is cited in Rationale 2.2. The Service agrees that many San Joaquin special status species require a mosaic of habitat types and Bitter Creek NWR Objective 2.3 is to establish such a mosaic. References were added to the CCP Rationale 2.2 for Objective 2.2 citing Germano et al. (2012), which found that populations of blunt-nosed leopard lizard and giant kangaroo rat (San Joaquin special status species) increased significantly faster in grazed plots than in ungrazed plots; and of the eight species studied, only Heermann's kangaroo rat were more abundant on the ungrazed plots.

Response 3-5. It is possible that grazing to reach the Bitter Creek NWR Objectives could be detrimental to some special status species (as discussed in the Environmental Assessment [EA], Appendix B and in the Bitter Creek NWR Grazing Plan, Table 1). However, these potentially adverse effects will be avoided and minimized as discussed in the EA (Appendix B) and in the stipulations in the compatibility determination for grazing (Appendix C). The Service will also complete compliance with the Federal Endangered Species Act, as amended, on the implementation of CCP activities and comply with any resulting terms to protect listed species. Information about adaptive management to avoid adverse effects is provided in response 3-4.

Response 3-6. The Draft CCP includes multiple goals specifically to benefit rare or special status species. For example, Hopper Mountain NWR Goal 4 benefits the native black walnut and oak woodlands, and special status wildlife dependent upon these woodlands. Hopper Mountain NWR Goal 5 benefits the coastal sage scrub plant community, which includes California Species of Special Concern listed under Rationale 5.1. Bitter Creek NWR Goal 2 is intended to benefit special status species and migratory birds including San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, and Nelson's antelope squirrel (as listed in Objective 2.2). Bitter Creek NWR Objective 3.1 is intended to benefit multiple focal bird species and Objective 4.4 benefits tricolored blackbird, a species of concern. More information on the goals to recover species listed as endangered or threatened can be found in their respective recovery plans.

7 cont regime, aspect, slope etc. The unsophisticated approach to this objective will not achieve the overarching goals of the CCP.

8 While we agree that non-native plant and animal species are a threat to the biodiversity and ecosystem processes on the NWRs and elsewhere, the CCP's strategy to develop an IPM seems like planning to plan. The CCP should include clear strategies for reducing targeted non-native species.

9 The planning to plan strategy is carried on with the "step-down HMP". While we discuss the NEPA implications below, the point here is that the CCP is not really comprehensive at all, because it relies on future plans to actually identify what happens on the NWRs.

10 We do not see how Goal 6 "Promote ecosystem function by enhancing landscape-level connectivity within the Transverse Ranges through coordinated management." (CCP 126) can ever be achieved, because of the retention of fencing on the Bitter Creek NWR and the proposal to build more. While we agree that roads fragment wildlife habitat, so do fences, and without addressing both, this goal seems unreachable.

Draft Environmental Assessment

Purpose and Need and Project Description are Unclear

11 While the CCP/DEA is clear about the purpose of the refuges and the purpose of the CCP, it is unclear about the purpose and need for some of the proposed actions. For instance, the actual purpose and need on why the proposed grazing on Bitter Creek NWR is required remains unclear. No grazing has occurred on most of refuge for over eight years due to the Service's recognition that refuge habitats were degraded from domestic stock grazing, yet the DEA is unclear as to why it now needs to be grazed. No compelling reasons of need are identified. Please clarify why each of the refuges where grazing is proposed needs to be grazed.

The DEA Fails to Include a Full Range of Alternatives

12 The DEA includes only 3 alternatives – the No Action, the Preferred Action, and Alternative C. Due to the complexity of the refuges and the variety of management actions available to achieve the goals of the respective refuges, additional feasible alternatives need to be included.

13 For specific actions, including grazing on Bitter Creek NWR, the DEA unreasonably limits the vegetation treatments exclusively to domestic stock grazing and incorrectly dismisses other reasonable alternatives including mechanical methods, prescribed fire, solarization and chemical applications or a combination of the above. In doing so, the DEA misses the opportunity to use a wider variety of approaches to enhancing habitat, and adopts a technology that is known to impact a variety of native species, especially native plant species including rare

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Response 3-7. Bitter Creek NWR Objective 2.3 is to achieve greater heterogeneity (a mosaic of habitat structure and floristic diversity). Grazing can be effective in maintaining habitat heterogeneity and target RDM levels (Huntsinger et al. 2007, Stahlheber and D'Antonio 2013, and see discussion in revised Prescribed Grazing Plan for Bitter Creek NWR [Grazing Plan]). Grazing cells on the refuge, as presented in the Grazing Plan, were based upon hydro-geomorphology, soils, aspect, slope, etc.

Response 3-8. The CCP includes multiple strategies to reduce targeted non-native species, in addition to developing an IPM Plan: Hopper Mountain NWR Strategies 2.1.5, 2.1.6, 2.1.7, and 3.2.2; Bitter Creek NWR Strategies 2.4.3, 2.4.4, 2.4.5, 3.3.1, 3.3.2, 4.3.5, 4.5.2, 4.5.3, and 4.5.4 (Objective 2.4 addresses infestations of target invasive plants yellow star thistle and mustards; Objective 2.5 addresses invasive animals); and Blue Ridge NWR Strategies 2.2.1, 2.2.3, and 3.2.2. Response 3-9 provides more information about step-down plans.

Response 3-9. The commenter is correct in that the "step-down" Integrated Pest Management Plan (IPM) and Habitat Management Plan (HMP) will describe more detailed actions than what is presented in the Draft CCP. Page 138 of the Draft CCP, section 5.3 lists the step-down plans, including an HMP and IPM Plan for Bitter Creek NWR. This section also indicates that the appropriate level of NEPA compliance will be conducted when the proposed step-down plans are developed.

Response 3-10. The comment refers to Bitter Creek NWR Goal 5. Under Goal 5, the goal to improve habitat connectivity, the CCP addresses both roads and fences on the refuge. Roads are addressed under Objective 5.1 and fences on the refuge are addressed under Objective 5.2. While removing all fences on the refuge boundary and interior would be ideal to enhance landscape-level connectivity, this is impractical due to illegal trespass and neighboring land uses. In the interior of the refuge, fencing helps us manage areas of grassland separately to achieve the desired habitat objectives for migratory birds and special status species in specific areas of the refuge; that is, fences are needed to separate and/or protect various parts of the refuge. Under Objective 5.2, Bitter Creek NWR Strategy 5.2.3 is to remove unnecessary internal fencing and Strategy 5.2.4 is to increase the use of wildlife-friendly fencing.

Response 3-11. The Grazing Plan has been revised to clarify that grazing is being considered as a means to reach multiple CCP objectives and strategies. The objectives of the Grazing Plan are the same as the objectives for Bitter Creek NWR in the CCP. The rationale behind the use of grazing to achieve natural resource objectives at Bitter Creek NWR is provided in CCP Chapter 4 (Rationale 2.2, Rationale 2.3, and Rationale 2.4). References were added to the rationales for CCP Objectives 2.2 and 2.3, supporting the specific purpose of using grazing as a grassland management tool to reach the grassland objectives. Monitoring studies over a 7-year period (Germano et al. 2012) found that if cattle grazing is closely monitored in space and time to minimize adverse effects on the habitat, grazing could be an effective tool to control dense stands of non-native grasses and benefit native wildlife.

Response 3-12. The alternatives were formulated to represent the range of management tools and actions to achieve refuge purposes. Based on the input we received during public and internal scoping, we developed each alternative by combining potential management actions that followed a consistent theme. Of the alternatives evaluated in the environmental assessment, we believe Alternative B best achieves refuge purposes.

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13 *cont* plants, and provides requirements for protection and avoidance only to some currently known locations, while admitting that comprehensive surveys have not been done.

14 In diverting water from wetlands, spring and seeps and riparian areas for grazing purposes, the hydrological landscape can be substantially altered⁴. Yet no alternative is included that looks to restore these key water-dependent areas on Bitter Creek NWR. Based on the fact that over 98% of southern California wetlands have been lost as of 1989⁵, continued impairment of these resources does not seem in line with the goals of the refuge system or basic ecological principles. The DEIS should consider restoration of wetlands, spring and seeps and riparian areas instead of

The DEA Fails to Adequately Analyze Alternatives

15 Project description of the Preferred Alternative on Hopper Mountain NWR, “Develop and implement step-down grassland Habitat Management Plan to maintain a mosaic of habitats suitable for special status species. Consider grazing (e.g., sheep, cattle)” (DEA at 8). It appears that the DEA is a programmatic document for the grassland habitat management plan (and other proposed habitat management plans including for wetland management and oaks/walnuts). Yet the DEA does not analyze the impacts from any potential grazing scenarios or management actions for wetlands or oaks/walnuts.

16 As with Hopper Mountain, the habitat management plan(s) proposed as part of the Bitter Creek NWR preferred alternative is unclear about the NEPA associated with it. In addition, there seems to be a disconnect between actions identified in the DEA’s preferred alternative and supporting documents. For example, the DEA’s preferred alternative states that “Use prescriptive grazing to preserve grassland mosaic and allow oak recruitment” (DEA at 17), yet the grazing plan does not mention oak recruitment as a goal, nor does it address strategies for oak recruitment.

Assessment of On-Site Resources Is Lacking

18 Many of the proposed action of the CCP include surveys for on-site resources. The survey actions covered in the DEA actually should have been done *prior to* the CCP and environmental review. Monitoring of resources on the NWRs should be apart of the current management. The CCP should be based on the results of those surveys and NEPA review should evaluate proposed management actions based on the results of the surveys. In that regards the CCP seems premature.

Inadequate Analysis of Impacts on resources

4 Belsky et al. 1999 http://www.landinfo.org/ecosystem_defense/science_documents/_Belsky_et_al_1999.pdf
5 Bowler 1989

Response 3-13. Other reasonable alternatives to prescribed grazing for vegetation management are included in the Draft CCP/EA. A variety of Integrated Pest Management (IPM) methods are presented in the Draft CCP/EA, including biological, mechanical, and chemical techniques to manage refuge resources. In CCP Chapter 3, Bitter Creek NWR Strategies 2.2.2 and 2.3.2 include the use of “various grassland management tools to achieve habitat objectives (e.g., grazing, over-seeding..., mowing, and herbicides)...” Therefore, we do not propose to only use domestic livestock grazing for wildlife habitat management; we propose to use a variety of methods to manage refuge resources. The Grazing Plan has been revised, including the addition of more information on resource monitoring and adaptive management. Response 3-8 provides more information about the management of invasive non-native plants.

Response 3-14. The Service has considered the potential restoration of wetlands, springs, and seeps, as part of the development of alternatives in the CCP/EA. In consideration of available management resources and the goals of Bitter Creek NWR, the Service developed reasonable alternatives, which include feasible wetland and riparian restoration projects, under Bitter Creek NWR Goal 4, Objectives 4.1 and 4.2 to gather baseline data about wetland and riparian areas, Objective 4.3 to restore natural spring flows in 3 watersheds on the refuge, Objective 4.4 to improve wetland habitat to benefit the tricolored blackbird, and Objective 4.5 to reduce non-native invasive wetland and riparian plants.

Response 3-15. The Draft EA (pages 31, 32, 40-42) includes an analysis of potential effects of grazing and other management actions on wetlands and oak woodlands at Hopper Mountain NWR. As appropriate, separate NEPA analyses will be prepared for related step-down management plans.

Response 3-16. Page 138 of the Draft CCP, section 5.3 lists the step-down plans including an HMP for Hopper Mountain NWR and Bitter Creek NWR. As stated in section 5.3 regarding the HMPs, “The public will be given ample opportunity for plan review and comment.” This section also indicates that the appropriate level of NEPA compliance will be conducted when the proposed HMP is developed.

Response 3-17. The objectives for heterogeneity in the CCP Chapter 4, and those reflected in the Grazing Plan, have been modified in the Final CCP/EA and appendices. Tree shelters as well as managed grazing are proven methods to boost oak recruitment (McCreary and George 2005) Building tree shelters around oak or other tree species seedlings is a proven strategy for recruitment against other herbivores (e.g. deer, small mammals), whether or not livestock grazing is present.

Response 3-18. In the Service’s Pacific Southwest Region alone, the Service manages 50 refuges covering 2.3 million acres in California, Nevada and the Klamath Basin. The 3 refuges addressed in this CCP include over 23,000 acres. While surveying the 3 refuges prior to beginning the CCP would be ideal, the Region has not had, and does not expect to receive, sufficient funding or personnel to conduct exhaustive resource surveys prior to developing CCPs for each refuge. Acquiring baseline scientific information about refuge resources through surveys is a priority and is included in the CCP for each of the refuges to help inform management decisions. Monitoring of resources on the NWRs is included in the strategies and the future Habitat Management Plans (HMPs) for each refuge. In the past, inventory and monitoring efforts on these 3 refuges have focused almost exclusively on the California condor. The CCP includes strategies for an Avian Monitoring Plan (for birds other than the condor), annual riparian and wetland monitoring, and objectives for native black walnut, oak woodland, coastal sage scrub, grasslands HMPs that would include monitoring (page 96, 106, 107, 109 of the Draft CCP, respectively). For example, strategies for monitoring resources at Hopper Mountain NWR include 3.3.5; at Bitter Creek NWR include 2.3.4, 2.3.7, 3.1.3, 5.2.1; and at Blue Ridge NWR include 2.1.4, 2.2.2, and 2.2.3.

19 The DEA fails to evaluate the impacts to existing wildlife resources from the 60 miles
20 existing fencing on Bitter Creek NWR. It also fails to evaluate the potential impacts from
installing another 20 miles of fencing to resources.

21 The DEA fails to evaluate the impacts to spring/seeps/riparian vegetation from the
existing water diversions from grazing infrastructure on Bitter Creek NWR and any proposed
water infrastructure development.

22 The DEA fails to evaluate the impacts to rare plants from grazing activities proposed on
Bitter Creek NWR. The CCP recognizes that thorough surveys for rare plants has not been done
(CCP at 118), but none of the documents appear to protect the known populations of rare plants
from grazing, much less any undocumented populations. In the instance of the Kern mallow
(*Eremalche parryi* ssp. *kernensis*), a federally endangered plant, known from at least three
locations on the refuge (Grazing Plan at 25), the lack of analysis is a violation of NEPA. In
23 addition the DEA recognizes that “there is the potential for up to 53 special status species of
plants to occur at Bitter Creek NWR” (DEA at 68), yet impacts from proposed grazing is not
evaluated for any of them either.

24 While a number of rare animal species have been documented on the Bitter Creek NWR,
including California condor, San Joaquin kit fox, tri-colored blackbird and burrowing owl have
been documented (DEA at 68-69), analysis of the effects of the proposed grazing on these
species and their habitats is not discussed. In addition the DEA lists four federally listed species
with potential to occur on the refuge (DEA at 68-69), yet potential impacts from proposed
25 grazing is also not discussed for these species. Also, twenty-two “focal species” of birds are
26 listed in the DEA (at 69), but the DEA does not indicate their status nor does it evaluate potential
impacts from the proposed grazing.

Analysis of Cumulative Impacts Inadequate

27 The DEA fails to include an evaluation of the proposed Haiwee Geothermal Leasing
Area (HGLA) which includes approximately 22,040 acres of land in the general area (it is
unclear how much of an overlap exists) that could be targeted for geothermal leases. In
28 addition, three pending geothermal lease proposals that total approximately 4,500 acres of
federal mineral estate within the boundaries of the HGLA are currently under review for
permitting, and those reasonably foreseeable projects are also not mentioned in the DEA. It is
29 also unclear how the proposed action affects the Rose Spring ACEC. There may be additional
30 actions proposed in the area that need to be included in the cumulative impacts section.

Compatibility Determinations

Bitter Creek, Blue Ridge and Hopper Mountain – Wildlife Observation and Photography and Interpretation

While we generally see societal value in providing wildlife viewing opportunities and carefully managed public access. Educational emphasis on condors and other species (so long

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Response 3-19. The Service has considered the effects to wildlife resources from existing and future fencing and further discussion of these effects has been added to the Final CCP/EA. To reduce adverse effects to wildlife from fencing, Bitter Creek NWR Strategies 5.2.3 and 5.2.4 in the Draft CCP include removal of unnecessary fencing and replacement of fences with wildlife-friendly fencing.

Response 3-20. Same as response 3-19.

Response 3-21. The EA evaluates the potential effects of the CCP actions on springs/riparian areas. The National Environmental Policy Act (NEPA) applies to a federal action when there is a recommendation or proposal for an action. The resulting effects of the existing water diversions are not included in the effects analysis in the EA because the water diversions already exist and are not actions being proposed. The EA does not analyze the effects of existing water diversions that were installed in the past (or other past activities such as ranching) because those actions are not included as CCP actions and the federal government did not have control over those original actions. The existing diversions are included in the description of the present conditions on the refuge provided in Chapter 3 of the CCP and referenced in the EA (EA Chapter 3, Affected Environment).

Response 3-22. The potential effects to rare plants from prescribed grazing activities at Bitter Creek, Hopper Mountain and Blue Ridge NWRs were added to the Final EA.

Response 3-23. The analysis and discussion of potential effects to special status species was expanded upon in the Final CCP/EA and in a special status species table in the Grazing Plan. Furthermore, an assessment of the uncertainty associated with the lack of site- and species-specific research, and the need for adaptive management and monitoring, were added to the CCP/EA.

Response 3-24. The Service has considered the potential effects of grazing on special status species and further discussion of these effects have been added to the Final EA and in a special status species table in the Grazing Plan. Furthermore, an assessment of the uncertainty associated with the lack of site- and species-specific research, and the need for adaptive management and monitoring, were added to the CCP/EA text.

Response 3-25. The Service has considered the potential effects of grazing on Federally-listed species and further discussion of these effects has been added to the Final EA and a special status species table in the Grazing Plan.

Response 3-26. The Service has considered the potential effects of grazing on focal species and further discussion of these effects have been added to the Final CCP/EA.

Response 3-27. The Service disagrees that the HGLA is in the general area, given that the project is approximately 300 miles away from the Refuge. Effects of the HGLA would be evaluated by its proponents in the environmental documentation associated with that project.

Response 3-28. Same as response 3-27.

Response 3-29. Rose Spring ACEC is a designation by BLM and is located in the Owens Valley in the eastern Sierra Nevada Range, not within the area of influence for the 3 refuges addressed in the CCP/EA. The text in the Final EA has been clarified accordingly.

Response 3-30. A search was conducted for proposed projects within the vicinity of the Refuges.

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Response 3-31. Environmental education and interpretation were determined to be compatible with the purposes for which the refuge was established.

Response 3-32. Additional information was added Compatibility Determination for Grazing at Bitter Creek NWR (Appendix C to the Final CCP); grazing was determined to be compatible with the purposes for which the refuge was established.

Response 3-33. Same as response 3-2. Regarding the compatibility determination, a compatibility determination is not required for grazing or browsing by native ungulates on the refuge.

Response 3-34. The refuge Complex biologist position has been filled. Response 3-32 provides additional information on the compatibility determination.

Response 3-35. Citations in the CCP/EA, Compatibility Determination for Grazing and Prescribed Grazing Plan for Bitter Creek NWR (Grazing Plan) have been updated to include the most recent peer-reviewed literature.

31 as it does not disturb condor feeding, nesting or other needs) as well as building the support for the Refuge System in general and the education of the public on the need for large, connected landscapes for ecosystem preservation is key. However, the compatibility determination relies upon additional staff and resources for implementing activities associated with development and construction of interpretive trails, overlooks, parking areas, tours, etc. We question the feasibility of adding additional staff during these times of staff layoffs and streamlined budgeting. Indeed the CCP states “Funding will be sought through the Service budget process” (Appendix C). We believe the on-going lack of funding makes this determination infeasible and language needs to be added that absent guaranteed on-going funding, public access will be limited to current use.

Bitter Creek – Grazing

32 Based on our analysis of the proposed grazing plan, this compatibility determination wrongly concludes that grazing is compatible with the goals of Bitter Creek NWR (Please see comments below on the Draft Grazing Plan)

33 As stated in the California Condor Recovery Plan regarding Bitter Creek NWR, “As a refuge, its primary management emphasis should be to support native ungulates as a food source for condors.” (RP at 29). This same goal is reiterated in the Service’s Spotlight Species Action Plan for California condor (2009), which states “funding for the establishment and management of a native, wild ungulate population (e.g. pronghorn) on Bitter Creek NWR would allow for an accessible, sustainable and natural food source for California Condors in the surrounding area. (USFWS, \$1,000,000; USFWS, \$25,000, annually).”⁶ Yet the grazing compatibility determination (and DEA and CCP) only consider domestic stock (sheep and cattle), which is at odds with the Service’s guidance for Bitter Creek NWR grazing.

34 In addition, the determination states that “To fully implement all monitoring objectives identified in the Prescribed Grazing Plan and CCP will require an additional full-time on-site biologist position.” (Appendix C). As mentioned above, current and projected future federal budgets, the refuge can not guarantee that a permanent new biologist position will be available during the plan duration (nor can the Service assure that adequate funding would be available to implement the rigorous monitoring that would be required (see comments on Proposed Grazing Plan) if grazing was implemented. Because of this, the compatibility determination is not comprehensive in its evaluation of compatibility of grazing with resources protection on the Bitter Creek NWR. The compatibility determination may be appropriate if it concludes that no grazing would occur if adequate monitoring resources (scientific monitors, staff biologist, rigorous monitoring protocols, etc.) are not available.

35 Many of the scientific articles cited in support of grazing on Bitter Creek NWR, are actually inappropriate for the arid landscape of Bitter Creek (for example Davis and Sherman 1992 paper was on coastal prairies and McNaughton 1985 was on the Serengeti)

Hopper Mountain – Grazing

⁶ http://ecos.fws.gov/docs/action_plans/doc3163.pdf

36 We did not find a proposed grazing plan for Hopper Mountain, so it is impossible to evaluate if the proposed grazing is compatible. If grazing is considered on Hopper Mountain, a clear grazing plan with quantitative monitoring and triggers for actions should be prepared and included in a revised draft CCP and DEIS.

Draft Grazing Plan

37 As noted previously, the draft Prescribed Grazing Plan only addresses domestic stock (sheep and cattle), despite the fact that Service's own California condor Recovery Plan and Spotlight Species Action Plan (2009) for California condor identify that native ungulates should be supported, established and managed on Bitter Creek NWR. In fact, the Draft Grazing Plan notes that Tule elk currently "regularly use areas east of Bitter Creek canyon" (Appendix H pg. 8). Yet the grazing plan fails to address these key issues and in fact proposes actions that preclude the goals of the recovery plan and Action plan, for example, maintaining and increasing fencing, which is incompatible with pronghorn.

38 While we support recovery of the suite of imperiled San Joaquin Valley species, and indeed requested that the CCP address these species' recovery on the Bitter Creek NWR, the grazing plan is based on Objective 2.2 of the CCP which states that "Within 10 years, provide suitable short-grass habitat with vegetation height between approximately 1-4 inches, shrub cover less than 20%, and residual dry matter (RDM) between 300 and 600 pounds/acre for San Joaquin Valley special status species (such as San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, Nelson's antelope squirrel) on approximately 1,300 acres in the northwestern portion of the refuge". This objective bases the grazing targets on grazing guidelines (Bartholome 2002), not imperiled species requirements. In fact, no goals/objectives for these rare and endangered species recovery are provided in the grazing plan (or elsewhere in the DEA/CCP that we could identify) and no data related to rare species habitat requirements are presented in support of the grazing targets.

39 While the primary goal of the grazing plan is to "Improving wildlife habitat by changing vegetation structure and composition, and by providing a variety of levels of annual grass RDM" (Appendix H at 2), the proposed plan provides no documentation that grazing has actually successfully improved wildlife habitat, particularly in the general area. In fact, grazing studies on the nearby Carrizo National Monument demonstrate that grazing negatively affects native plant diversity and cover, bunchgrass cover, and does not negatively impact undesirable invasive non-native plant species.⁷ The grazing plan fails to present any data that supports that grazing will negatively impact undesirable non-native plants, much less improve wildlife habitat.

40 Objective 2.3 states "Within 10 years, manage up to 7,000 acres of the refuge's grasslands to achieve a mosaic of habitat structure and floristic diversity, including scattered shrubs, to support a diversity of grassland birds. Manage approximately one-third as short grassland (height 3-8 in), another third as medium grassland (height 6-12 in), and another third as tall grasslands (height 12-25 in), and monitor for native plants." The objective needs to clarify

⁷ Kimball and Schiffman 2003 <http://skimball.bio.uci.edu/documents/Kimball%26Schiffman.pdf>;

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Response 3-36. The potential effects of grazing at Hopper Mountain NWR are analyzed in the Environmental Assessment (EA). When more detailed information is available about proposed grazing at Hopper Mountain, a grazing plan will be developed. If the effects are different than what is analyzed in the EA, the appropriate NEPA compliance will be completed.

Response 3-37. We determined that we could not meet our threatened and endangered species and migratory bird objectives for the refuge through native ungulate grazing alone. The Grazing Plan was revised to include the following information. 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. The difficulty in controlling distribution and numbers of wild ungulates makes their use in prescribed grazing impractical (Huntsinger et al. 2007). In addition, the California Department of Fish and Wildlife favors free-roaming as opposed to captive herds. Given that Bitter Creek NWR shares borders with private lands and is adjacent to a highway, establishing a free-roaming herd there would be problematic. Response 3-2 provides more information.

Response 3-38. Same as response 3-11.

Response 3-39. The Grazing Plan has been revised to clarify the rationale behind the use of grazing as a tool to reach the grassland management objectives and additional references have been cited. The primary objectives for these units of the refuge are to provide habitat conditions suitable for threatened and endangered San Joaquin Valley species (Bitter Creek NWR Objective 2.2). Regarding the grazing research at Carrizo National Monument: the research done at the Carrizo Plain by Christian and colleagues, which is possibly referred to by the commenter, is widely cited as disproving the hypothesis that grazing favors native plants and is not published. Therefore, we understand this Carrizo Plain research as inconclusive rather than showing that grazing does not benefit native plants. Responses 3-4 and 3-11 provide more information about grassland objectives. Responses 3-8 and 3-13 provide more information about management of invasive non-native plants.

Response 3-40. Same as response 3-7. Responses 5-21 and 15-91 provide more information about the objectives to achieve a mosaic of wildlife habitat structure and floristic diversity.

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Response 3-41. Surveys for rare plants are included in Hopper Mountain NWR Strategies 2.2.2, 3.1.1, 4.1.1., 5.1.2, and new Strategy 5.1.3 in the Final CCP/EA. Response 5-12 provides more information about strategies for inventory and monitoring at all three refuges.

Response 3-42. Same as response 3-7.

Response 3-43. Same as response 3-10. Responses 3-19 and 25-8 provide more information about removal of unnecessary fencing and replacement of fences with wildlife-friendly fencing.

Response 3-44. The “expansive and intricate” water control system and structures described are existing at Bitter Creek NWR now. The grazing actions described in the CCP may require additional temporary water, but the CCP also includes restoring natural water flows in some areas, which includes removing or not using some of the water control structures; the net effect is estimated to be similar to existing conditions. This discussion was expanded in the Final EA.

40
cont management for floristic diversity of native species. The management proposal of evenly dividing the 7000 acres into short, medium and tall grasslands appears arbitrary. A rational approach to managing for different types of grasslands would be based on soils, elevations, aspect, precipitation and runoff patterns and other ecological parameters. In other words, tailoring the type of grassland goals to the hydrogeomorphological conditions is more appropriate, easier to manage and ecologically preferable rather than dividing management of the current grassland area into thirds.

41 It is likely that historical data on ecological conditions of Bitter Creek NWR are lacking, and none are presented in the DEA/CCP. Because the absence of historical data that can serve as a frame of reference for what constitutes natural conditions, there can be an unintentional failure to perceive slow ecological decline associated with continued grazing and other human activities. Prior extent of grasslands may differ from the current extent. The CCP would be well served to take a closer look at the hydrogeomorphological conditions and explore if other types of communities/habitats are better suited for target species, such as shrublands or oak woodlands.

42 It is unclear exactly how the grazing units or cells were identified, although it appears that they are historic pastures (Appendix H at 6). All of the existing fencing will guarantee that native ungulates, especially pronghorn will never establish on the refuge.⁸ Any grazing units should be identified on ecological principles, and clearly areas that support rare plants⁹ and plant communities¹⁰ should not be grazed due to their rarity and threat from grazing.

43 With approximately 60 miles of fence already fragmenting the refuge, it is unfathomable that the grazing plan proposes more (Appendix H at 6). Approximately 20 more miles of fencing will be installed (Appendix H at 19), yet the DEA fails to evaluate the impacts to wildlife from the existing fences, much less the new proposed fences. Fencing is an identified cause of wildlife habitat fragmentation.¹¹ Fencing is expensive and according to the grazing plan, the refuge is responsible for construction, which is totally inappropriate that a wildlife refuge would be implementing habitat fragmentation.

44 The watering facilities (tanks, pipes and troughs) are noted to be intricate and expansive (Appendix H at 6). Yet the grazing plan (and CCP) fails to evaluate the need for such an expansive and intricate system, or the effects that these systems on the native plant and animal communities (i.e. water diversions from natural springs and seeps and the creation of artificial waters elsewhere). Artificial water sources have been documented to create disturbance gradients (piospheres)¹² in arid ecosystems, yet this impact is not identified or evaluated. In addition, refuge is proposed to supply materials for, maintenance of and water to the water

⁸ Sheldon and Lindzey 2005

<https://www.dot.state.wy.us/files/content/sites/wydot/files/shared/Public%20Affairs/Movement%20and%20Distribution%20Patterns%20of%20Pronghorn%20Antelope.pdf>

Schemnitz 1994 <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1050&context=icwdmhandbook>

⁹ CNDDDB 2011 <http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/TEPlants.pdf>; CNPS 2011

<http://www.rareplants.cnps.org/>

¹⁰ <http://www.dfg.ca.gov/biogeodata/vegcamp/pdfs/natcomlist.pdf>

¹¹ Debinski and Holt 2000 http://www.umanitoba.ca/institutes/natural_resources/pdf/Debinski_and_Holt.pdf

¹² Brooks et al. 2006

44 *cont.* facilities. As with the fencing, this proposal seems totally inappropriate and at a minimum should be based on the benefits to native wildlife, not domestic stock.

45 We also note that the fencing and water developments are footnoted to be “initial projects identified for implementing the cattle grazing program; additional projects will be identified during the refuge-cooperator prescribed cattle grazing meeting” (Appendix H at 28). Clearly these proposed developments should have impacts analyzed in the DEA (but we could not find it there). Any future developments would also require NEPA analysis.

46 More descriptive and scientifically recognized plant/community associations using the Manual of California Vegetation treatment needs be included in descriptions of the vegetation. The landcover data presented in the grazing plan fails to reflect currently accepted vegetation characterization and fails to capture the vegetation alliances and assemblages on the refuges. Without these basic data, an adequate evaluation of impacts is impossible.

47 The grazing plan recognizes that the refuge supports great plant diversity (Appendix H at 7) and that plant surveys have not been implemented systematically throughout the refuge. In fact, the grazing plan states “Plant surveys will be conducted and plants identified, as resource targets will be monitored as part of the grazing program” (Appendix H at 7), yet it is unclear what “resource targets” are much less the frequency of the surveys. For example, if plant surveys are done after grazing has been implemented, it is very likely certain plants will be not identified, because they will have been consumed, trampled or otherwise impacted by grazing activities.

48 While the grazing plan portends to provide comprehensive grazing prescriptions (duration with identified end dates for a particular grazing season and stocking rates), the caveats of “Grazing parameters (period, season, AUMs) should be given some flexibility due to the uncertainties of precipitation and temperatures and their consequent effect on grass and other herbaceous growth” and “This grazing plan is intended to be a dynamic document; initial stocking rates will be established using production estimates from similar soils on adjacent surveys, then refined over time by monitoring annual production on small exclusion plots located on major soil/aspect types on the refuge” (Appendix H at 2) allow for little accountability on how grazing will actually be managed other than RDM, which completely fails to account for the host of other ecologically based factors for ecosystem health. The grazing plan must include clear quantifiable measurements for a host of ecological factors tailored to the specific area (ex. precipitation, precipitation temporal variation, type of soil, type of habitat, other stressors on the landscape, etc.)

49 Despite the grazing plan stating “In absence of funding and personnel needed for extensive research, refuge managers at Bitter Creek NWR will implement 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 used to adapt refuge management activities (including grazing prescriptions) to dynamic natural and logistical conditions” (Appendix H at 5), our experience has shown that good intentions, monitoring is classically a low priority and in the case of public lands grazing are either monitored sporadically if at all – to the detriment of the resources.

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Response 3-45. The Final EA was revised to provide additional discussion of the potential effects of fencing (including wildlife-friendly fencing) and water diversions for the prescribed grazing program (primarily in sections 4.2.5 and 4.2.6).

Response 3-46. The Prescribed Grazing Plan was revised to address the comment.

Response 3-47. Objectives and strategies to implement monitoring resource targets such as special status species are listed by refuge in CCP chapter 4. The Grazing Plan has been revised to reflect the importance of monitoring special status species that occur at Bitter Creek NWR and the objectives and monitoring strategies in CCP chapter 4.

Response 3-48. The Grazing CD was revised to remove references to dates or stocking rates. Each year in September/early October, conditions in each unit will be assessed to determine if it is in prescription (see Table 5 in Prescribed Grazing Plan) or if grazing is needed to meet target conditions. For units that are not in prescription, stocking rates and estimated turn out and turn in dates will be developed at that time. The Grazing Plan was revised to include in the section Vegetation and Wildlife Management (Background) a discussion of the difficulty and uncertainty introduced when extrapolating results from studies dependent on site and time specific factors. This highlights the necessity of having specific and explicit adaptive management and monitoring plans within the Grazing Plan that allow for changes in the grazing operation if the monitoring results (or Objective targets) show a need for change (e.g., in stocking rate or grazing intensity) (Stahlheber and D’Antonio 2013, Huntsinger et al. 2007). The approach to livestock grazing proposed in the Grazing Plan applies general principles for grazing management under monitoring sufficient to inform adaptive management decisions (Herrick et al. 2012). Response 10-3 provides more information.

Response 3-49. Comment noted.

U.S. Fish & Wildlife Service Response

Response 3-50. The Grazing Plan was revised, including re-wording of the sentence referenced in the comment, to “Some bare ground (i.e., free of annual grass thatch) is required for San Joaquin special status recovery species (Germano et al. 2012)”.

Response 3-51. Same as response 3-24.

Response 3-52. The Grazing Plan was revised to include in the section Vegetation and Wildlife Management (Background) a discussion of the difficulty and uncertainty introduced when extrapolating results from studies dependent on site and time specific factors. This highlights the necessity of having specific and explicit adaptive management and monitoring plans within the Prescribed Grazing Plan that allow for changes in the grazing operation if the monitoring results (or Objective targets) show a need for change (e.g., in stocking rate or grazing intensity) (Stahlheber and D’Antonio 2013, Huntsinger et al. 2007). The approach to livestock grazing proposed in the Grazing Plan applies general principles for grazing management under monitoring sufficient to inform adaptive management decisions (Herrick et al. 2012).

Response 3-53. Same as response 3-24.

Response 3-54. Comment noted.

Response 3-55. Same as response 3-52.

Response 3-56. The Grazing Plan has been revised, including the addition of more information on resource monitoring and adaptive management. Responses 3-18 and 3-21 provide more information.

Response 3-57. Monitoring of resources on the NWRs is included in the strategies and the future Habitat Management Plans (HMPs) for each refuge. Response 3-18 provides more information.

50 The grazing plan is portrayed to be used as a tool for some of the San Joaquin Valley rare and endangered species including San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard. The grazing plan incorrectly states that “Bare ground (i.e., free of annual grass thatch) is required for San Joaquin special status recovery species.” (Appendix H at 15). In fact, all of the San Joaquin special status species require a mosaic in their habitat, including widely spaced shrubs¹³. While patches of bare ground are desirable within the habitat, an overall low RDM will not provide the necessary resources for these species. Additionally, because of the apparent diversity of habitats on the refuge, only a small, unidentified subset of the refuge may be appropriate for these species recovery efforts in the very near future (climate change may cause substantial shifts in these species ranges in the more distant future). The grazing plan, also fails to mention the impacts that grazing has on these rare species – competition for resources, trampling of burrows and animals, and that grazing studies have not shown grazing to be effective in recovery of these species (see above references).

52 The *Cattle Stocking Rates and Distribution within Fenced Cells* (Appendix H at 17) are so vague and broad that basically any rate and distribution of cattle would be allowed on the refuge at any time. No accountability is provided.

53 The *Period of Grazing Prescriptions for Resource Targets* actually provides no prescriptions for grazing and in fact defaults to “Bitter Creek NWR grazing prescriptions will be developed for the various targets during different periods to the extent practical.” (Appendix H at 17). It is unclear how the DEA can then evaluate impacts to the various targets when no grazing prescriptions are identified. Furthermore, based on future budget constraints, the development of grazing prescriptions for the various targets may not even be “practical”. The failure to make clear, measurable grazing prescriptions for resource targets makes the grazing plan wholly inadequate.

56 The proposed *Monitoring and Evaluation* in the grazing plan, even if implemented, is wholly inadequate. Effective monitoring is the key to any managing any natural resource effectively. In fact, as proposed, it is possible that no monitoring would be implemented based on the statement that “The refuge will implement various levels of monitoring based on staff and partnership resources”. (Appendix H at 28). If no resources are available for monitoring, no monitoring would be done. If not monitoring is to be done, no grazing should occur. Monitoring designs should be apart of this plan, and clearly identify how the resources will be monitored. Monitoring should be implemented by an independent scientist, not by the refuge or grazer staff to insure full disclosure. The number of permanent monitoring stations is not identified. The frequency of monitoring them is not identified. What will actually be monitored is not identified. As discussed previously, monitoring RDM alone is inadequate.

57 The monitoring for *Special Status Native Plants* (Appendix H at 29) is wholly inadequate. Monitoring not actually ever required (i.e. “Plant surveys should be conducted annually”) but the timing, frequency and how the plants are monitored is not addressed.

¹³ http://ecos.fws.gov/docs/recovery_plan/980930a.pdf

57 *cont* Furthermore, no triggers for action are given if plant populations are being impacted – creating an utter failure in management.

58 The *Bird Monitoring* (Appendix H at 29-30) is also wholly inadequate. The bird monitoring stations are not identified nor is the frequency of monitoring, season of monitoring, species to be monitored or type of monitoring indicated. As with the plant monitoring, bird monitoring appears optional.

59 The *Small Mammal Monitoring* (Appendix H at 29-30) is also wholly inadequate. Again, monitoring appears to be optional as with other species groups above, and although “Live trapping and walk-through surveys should be conducted in a variety of habitats that characterize grassland, mixed scrub and shrub, and savanna vegetation”, target species, frequency and seasonality are unidentified.


60 In all, the proposed grazing plan is far from adequate for all of the reasons addressed above.

Conclusion

61 The Service is responsible for ensuring its actions comply with the ESA, NEPA, National Wildlife Refuge mandates and all other pertinent federal laws and regulations. Based on the inadequacies that currently occur in the DEA, the Service must go back and include the missing issues and more thoroughly address the insufficient issues identified above and in other commenters’ letters in a more comprehensive EIS.

Thank you for your consideration of these comments. Please feel free to contact me with any questions and send all future correspondence regarding this issue to the Center for Biological Diversity.

Sincerely,



Ilene Anderson
Biologist
Center for Biological Diversity
8033 Sunset Blvd., #447
Los Angeles, CA 90046
323-654-5943
ianderson@biologicaldiversity.org

cc via email:

Julie Vance, CDFG, jvance@dfg.gov

U.S. Fish & Wildlife Service Response

Response 3-58. Same as response 3-57.

Response 3-59. Same as response 3-57.

Response 3-60. The Grazing Plan was revised and additional supporting references were added.

Response 3-61. The Final CCP/EA and appendices include revisions to address the comments.

References without hyperlinks (provided as attachments)

Bowler, P.A. 1989. Riparian Woodlands: An Endangered Habitat in Southern California. In Endangered Plant Communities of Southern California. A. A. Schoenherr ed. Proceedings of the 15th Annual Symposium. Southern California Botanists, Special Publication No. 3: 80-97.

Brooks, M.L., J.R. Matchett and K.H. Berry 2006. Effects of livestock watering sites on alien and native plants in the Mojave Desert, USA. *Journal of Arid Environments* 67:125-147.



Diane Chapman
 <auntiewrangler@gmail.com>
 05/29/2012 11:14 PM

To: fw8plancmments@fws.gov
 cc: vince.fong@mail.house.gov
 Subject: Re: Refuges Draft Comprehensive Conservation Plan and
 Environmental Assessment, 3/2012

1 After all the public hearings on the negative reaction to burning and our local Congressman, Kevin McCarthy publicly stating at the first hearing at Lake of the Woods that there would be NO prescribed burning of range land in Kern County on the Bitter Creek Refuge, YOU have disregarded all concerns from the local residents of Kern County and our government representatives and have included burning as a method to control the vegetation on the Bitter Creek Refuge. Even the U. S. Wildlife Service publicly and in writing stated that they would remove prescribed burning from the management plan for the Bitter Creek Refuge.

2 It disgusted me how government employees take on the personification of landowner and disregard the Public (who really own the land) and continue to do your own thing. You do not take into account the extreme and dangerous conditions of a fire and how easily they can get out of control. Have you included in you budget a 100% restitution for the adjoining grazing land you will destroy with your careless actions? Where do you get the nerve to waste the Public money like this?

3 The Bitter Creek Refuge, previously owned and operated as a cattle ranch by the Hudson family for over a 100 years, was a working cattle ranch. The cattle kept the vegetation under control by GRAZING the land. The use of cattle as a control for grazing land is a safe and productive method for controlling excessive vegetation. Cattle also provide a natural food source for the Condors.

4 The CONDORS: What is your plan for the condors when you burn up the grasslands? Will you haul them off to another refuge in pens on trailers like you did when the mountain lions ate up 3 of them in two nights? Wow! What a risk you took by trapping and transporting 19+ condors at a value of over a million dollars a piece instead of removing one lion + cubs.

6 Burning up the grasslands has a prolonged effect on the land. The risk of erosion or no grass is great. The recovery time for the grasses is directly related to the future weather. Can you now predict whether we'll have a good rainfall or not the following year? If you can, let the public know so they can predict farming, vacation, travel, water storage, etc.

7 As environmentalist, how do you justify the killing by fire of small rodents, reptiles, insects, predators (badgers, bobcats, skunks, etc.)? The balance of the natural cycle of the grassland will be drastically effected by fire, whereas, if you reinstated grazing on the land you would not have that effect. Grazing can be controlled, rotated, to reduce the over abundance of grass which YOU have created. Instead of the PUBLIC footing the bill for tens of 1000's of dollars to burn up the land the PUBLIC could get a return on their investment by receiving payment for the grass from a cattle owner.

U.S. Fish & Wildlife Service Response

4. Chapman, D.

Response 4-1. Prescribed fire for habitat management is not being proposed at Bitter Creek NWR. Responses 2-1 and 2-3 provide more information.

Response 4-2. Prescribed fire for habitat management is not being proposed at Bitter Creek NWR. Responses 2-1 and 2-3 provide more information. All wildfires will be suppressed at Bitter Creek NWR. Keeping the public and firefighters safe is always the first concern. The Service will continue to implement wildfire prevention measures including establishment and maintenance of fuel breaks that prevent wildfire from spreading onto and off of refuge lands. The Service maintains interagency mutual aid agreements with state and federal firefighting agencies and wildfires will be fought in a coordinated, timely and aggressive manor.

The Service will continue to implement wildfire prevention measures including establishment and maintenance of fuel breaks that prevent wildfire spread onto and off of refuge lands. The Service's policy at Bitter Creek NWR is wildfire suppression; all wildfires will continue to be suppressed. Response 19-6 provides more information.

Response 4-3. Comment noted.

Response 4-4. Same as response 4-2.

Response 4-5. Comment noted. Bitter Creek NWR Strategy 1.4.4 (in CCP Chapter 4) is to develop predator management measures for the refuge (as part of the Integrated Pest Management Plan), which will allow the Service to address similar future situations.

Response 4-6. Same as response 2-1.

Response 4-7. Same as response 4-2. A summary of the historic role of fire in the refuge complex area has been added to the CCP, chapter 3, under the Vegetation sections for each refuge.

U.S. Fish & Wildlife Service Response

5. De Vries, P.

Response 5-1. Comment noted.



Pamela De Vries

Botany and
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June 2, 2010

U.S. Fish & Wildlife Service
Pacific Southwest Region
2800 Cottage Way, W-1832 (Refuge Planning)
Sacramento, CA 95825-1846

Via e-mail
(fw8plancomments@fws.gov)
Subject: Hopper CCP

Subject: Comments on the Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges Draft Comprehensive Conservation Plan and Environmental Assessment, and appendices (including the draft Grazing Plan for Bitter Creek National Wildlife Refuge and Compatibility Determinations)

Gentlemen:

Thank you for the opportunity to comment on the draft Comprehensive Conservation Plan and Environmental Assessment (draft CCP/EA), and related appendices for the Hopper Mountain, Bitter Creek and Blue Ridge National Wildlife Refuges.

It was my privilege to conduct botanical surveys on Bitter Creek National Wildlife Refuge in 2009 and 2010 and I thank Mike Stockton, the Manager at Bitter Creek NWR, for affording me this opportunity. The information and data gathered during these surveys have contributed greatly to the knowledge of the flora in this region of California. The references to the plant survey reports I prepared after each of these surveys, however, are cited in different formats and dates in the draft CCP/EA and in documents in the Appendices (and sometimes not at all), making it very confusing to determine which report is being referenced. For these comments, I have used the following citations for my reports:

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 USFWS. [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.

I suggest that the references and citations for these reports be standardized throughout all of the CCP/EA and associated appendices to avoid confusion.

1

2 Generally, the various documents appear as if they were written by different persons or at different offices, but then they were not reviewed adequately for continuity across all of the documents. I also found that the literature cited in these documents was often inappropriate or misleading, and did not support the determination of compatibility for grazing at either Hopper Mountain NWR or at Bitter Creek NWR.

3 Because the basis for developing much of the CCP is based on the Compatibility Determinations, I begin my comments with the Compatibility Determination for grazing for Bitter Creek NWR (Section 1, Pages 3-10). Because much of the same literature is cited in the Compatibility Determination for grazing for Hopper Mountain NWR, I intend that my comments on the Compatibility Determination for grazing for Bitter Creek NWR be applied to the Compatibility Determination for grazing for Hopper Mountain NWR. Comments on the draft Environmental Assessment (EA) follow in Section 2, Pages 11-18; comments on the draft Prescribed Grazing Plan for Bitter Creek are in Section 3, Pages 19-30; and comments on the CCP are in Section 4, Pages 31-36.

4 I also agree with the comments submitted by Dr. Elizabeth L. Painter and incorporate those comments herein. If you have any questions regarding these comments, please feel free to contact me.

Sincerely,

Pam De Vries Digitally signed by Pam De Vries
 DN: cn=Pam De Vries, o, ou,
 email=pdevries@frazmtn.com, c=US
 Date: 2012.06.02 13:21:49 -07'00'

Pam De Vries
 Botanist and Restoration Ecologist

Appended to this cover letter are the following:

- Section 1 – Comments on the Compatibility Determination for Grazing for Bitter Creek NWR
- Section 2 – Comments on the draft Environmental Assessment
- Section 3 – Comments on the draft Prescribed Grazing Plan for Bitter Creek NWR
- Section 4 – Comments on the draft Comprehensive Conservation Plan
- Section 5 – References

U.S. Fish & Wildlife Service Response

Response 5-2. Text and citations in the CCP/EA, Compatibility Determination for Grazing and Prescribed Grazing Plan for Bitter Creek NWR (Grazing Plan) have been updated to include the most recent peer-reviewed literature. Response 5-22 provides more information.

Response 5-3. Comment noted.

Response 5-4. Comment noted.

U.S. Fish & Wildlife Service Response

Section 1 - Comments on the Compatibility Determination for Grazing for Bitter Creek NWR

Comments on the Compatibility Determination for Grazing for Bitter Creek NWR

5 Generally, the literature cited in the Compatibility Determination for Grazing for Bitter Creek National Wildlife Refuge fails to support the determination that the grazing program is a compatible use for this Refuge. Specific comments on the Compatibility Determination for Grazing for Bitter Creek NWR follow.

Description of Use

6 This section states that prescribed grazing will be conducted in accordance with the Bitter Creek National Wildlife Refuge Prescribed Grazing Plan which includes 'prescriptions for specified refuge cells (grazing units) including duration, dates and stocking rates.' The Grazing Plan does not provide specific durations, dates or stocking rates; only suggestions for seasons (not dates) and duration. Stocking rates are not included in the Grazing Plan, only a statement that stocking rates will be determined in the future based on future monitoring. Monitoring methods are not provided in the Grazing Plan. No provision for public review of the methods used to determine stocking rates and duration of grazing is provided; therefore, the public has been effectively excluded from participating in this process.

7 The draft Prescribed Grazing Plan also does not address the potential impacts to archaeological resources on Bitter Creek. Few archaeological surveys have been completed on Bitter Creek (covering only 7.5% of the total area); however, seven prehistoric sites have nonetheless been recorded on the refuge and artifacts that may be of prehistoric significance have been observed on the ground surface, one in an area included in a 'grazing unit'. (Personal observation 2009; a photograph of this artifact and the coordinates of its location was provided to the Service during 2009 botanical surveys.) Grazing cattle can cause potentially adverse effects by damaging and/or disrupting archaeological resources (Van Vuren 1982; Horne and McFarland 1993; Nickens 1990; J. Timbrook, personal communication). Grazing cannot be determined to be a compatible use based on the provisions of the draft Prescribed Grazing Plan as no surveys or other protection for cultural resources is included in that document.

Resource Target

10 The Compatibility Determination states that the primary resource targets includes several San Joaquin Valley species that have not been documented on Bitter Creek NWR, including giant kangaroo rat, blunt nosed leopard lizard, Nelson's antelope squirrel, and agile kangaroo rat. The Compatibility Determination does not, however, address impacts to rare plant species that have been documented on Bitter Creek. In particular, Kern mallow (*Eremalche parryi* subsp. *kernensis*), a federally listed endangered plant species that occurs in Units 6, 11, and 2; and is considered to be seriously threatened by grazing (CNPS 2012); Lemmon's jewelflower (*Caulanthus lemmonii*), a California Rare Plant, Rank 1B.2 species that occurs in Unit 10B and in Unit 3, and is considered to be threatened by grazing (CNPS 2012); and gypsum loving larkspur (*Delphinium gypsophilum*), a California Rare Plant Rank 4.2 species that has been documented in Units 3, 9, 11, and 12, and is also considered to be threatened by grazing (CNPS 2012). The other special status plant taxa that are documented on Bitter Creek but are not addressed in this Compatibility Determination include Pringle's yampah (*Perideridia pringlei*), silky lupine (*Lupinus elatus*), stinkbells (*Fritillaria agrestis*), Mojave paintbrush (*Castilleja plagiotoma*), California androsace (*Androsace elongata* subsp. *acuta*), and Cuyama gilia (*Gilia latiflora* subsp. *cuyamensis*).

Response 5-5. Same as response 5-2.

Response 5-6. Same as response 3-48.

Response 5-7. Same as response 3-48.

Response 5-8. Under the terms of the National Historic Preservation Act (NHPA), all federal agencies are required to consider the effects of their actions on historic properties. Historic properties are defined as buildings, structures, sites, or objects that are listed or eligible for listing on the National Register of Historic Places. As each of the management actions proposed in the CCP is implemented, the area of potential effects will be defined and if effects on historic properties are likely, the Section 106 process (36 CFR 800) will be completed prior to the initiation of the activity, in compliance with NHPA.

Response 5-9. Cultural resource surveys and other inventory and conservation measures are included in CCP Chapter 4, Bitter Creek NWR Strategies 6.4.1 through 6.4.6 rather than in the Grazing Plan. Response 5-22 provides additional information about the compatibility determination.

Response 5-10. A special status species table for plants with information related to livestock grazing has been added to the Grazing Plan. More information about Federally-protected plants and other special status plants has been added to the Final CCP/EA and appendices.

Section 1 - Comments on the Compatibility Determination for Grazing for Bitter Creek NWR

11 The Compatibility Determination also does not address potential impacts to the Kern sphinx moth, a federally listed endangered invertebrate species that has a high potential to occur on Bitter Creek (Dr. Peter Jump, personal communication with Dr. E. L. Painter). The food plant of this species is *Camissonia* spp., which are somewhat delicate annual plants that occur throughout all areas of Bitter Creek including the dry drainages where the moth is most likely to occur. *Camissonia* would be negatively affected by grazing and trampling; therefore, Kern sphinx moth would also be negatively affected if it is present on the Refuge (Dr. Peter Jump, personal communication with Dr. E. L. Painter).

12 This section of the Compatibility Determination includes a statement that inventory and monitoring surveys will be completed to determine baseline conditions; however, no detail is provided as to how or when the inventory and monitoring will be conducted nor is the term 'baseline conditions' adequately defined. Will a complete inventory of all plants and animals present in a proposed grazing unit be completed? Will focused surveys for special status species, both plants and animals, be completed as part of the inventory? Will an additional analysis of potential effects on the biological resources present in a proposed grazing unit be completed and will that analysis be made available for public review? How does the Service propose to protect known rare plant taxa in proposed grazing units? The statement that 'the Refuge will implement various levels of monitoring based on staff and partnership resources' is not an adequate statement of monitoring commitment. Any monitoring plan must be clearly spelled out and staff and resources must be firmly committed to the monitoring plan in order to prevent additional damage to an already compromised system.

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Availability of Resources

16 The prior sections states that the level of monitoring will be based on resources, whereas this section states that a full time biologist position would be needed to implement all of the monitoring. The argument that resources are available is circular. Because the extent of the monitoring plan has not been determined, there cannot be a reasonable estimate of the amount of resources required for the plan. Furthermore, a statement is made in the last paragraph of this Compatibility Determination that 'research investigations and continuous monitoring surveys would be necessary to ensure refuge habitat objectives are met through utilization of a prescriptive gazing program' but then this document goes on to say that 'In the absence of funding and personnel needed for extensive research, refuge manages will implement long-term monitoring of RDM and refuge management targets (i.e., endangered and threatened species, species of concern, migratory birds, special status plants).....'. In terms of the availability of resources, these last statements are contradictory. The Service apparently feels that research investigation and continuous monitoring are required but also claims funds are not available to conduct such investigations.

*Anticipated Impacts of the Use**U.S. Fish & Wildlife Service Response*

Response 5-11. The discussion of potential effects to Federally-listed species have been revised in the Final Environmental Assessment and in the final Compatibility Determination for Grazing.

Response 5-12. Inventorying and monitoring are included in Bitter Creek NWR Strategy 2.2.6 that was added to the Final CCP to conduct surveys for special status plants. Strategies for acquiring data about baseline conditions at Hopper Mountain NWR include 3.3.5; at Bitter Creek NWR include 2.3.4, 2.3.7, 3.1.3, 5.2.1; and at Blue Ridge NWR include 2.1.4, 2.2.2, and 2.2.3. Strategies for gathering information about species composition and abundance of native plants at Bitter Creek NWR include Strategies 2.1.2-2.1.4.

Response 5-13. Analysis of the potential effects on biological resources is presented to the public in the Draft and Final EAs for the CCP.

Response 5-14. The Grazing Plan has been revised to reflect the importance of monitoring special status species that occur at Bitter Creek NWR and reflect objectives and the strategies to implement monitoring in CCP Chapter 4.

Response 5-15. Comment noted.

Response 5-16. CCP Chapter 5 Table 5-1 provides the best available estimate of initial capital costs to implement the CCP actions including monitoring. CCP Table 5-2 summarizes the staff positions needed to implement the CCP actions. A Refuge Complex biologist position is included in the staff positions that were already approved for the Complex before the CCP, but vacant at the time of the writing of the Draft CCP. The Refuge Complex biologist position has since been filled. The Complex biologist will be key in guiding the implementation of the long-term monitoring described in the CCP in coordination with the Service's Inventory and Monitoring Program for the Pacific Southwest Region of the Service.

U.S. Fish & Wildlife Service Response

Response 5-17. The text in the CCP/EA, Compatibility Determinations for Grazing, and Grazing Plan have been revised and updated or additional supporting references were added.

Response 5-18. Same as response 5-17. Citations for Bakker and Carvell were removed.

Response 5-19. Same as response 5-17.

Section 1 - Comments on the Compatibility Determination for Grazing for Bitter Creek NWR

17 This section is not supported by the best or the most current science available. The negative impacts of the anticipated use are not addressed at all. Many citations used in support of various statements claiming that the proposed use would be a favorable or positive impact are clearly inappropriate or irrelevant. For example, Knopf and Rubert 1995 is used as a citation to support the statement that wildlife habitat benefits from grazing, however this study of mountain plovers found that the birds most favored alkali flats where they were available, and used heavily grazed rangelands when alkali flats were not available. This paper does not state that grazing benefits the habitat of this species. On the contrary, it appears that grazing may be at least partially responsible for the decimation and loss of this species' preferred habitat. Buchsbaum et al 1986 is also cited for this same statement. This paper is a discussion of the digestive traits of Canada geese and Atlantic brant and seems completely out of context here as we are not considering whether the proposed Grazing Plan will impact or benefit Canada geese or Atlantic brant.

18 Regarding the statement that "[g]razing has been a successful conservation management tool for specific plant taxa in some herbaceous wetland communities" it must be noted that the proposed grazing units on Bitter Creek are not herbaceous wetland communities, nor are the specific taxa referred to in the citations supporting this statement present on Bitter Creek. This statement goes on to say that this 'success' is due "probably through the reduction of competing non-native species (e.g., non-native annual grasses and associated thatch accumulation resulting in high RDM" even though some of the literature cited does not address "non-native annual grasses and associated thatch accumulation". For example, Bakker 1986 refers to a study in coastal salt marshes and Carvell 2001 is a study of bumblebee habitat in Great Britain and does not address any specific plant taxa including "non-native annual grasses."

19 Marty 2005, a study in ephemeral wetlands, is also cited here. Comments on this reference were previously provided by Dr. E. L. Painter when this work was also cited as a reference for the Bitter Creek National Wildlife Refuge Independent Rangeland Review (George and McDougald 2010):

"Marty (2005) reported that removal of livestock grazing decreased native vernal pool plant and aquatic invertebrate species and application of livestock grazing increased these species but "ungrazed pools had 88% higher cover of exotic annual grasses and 47% lower relative cover of native species than pools grazed at historical levels (continuously grazed)" (Marty 2005). While Marty (2005) concluded that continuous grazing led to the highest relative cover by natives, figure 1 illustrated that ungrazed sites had the highest absolute cover of natives and continuous grazing had the lowest. No plant species lists were provided in Marty 2005, so there is no way of determining if increases and decreases in native plants represent widespread taxa, local taxa, obligate vernal pool taxa, rare taxa, etc. According to Jaymee T. Marty (personal communication to E. L. Painter), "it was the average number of native species that increased and decreased by treatment. In other words, I saw the average number of natives decline in the ungrazed plots, but I did not see species extinctions in any treatments. So, the species lists would likely be identical for the treatments", and information on which native and non-native plant taxa increased or decreased "will have to wait for my next series of analyses". Additionally, the inundation

Section 1 - Comments on the Compatibility Determination for Grazing for Bitter Creek NWR

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cont

period of the pools was reduced in ungrazed pools, which (based on the Pyke and Marty 2005) model with hypothesized climate changes, could make it difficult for some endemic vernal pool taxa to complete their life cycle."

There is no indication in this Compatibility Determination that the comments of Dr. Painter in reference to Marty 2005 have been considered, let alone addressed. Why not??

Pyke and Marty 2005, cited in this Compatibility Determination as a supporting document and also mentioned above in Dr. Painter's comments, is an analysis of ephemeral wetlands which focused on fairy shrimp species, not plants. This paper contains the following statement: "Our project was primarily a sensitivity analysis based on limited experimental data, an average distribution of vernal pool characteristics, and a plausible, but generalized, climate-change scenario."

The Compatibility Determination goes on to state:

20

"Grazing" is commonly poorly characterized in these studies, making results difficult to properly interpret. Stocking rates and density, seasonality, duration, varying rainfall amounts, soils, length of rest, species/age of grazer, and grazing history are just a few of the variables confounding results. The objects being manipulated often vary greatly, and defy any broad attempt to group them into simple categories. 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."

The objective or meaning of this paragraph is not clear. Why, if grazing is commonly poorly characterized in these studies, are these studies cited in this Compatibility Determination? What exactly does the Service mean by "...characterizing the effects of grazing depends on a narrow frame of reference"? Does this mean the Service is being (overly) selective in the references cited? And how are studies conducted in wetlands relevant to the potential effects of grazing at the dry lands of Bitter Creek NWR?

21

An excerpt from the Draft CCP is then presented to "provide[s] the rationale for the San Joaquin Valley special status trust species habitat management objective". This excerpt is provided as the rationale for Objective 2.2, which is to change the structure of the vegetation to provide habitat for San Joaquin Valley special status species; however, the Service acknowledges that only the San Joaquin kit fox has been documented on the Refuge. Why is the Service proposing a plan that will drastically alter existing habitat for species that are not present on the Refuge, particularly when said plan may also adversely impact special status plants known to occur in the proposed grazing areas?

22

The next paragraph states that "[c]urrently, livestock grazing is an important method of vegetation management." The citations for this are Barry 2003, which is a non-peer-reviewed article included in a California Native Grassland Association conference workshop manual; and Griggs 2000, which is a summary opinion piece published in *Fremontia*, a non-peer-reviewed magazine, in which the author provides anecdotal

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Response 5-20. Same as response 5-17.

Response 5-21. Objective 2.2 applies to up to 1,300 acres or less than 10% of Bitter Creek NWR. Bitter Creek NWR Objective 2.2, combined with Objective 2.3, is intended to achieve greater heterogeneity (a mosaic of wildlife habitat structure and floristic diversity), to improve biological integrity, diversity and environmental health. The Service seeks to increase or improve habitat for the San Joaquin Valley species listed in the objective. As presented in Rationale 2.2: Manipulation of vegetation to meet specific objectives for either wildlife or botanical resources, may involve trade-offs; a specific tool that benefits one resource may negatively affect another. The Service acknowledges these potentially undesirable consequences and includes protective and mitigating measures to maximize the beneficial effects while minimizing the negative effects. All actions will be consistent with the Recovery Plan for Upland Species of the San Joaquin Valley.

Response 5-22. The Bitter Creek NWR Compatibility Determination for Grazing, the CCP/EA, and Grazing Plan have been revised and updated (citing recent and relevant peer-reviewed literature) or additional supporting references were added. Some documents were changed to cite general principles rather than specific predictions about vegetation response. Because of a lack of site-specific scientific literature, monitoring and adaptive management sections were expanded.

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Section 1 - Comments on the Compatibility Determination for Grazing for Bitter Creek NWR

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cont

observations about a study in vernal pools but does not provide methods, data, or any analyses. A study of vernal pools is irrelevant to the potential grazing impacts at Bitter Creek. These citations are not appropriate for the broad statement that "livestock grazing is an important method of vegetation management". Presenting these citations as support for this statement is misleading and biased.

23

The next few sentences are simply unsupported by any citation or inappropriate references are cited:

"Beneficial effects to refuge habitat, wildlife, and native plants are expected to occur as a result of a well-managed livestock grazing program." This statement is unsupported by any citation, and previously presented citations are either inappropriate as they are specific to plant taxa or habitats that do not occur on Bitter Creek, or have been called into question (e.g., Marty2005).

The next sentence reads:

24

"Primary anticipated benefits associated with the grazing program include the reduction of accumulated dead plant material; reduction in non-native invasive weeds (Thomsen et al. 1993); increases in native plants, including special status species from reduced completion for sunlight, water and nutrients with non-native annual grasses (Coppoletta and Moritsch 2001; Davis and Sherman 1992; Menke 1992; Muir and Moseley 1994; Marty 2005); increases in primary production and resultant increases in plant biomass (McNaughton 1985); and increases in flowering with subsequent likely increases in macro-invertebrate populations, including native pollinators and prey items for refuge wildlife such as migratory birds."

25

In the first part of this long sentence, Thomsen et al. 1993 is cited for reduction in non-native invasive weeds. It would be more appropriate to state "reduction in the non-native invasive weed *Centaurea solstitialis* (yellow star thistle)" as this reference is specific only to this taxon. The implication that this citation covers a range of non-native invasive weeds is misleading. Furthermore, while yellow star thistle has been documented on the refuge, it has not been noted to occur in any great quantity in any area, therefore the current management practice of incidental treatment appears to be effective for this plant. Several references are cited to support the statement that native plants would benefit from this grazing program. They are Coppoletta and Moritsch 2001, which is a study of a specific plant that occurs in coastal grasslands, neither of which occur on Bitter Creek; Davis and Sherman 1992, also a study of a specific plant that occurs in coastal grasslands, again neither of which occur on Bitter Creek; Menke 1992, which is a commentary paper published in *Fremontia*, a non-peer-reviewed magazine, and which does not provide references, methods or any type of analyses; Muir and Moseley 1994, which is a study of a specific taxa of alkali seeps, neither of which occur on Bitter Creek; Marty 2005, a study conducted in vernal pool habitat, which has been seriously called into question as an appropriate reference to support the notion that grazing benefits native plants (see discussion provided by Dr. E. L. Painter quoted previously in these comments); and finally McNaughton 1985 is cited, which is a work conducted on the Serengeti in Africa. Therefore, no appropriate supporting citations have been provided that support the Services position that native plants, or more specifically, the native plants that occur on Bitter Creek (or in dry inland grasslands, in general) benefit from grazing.

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Response 5-23. Same as response 5-22.

Response 5-24. Same as response 5-22. Comment noted about the current incidental treatment of yellow star thistle appearing to be effective.

Response 5-25. Same as response 5-22.

Response 5-26. Same as response 5-22.

Response 5-27. Same as response 5-22.

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28 The remainder of this paragraph states that increases in flowering are expected, but again no references are cited. I would also note that the statement “likely increases in macro-invertebrate populations, including native
29 pollinators” is most likely inaccurate based on the fact that Kern mallow (*Eremalche parryi* subsp. *kernensis*), a federally listed endangered plant species that has been documented on Bitter Creek, is thought to be pollinated by native solitary bees (ESRP 2006). These bees live in underground burrows and can be adversely affected by grazing (NRC 2007). Thus, the pollinator for the one endangered plant known to occur on Bitter Creek is directly threatened by this proposed program.

30 Next, a statement that aquatic invertebrates, insects, and special status species could benefit from grazed herbaceous habitats is supported by the following citations: Bratton 1990 (a work in British vernal pools); Bratton and Fryer 1990 (also a work on British vernal pools); Panzer 1988 (a work in prairie ecosystems, presumably the great central prairies which are a completely different habitat than our grasslands); Germano et al. 2001, which as Dr. Painter previously pointed out in her comments on the 2010 Independent Rangeland Review document (George and McDougald 2010), “was published in the middle of the study and is a summary of the CPNM [Carrizo Plain National Monument] study with no methods section and few data.” The Germano 2001 article cannot be used as a scientific reference as it refers to an incomplete study and does not provide data. Knopf et al. 1995, (presumably Knopf and Rupert 1995) is cited, which as previously pointed out is a discussion of mountain plovers that states and states these birds most favored alkali flats where they were available, and used heavily grazed rangelands when alkali flats were not available. There is no evidence that mountain plovers occur on or visit Bitter Creek, nor are alkali flats present on Bitter Creek. Only one ephemeral pond has been found to date on Bitter Creek, the so-called Toad Pond in Unit 1. Even if it is found that this pond is capable of supporting aquatic invertebrates, this tiny area represents less than 1 percent of the total area of Bitter Creek. Thus the statement regarding aquatic invertebrates and insects is irrelevant, and the general statement that grazing supports special status species is misleading given the references cited here.

31 No additional reference or supporting citations are offered in defense of the balance of this paragraph; therefore, statements about providing space and light for plant germination, protein content and nutritional value for grazing herbivores such as deer and elk, native plant production, etc. are not scientifically supported.

32 A short paragraph is provided that purports to discuss the negative impacts to wildlife and habitat. This paragraph is also not well documented. Krueper 1993 is cited for negative impacts due to grazing in riparian habitats, however, grazing is not proposed for the riparian habitats on Bitter Creek, therefore this statement and accompanying reference is irrelevant. The next reference, Kirsch 1969, is a study of waterfowl in prairie wetlands and is therefore also irrelevant. No other literature or discussion is offered. Studies that present negative impacts to wildlife and habitat in similar habitats as that proposed on Bitter Creek are completely lacking.

33 Most notably absent in this discussion is any presentation or discussion of Kimball and Schiffman (2003), a study conducted on the Carrizo Plain that found that “livestock grazing for restoration is counterproductive” and that “it harms native species and promotes alien plant growth.” (This paper is noted reference earlier as a citation to

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Response 5-28. The Compatibility Determination (CD) for Grazing at Bitter Creek NWR and the Grazing Plan were revised and now read: “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).”

Response 5-29. This section of the CD for Grazing (Appendix C) was revised in the Final CCP/EA.

Response 5-30. Same as response 5-22.

Response 5-31. Same as response 5-29.

Response 5-32. Same as response 5-29.

Response 5-33. Same as response 5-29.

Response 5-34. Same as response 5-29. The references in Dr. E.L. Painter’s comments were considered.

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the comment that "grazing as a conservation tool for native vegetation restoration and management report mixed results.") A full discussion of this paper and other work that has drawn on it was included in Dr. Painter's comments on the Independent Rangeland Review (George and McDougald 2010). Why is none of that discussion presented or considered here? The work of Kimball and Schiffman (2003) is completely appropriate as it is a study of grazing in dry grasslands; moreover, the study was conducted on the adjacent Carrizo Plain. A full range of other pertinent literature regarding the negative impacts of grazing was also provided by Dr. Painter:

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cont

"Livestock grazing has been found to be a factor in the proliferation of non-native plants by livestock transporting seeds on their coats, feet, and in their guts into uninfested sites (Lacey 1987, Schiffman 1997, Belsky and Gelbard 2000, Jones 2001), livestock preferentially graze native plant taxa over non-native taxa (Lacey 1987, Fleischner 1994, Belsky and Gelbard 2000, Jones 2001), livestock preferentially grazing perennial plants over annuals (Van Dyne and Heady (1965), livestock can change competitive relationships in ways that favored non-native taxa (Baker 1978, Lacey 1987, Belsky and Gelbard 2000, Jones 2001), livestock create patches of bare, disturbed soils that act as non-native-plant seedbeds (Ellison 1960, Schiffman 1997, Belsky and Gelbard 2000, Jones 2001), livestock destroy biological soil crusts that stabilize soils and inhibit non-native seed germination (Belsky and Gelbard 2000, Belnap et al. 2001), livestock create patches of nitrogen-rich soils, which favor nitrogen-loving non species (Belsky and Gelbard 2000), livestock reduce concentrations of soil mycorrhizae required by most western native taxa (Belsky and Gelbard 2000), and livestock accelerate soil erosion that buries non-native seeds and facilitates their germination (Belsky and Gelbard 2000)."

Not a single one of these nine references provided in Dr. Painter's comments is included in this discussion of potential negative impacts. Is the Service ignoring this literature or ignoring Dr. Painter's comments? Why are these comments and literature not addressed?

The Fish and Wildlife Service Refuge Management Manual, Chapter 2, Section E, Part 2.11 A (1) states (in part):

"Compatibility determinations are inherently complex and require the refuge manager to consider their field experiences and knowledge of a refuge's resources, particularly its biological resources, and make conclusions that are consistent with principles of sound fish and wildlife management and administration, available scientific information, and applicable laws. When a refuge manager is exercising sound professional judgment, the refuge manager will use available information that may include consulting with others both inside and outside the Service."

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Clearly, not all of the Refuge's biological resources are known. It is also clear that the best available scientific information has not been considered in this Compatibility Determination. Lastly, information and resources that have previously been made available to the Service from several sources have been ignored. Therefore, no finding of compatibility for this use can be made by any reasonable person exercising sound professional judgment, be it a refuge manager or any other person, based on the biased information presented in this Compatibility Determination. I object to the finding that grazing is a compatible use for Bitter Creek NWR.

Response 5-35. Same as response 5-22.

Response 5-36. The oversight was unintentional. The references used in the Final CCP/EA and Prescribed Grazing Plan have been revised.

Response 5-37. The potential effects of grazing are discussed in the Draft EA and have been updated in the Final EA. Additional information was added Compatibility Determination for Grazing at Bitter Creek NWR (Appendix C to the Final CCP); grazing was determined to be compatible with the purposes for which the refuge was established.

Section 1 - Comments on the Compatibility Determination for Grazing for Bitter Creek NWR

38

It appears that the same literature and text has been used to develop the Compatibility Determination for grazing for Hopper Mountain NWR. I therefore extend my comments and questions that I have raised in this section to include the Hopper Mountain NWR Compatibility Determination for grazing, and also object to the finding that grazing is a compatible use for Hopper Mountain NWR.

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Response 5-38. Comment noted.

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Section 2 – Comments on the Draft Environment Assessment

Comments on the Draft Environmental Assessment

Purpose and Need for Action

Section 1.2 states that the Service prepared this plan to provide a “basis for management that is consistent with the Refuge System mission and refuge purpose and ensure the needs of wildlife and plants come first, before other uses.” This section goes on to state that this plan was prepared to “[p]rovide a scientific foundation for refuge unit management.” The CCP and its supporting Environmental Assessment and Compatibility Analyses do not ensure that the needs of wildlife and plants come first, nor do these documents provide a solid scientific foundation. My basis for this opinion is explained in detail in my comments in the previous section (Section 1 - Comments on the Compatibility Determination for Grazing for Bitter Creek National Wildlife Refuge) and in this section (Section 2 – Comments on the Draft Environmental Assessment.)

The following comments are in reference to errors in the text that should be corrected in the final product.

39

Section 1.8.2: Bitter Creek Management History. Reference is made to “oak woodland and savanna” and “chaparral” as habitats that are managed by the Service on Bitter Creek. These names for vegetation types appear to be relics from old documents. These vegetation types do not appear on the current vegetation map. The documents should be reviewed in general to ensure that nomenclature for the vegetation types present on each refuge is consistent throughout all the documents.

Alternatives, Including the Proposed Action

Hopper Mountain NWR Alternatives – Table 2.1 Summary of Alternatives (and supporting text sections)

Goal 2 – Protect and Enhance refuge grasslands for healthy ecological conditions to support abundance and diversity of migratory birds and special status species*

Special status species apparently refers only to federally listed Endangered, Threatened and Candidate species; and California species of special concern, a wildlife designation. With one exception, the Alternatives for Hopper Mountain NWR in this Environmental Assessment fail to address potential impacts on, or protection for, rare plants species, several of which have been documented on Hopper Mountain NWR. The special status plants that have been omitted include the following:

40

Acanthoscyphus parishii var. *abramsii*, CA Rare Plant Rank 1B.2

Calochortus clavatus var. *clavatus*, CA Rare Plant Rank 4.3

Cryptantha corollata, Ventura County Locally Important Plants

Delphinium parryi subsp. *purpureum*, CA Rare Plant Rank 4.3

Juncus acutus subsp. *leopoldii*, CA Rare Plant Rank 4.2

Lepechinia rossii, CA Rare Plant Rank 1B.2, DFG S1.2 G1

Quercus dumosa, CA Rare Plant Rank 1B.1

Rigiopappus leptocladus, Ventura County Locally Important Plants

Symphytotricum greatae, CA Rare Plant Rank 1B.3

Thermopsis californica var. *argentata*, CA Rare Plant Rank 4.3

Response 5-39. The nomenclature for plant community types has been updated and made consistent throughout the CCP/EA and appendices.

Response 5-40. The refuge plant lists have been updated and a special status plant list for Hopper Mountain NWR has been added to the Final CCP appendices, including the species listed in the comment.

Section 2 - Comments on the Draft Environmental Assessment

41 The single exception of a rare plant mentioned in this section is *Juglans californica*, a CA Rare Plant Rank 4.2, which is the subject of *Goal 4: Restore and perpetuate native black walnut and oak woodlands to support Neotropical migratory birds*. There is no indication that focused surveys for rare plants have ever been conducted on Hopper Mountain, nor is there any indication in any of the Alternatives that surveys for rare plants will be conducted prior to initiating management actions. Why are California rare plants being ignored on Hopper Mountain NWR?

42 The preferred alternative also indicates that grazing, either sheep or cattle, may be considered as a management tool for Hopper Mountain. I have provided comments on the Bitter Creek NWR Compatibility Determination for grazing; the same literature and approach has been used to determine compatibility for grazing on Hopper Mountain NWR. Both the Bitter Creek NWR and Hopper Mountain NWR Compatibility Analyses for grazing are based on inappropriate literature or valid literature that was completely omitted as detailed in Section 1 of these comments; therefore, grazing is not a compatible use for either of these refuges. Furthermore, no prescribed grazing plan has been presented by the Service for Hopper Mountain NWR thus denying the public any chance to review and comment on such a proposal.

Bitter Creek NWR Alternatives – Table 2.2 Summary of Alternative (and supporting text sections)

*Goal 2: Protect and enhance Bitter Creek NWR grasslands to promote ecologically sound conditions to support a diversity of migratory birds and special status species**

As in Goal 2 for Hopper Mountain NWR, rare plants have been excluded from consideration, with very few exceptions. It is also unclear when, or if, focused surveys for rare plants will be conducted on the Refuge. No provision has been made to protect several rare plants that have been documented on Bitter Creek NWR. The rare plants that are known to occur on the Refuge (documented) but that have been omitted are:

43 *Androsace elongata* subsp. *acuta*, CA Rare Plant Rank 4.2
Castilleja plagiotoma, CA Rare Plant Rank 4.3
Caulanthus lemmonii (= *C. coulteri* var. *lemmonii*), CA Rare Plant Rank 1B.2
Delphinium gypsophilum, CA Rare Plant Rank 4.2
Eremalche parryi subsp. *kernensis*, federally listed endangered
Fritillaria agrestis, CA Rare Plant Rank 4.2
Gilia latiflora subsp. *cuyamensis*, CA Rare Plant Rank 4.3
Lupinus elatus, CA Rare Plant Rank 4.3
Perideridia pringlei, CA Rare Plant Rank 4.3

44 One rare plant is mentioned in Table 2.2: California jewelflower. (However, the scientific name for this federally listed endangered plant is *Caulanthus californicus*, not "*Caulanthus coulteri lemmonii*" as shown on the table.)

45 Why is San Joaquin woollythreads (*Monolopia congdonii*), a federally listed endangered plant species, not also considered for potential restoration evaluation? This species has a high potential to occur on Bitter Creek

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Response 5-41. Hopper Mountain NWR grasslands Strategy 2.2.2 was expanded to include surveys for both special status plants and wildlife. The wetland/riparian Strategy 3.1.1 includes surveys for wetland/riparian special status plants and animals. The woodland Strategy 4.1.2 was expanded to include surveys for special status plants and wildlife. A coastal sage scrub Strategy 5.1.3 was added to include surveys for special status plants. Special status wildlife is addressed in other strategies.

Response 5-42. The Compatibility Determination for Grazing has been revised to address the comments.

Response 5-43. A special status plant list for Hopper Mountain NWR has been added to the Final CCP appendices, including the species listed in the comment. Discussion of the new special status plants was added to Chapter 3, sections 3.1.8, 3.2.8, and 3.3.8 in the Final CCP/EA text.

Response 5-44. The error in the scientific name for California jewelflower has been corrected to *Caulanthus californicus* in Table 2.2 of the Final EA.

Response 5-45. Table 2-2 in the EA reflects a summary of the alternative actions, Alternative B being the preferred alternative. More detail on the preferred alternative was provided in the CCP Chapter 4 text. San Joaquin woollythreads (*Monolopia congdonii*) and Kern mallow (*Eremalche parryi* subsp. *kernensis*) were added to the CCP/EA sections on special status plants at Bitter Creek NWR. The Prescribed Grazing Plan for Bitter Creek NWR has been revised to incorporate the CCP management objectives for special status plants, and expand baseline knowledge of special status plant populations through adaptive management plans and associated monitoring.

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46 (De Vries 2009). Why has the federally listed endangered Kern mallow (*Eremalche parryi* subsp. *kernensis*) been omitted from this section? Although this plant is more abundant in the juniper woodlands of Bitter Creek NWR, it has been documented in the grasslands of Unit 2. Focused surveys for all of these plants should be conducted prior to implementing any type of management action.

47 Finally, as previously stated, it has not been shown that grazing is a compatible use for Bitter Creek NWR.

Summary of Environmental Effects for Hopper Mountain (Table 4.1 and supporting text)

Because no surveys have been conducted for rare plant species on Hopper Mountain, no complete analysis of environmental effects for Biological Resources can be made. No consideration for the protection of rare plant species has been presented. Section 4.1.5.3 includes the following statement:

48 “Under Alternative B, a step-down grassland HMP would be implemented that would result in active management and restoration of over 600 acres of grasslands, using a range of management measure to include prescribed burning, targeted grazing, disking, and mowing for habitat management and invasive species control. Such actions would have a long-term positive impact on grassland communities by reducing invasive species and noxious weeds, while improving habitat quality and plant biodiversity.”

The above statements are completely unsupported. No literature has been presented in any portion of the CCP or the associated appendices that supports the claim that grazing would have a long-term positive impact on grassland communities. Please refer to my comments on the Compatibility Determination for grazing for Bitter Creek NWR for details on the literature cited including Barry 2003, Griggs 2000, McNaughton 1985, Menke 1992, Muir and Moseley 1994; Marty 2005, and Thomsen et al. [sic] 1993). Furthermore, no literature has been offered to show that prescribed grazing results in the “lessening of wildfire threats”.

Also in this section is the following statement:

49 “Prescriptive livestock grazing (e.g., using sheep or cattle) would also be utilized as one of many techniques to reduce targeted weeds and primary native grass biomass, as necessary, to achieve mosaic grassland objectives.”

Surely the Service does not mean to target native grasses for removal! According to Noss et al. (1995) in a report on endangered ecosystems of the United States, all types of native grasslands in California are critically endangered, with greater than 98% of these grasslands already lost. If anything, the Service should be taking firm steps toward restoration of native grasslands on both Hopper Mountain and Bitter Creek National Wildlife Refuges.

50 The statement that “[c]arefully managed prescriptive grazing programs can provide many benefits to vegetative communities...” is not supported by the cited literature. The citations here include Barry 2003, which is a non-peer-reviewed article included in a California Native Grassland Association conference workshop manual; Griggs 2000, which is a summary opinion piece published in *Fremontia*, a non-peer-reviewed magazine, in which the

Response 5-46. Same as response 5-45. Response 25-13 provides additional information.

Response 5-47. Same as response 5-37.

Response 5-48. The table summary of environmental effects and the text have been revised in the Final EA.

Response 5-49. The statement in the Draft EA about removing native grass was in error and was corrected in the Final EA.

Response 5-50. The EA has been revised to address the comment. More information is provided in response 5-22.

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cont

author provides anecdotal observations about a study in vernal pools but does not provide methods, data, or any analyses; McNaughton 1985, a study conducted in the Serengeti of Africa; Menke 1992, another commentary paper published in *Fremontia*, a non-peer-reviewed magazine, which does not provide references, methods or any type of analyses; Muir and Moseley 1994, a study of a specific taxon that occurs in alkali sinks; Marty 2005, a study conducted in ephemeral wetlands and the analyses in which has been seriously questioned (see Dr. E. L Painter's comments that are referenced in my comments on the Compatibility Determination for grazing for Bitter Creek National Wildlife Refuge); and finally Thomsen et al 1993, which is specific to a single invasive plant taxon, yellow star thistle (*Centaurea solstitialis*), a plant that does not occur on Hopper Mountain NWR and occurs only occasionally on Bitter Creek NWR.

51

The statement that cattle preferentially consume the taller, more palatable non-native grasses is unsupported by any literature. In fact, in a study of the dietary preferences of cattle and sheep in California grasslands, Van Dyne and Heady (1965) found that "in general, perennial grasses were selected more often by cattle and sheep than were annual grasses or forbs." What supporting literature do you have that demonstrates that non-native grasses are more palatable to cattle than "native forms"?

52

As there is no Prescribed Grazing or similar plan for Hopper Mountain NWR, the statement that potential adverse effects of grazing would be avoided and minimized through compliance with the prescribed grazing plan or similar plan is also unsupported. Such a plan should be developed and submitted for public review and comment before the Service relies on it to analyze potential impacts. As previously mentioned, biological resources have not been adequately catalogued (e.g., reconnaissance level botanical surveys, special status plant surveys; special status wildlife surveys) and proposed monitoring methods have not been provided, thus it is unknown if the said monitoring would be effective in protecting biological resources.

53

In the discussion of an IPM Plan, reference is made to reed canary grass (*Phalaris arundinaceae*), which does not occur on Hopper Mountain NWR (although the plant list does list *Phalaris minor* and *Phalaris* sp.). Black locust (*Robinia pseudoacacia*) is also mentioned; this plant also does not occur on Hopper Mountain NWR. Again, the statement that mechanical management measures that may include targeted grazing is not supported by literature, nor have surveys been conducted to determine the composition and extent of invasive plant species on this refuge.

54

Section 4.1.6 – Wildlife Resources Hopper Mountain NWR (Alternative B)

The same suspect literature is cited here as foundation for "improving habitat quality" via grazing (e.g., Barry 2003, Griggs, 2000, McNaughton 1985; Menke 1993, Muir and Moseley 1994; Marty 2005; Thomsen et al. 1993). Please refer to my previous comments on these inappropriate and non-supporting literature citations.

55

Section 4.1.7 – Special Status Species – Hopper Mountain

As previously noted, all special status plants, including those that have been documented on the refuge, have been excluded from consideration in this section (with one exception). All special status plant species should be

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Response 5-51. The section in the Final EA and on Vegetation and Wildlife Management in the Grazing Plan has been revised to address the comment.

Response 5-52. Comment noted.

Response 5-53. *Phalaris arundinacea* and *Robinia pseudoacacia* were added to the Hopper Mountain NWR plant list in the Final CCP Appendix.

Response 5-54. Same as response 5-2.

Response 5-55. The analysis and discussion of potential effects to Special Status Species was expanded upon in the CCP/EA. The uncertainty associated with the lack of site- and species-specific research, and adaptive management and monitoring are addressed in the Final EA.

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Response 5-56. Same as response 5-43.

Response 5-57. Comment noted.

Response 5-58. Table 4.2 in the Draft EA is a summary of effects and was not intended to include a detailed listing of all contributing effects. As noted above each summary table, more detailed information is provided for each refuge in the narrative text after the tables summarizing the effects. The adverse effect associated with grazing was added to the table.

Response 5-59. Objective 2.4 in the CCP and appendices were revised to include known invasive Brassicaceae species (e.g., *Sisymbrium* sp. (all non-native taxa) and *Hirschfeldia incana*).

Response 5-60. The error was corrected in the Final EA to indicate that the Service is targeting select non-native grasses for removal; the Service seeks to conserve and encourage native grasses with Strategies 2.1.3, 2.2.2, and 2.3.6. Responses 10-10 and 10-11 provide information about the revised citations.

55 cont addressed in this section, including those special status plants not documented but that have potential to occur on the refuge. This analysis is typically standard procedure in impact analysis and its omission here is disturbing.

The discussion of habitat management for other special status species in Alternative B appears to be directly solely at wildlife species, again excluding special status plant species. The last statement in this section (4.1.7.3) states:

56 "Overall, the net effect from all management activities under Alternatives [sic] B would result in moderate positive impacts to special status species (if present now or in the future) relative to Alternative A."

As not all biological resources have been considered, especially special status plant species known to occur on Hopper Mountain, a determination of "moderate positive impacts to special status species" cannot reasonably be made.

Section 4.1.12 - Cumulative Impacts for Hopper Mountain NWR

57 In this section, I note that the Service suggests that grazing, among several other stressors, has "resulted in cumulative adverse effects to vegetation (e.g., 90% loss of riparian forest communities, loss of California black walnut stands, loss of oak woodland habitat, and loss of native grasslands..." , which is all the more reason not to consider grazing on this wildlife refuge.

Section 4.2 – Bitter Creek National Wildlife Refuge (Table 4.2, Summary of Environmental Effects for each Alternative and supporting text following the table)

58 Regarding the environment effects for Geology and Soils (Physical Environment), why is cattle grazing not included in the table as a potential negative impact due to soil compaction and potentially increased erosion due to elimination of vegetation (it is included in discussion of potential impacts to Geology and Soils in the text of Section 4.2.1.2)?

Section 4.2.5 – Vegetation- Bitter Creek NWR

59 Alternative A – No Action refers to incidental removal of non-native mustards and then shows *Cruciferae* sp. as the scientific name for this group. This is incorrect; Cruciferae is very dated nomenclature for a group of plants now included in the family Brassicaceae. As this plant family also includes many native plant species, it would also be incorrect to refer to non-native mustards as Brassicaceae. The specific non-native taxa that are being discussed should be listed here, at least as to genus.

Alternative B – Preferred Alternative states that

60 "Prescriptive livestock grazing (e.g., sheep or cattle would be utilized as one of many techniques to reduce targeted weeds and primary native grass biomass, as necessary, to achieve mosaic grassland objectives."

60
cont'

Again, why would the Service target native grass species, the primary component of an extremely endangered plant community in California (Noss et al. 1995), for removal? Once again, the same group of inappropriate literature is cited to support the contention that grazing benefits vegetative communities; these are Barry 2003; Griggs 2000; McNaughton 1985; Menke 1992; Muir and Moseley 1994; Marty 2005; and Thomsen et al. 1993. Please refer to my previous comments on these citations.

61

The discussion on the reduction of biomass to increase the light and nutrient availability to slower growing native grassland vegetation includes citations that refer to very specific taxa or to habitat types unlike those found on Bitter Creek NWR. It is an overgeneralization to assume that what happens in a Michigan abandoned field (Goldberg and Werner 1983) or a tallgrass prairie (Knapp and Seastedt 1986) can be applied to California grasslands, native or otherwise.

Eviner and Chapin (2001) is cited in support of the following statement:

"Prescriptive grazing practices have also been recommended as a tool for promoting native grassland biodiversity."

62

Nowhere in the Eviner and Chapin (2001) paper do the authors recommend prescriptive grazing for promoting native grassland biodiversity or for any other purpose. A statement is included in this paper that "[i]deally, range-land systems could benefit from a mixture of both [exotic annual grasses and native perennial grasses]." Using this citation in support of the contention that prescriptive grazing practices have been recommended for promoting grassland biodiversity by these authors at the least misleading and at the most, irresponsible.

A short discussion follows on the potential negative effects of prescribed grazing. This discussion does not include important literature that was previously provided to the Service by Dr. E. L. Painter, including the work of Kimball and Schiffman (2003) on the Carrizo Plain. I again repeat here a section of Dr. Painter's review of the 2010 Independent Rangeland Review (George and McDougald 2010) that lists adverse effects and pertinent literature that has been omitted from consideration in the EA:

63

"Livestock grazing has been found to be a factor in the proliferation of non-native plants by livestock transporting seeds on their coats, feet, and in their guts into uninfested sites (Lacey 1987, Schiffman 1997, Belsky and Gelbard 2000, Jones 2001), livestock preferentially graze native plant taxa over non-native taxa (Lacey 1987, Fleischer 1994, Belsky and Gelbard 2000, Jones 2001), livestock preferentially grazing perennial plants over annuals (Van Dyne and Heady (1965), livestock can change competitive relationships in ways that favored non-native taxa (Baker 1978, Lacey 1987, Belsky and Gelbard 2000, Jones 2001), livestock create patches of bare, disturbed soils that act as non-native-plant seedbeds (Ellison 1960, Schiffman 1997, Belsky and Gelbard 2000, Jones 2001), livestock destroy biological soil crusts that stabilize soils and inhibit non-native seed germination (Belsky and Gelbard 2000, Belnap et al. 2001), livestock create patches of nitrogen-rich soils, which favor nitrogen-loving non species (Belsky and Gelbard 2000), livestock reduce concentrations of soil mycorrhizae required by most western native

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Response 5-61. Same as response 5-22.

Response 5-62. Same as response 5-22.

Response 5-63. The EA and Grazing Plan were revised to address the comment. To reduce the risk of introducing invasive plants, language was added to the stipulations in the compatibility determinations for grazing regarding geographic origin of livestock. The CCP/EA also describes the Integrated Pest Management plan and using prescriptive grazing in concert with adaptive management that conserves special status species including plants that occur on Bitter Creek NWR.

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63 cont taxa (Belsky and Gelbard 2000), and livestock accelerate soil erosion that buries non-native seeds and facilitates their germination (Belsky and Gelbard 2000).”

64 Based on the literature provided in support of this section, I do not agree that the net effect on vegetation from all management activities under Alternative B would result in positive impacts to native plant species and vegetative communities. I extend these same objections to the discussion of benefits to wildlife on Bitter Creek as much the same literature is cited (or not cited).

Section 4.2.7 – Special Status Species – Bitter Creek NWR

65 In the introductory paragraph, it should be made clear that there is potential for up to 53 special status species of plants to occur at Bitter Creek NWR *in addition* to the nine species known to occur (documented) there. Note the change to nine species, not eight. Both the CCP and the EA have missed including *Lupinus elatus*, documented on the Refuge in 2010 (De Vries 2010). Some of the scientific names are incorrect: *Eremalche parryi* subsp. *kernensis*; *Caulanthus coulteri* var. *lemmonii*; *Delphinium gypsophilum* subsp. *gypsophilum*; and *Gilia latiflora* subsp. *cuyamensis*. It is incorrect to leave out the subsp. or var. designation in these scientific names. (It is also not often clear which nomenclature system was used for scientific names in any of these documents. Hickman 2003 was cited for the 2009 and 2010 Plant Assessment Reports (De Vries 2009; De Vries 2010). The nomenclature used in all of these documents should be consistent and the appropriate reference should be cited.)

66 The introductory paragraphs do not mention Kern Sphinx moth, a federally listed endangered species, which has a high potential to occur on Bitter Creek NWR (Dr. Peter Jump, personal communication with Dr. E. L. Painter, May 22, 2012).

Alternative B – Preferred Alternative

67 A statement that “[p]otential adverse effects can be mitigated through avoidance, applying low intensity grazing, and avoiding important time periods through an understanding of the phenology of the species and climatic conditions of the year” is not supported by appropriate references. The citations for this statement are: Barry 1995, which does not provide data, discussion or analyses and provides only four references, three of which are basic charts adapted for this ‘guidebook’; Germano et al. 2005 appears to be only a website with a summary of activities at a particular site and does not provide any data, any analysis, any discussion, or references, and Griggs 2000, as previously pointed out, is an opinion piece in a non-peer-reviewed journal and also does not include data, analyses, or references.

68 It is not clear why USDA 2011a, which is the Fire Effects Information System website, is cited to support the statement that “maintaining and improving grassland habitat, through mechanical and prescriptive grazing, increases foraging opportunities and carcass access for California condors, as well as increases the availability of roosting snags.”

Response 5-64. Comment noted. This section was revised in the Final EA.

Response 5-65. The Final CCP/EA reflects the corrected scientific names. The special status plants sections in Chapter 3 of the Final CCP were revised to include Federal ESA listed and proposed species, California ESA listed species, and species that occur on the refuges that are CNPS ranked as 1B or higher.

Response 5-66. Information about the Kern primrose sphinx moth has been added to the introductory paragraph about special status species in CCP Chapter 3 and the Final EA.

Response 5-67. Same as response 5-17.

Response 5-68. The Fire Effects Information System database also provides information on habitat and foraging characteristics for California condor (<http://www.fs.fed.us/database/feis/about.html>). The California Condor Recovery Plan (USFWS 1996) also supports this concept stating, “Most California condor foraging occurs in open terrain of foothill grassland and oak savannah habitats...it does require fairly open spaces for feeding. This ensures easy take-off and approach and makes finding food easier.”

69 Based on the literature provide in this section, I do not agree that “the net effect from all management activities under Alternatives [sic] B would result in moderate positive impacts to other special status species (if present now or in the future) relative to Alternative A.”

4.2.12 Cumulative Effects – Bitter Creek NWR

Biological Environment

70 Based on the literature provide in the previous section, I do not agree that implementing Alternative B would provide positive benefits to vegetation, wildlife and special status species. Again, as in the cumulative impact analysis for Hopper Mountain NWR, I find it interesting to note that the authors suggest that grazing, among several other stressors, has “resulted in cumulative adverse effects to vegetation (e.g., 90% loss of riparian forest communities, loss of California black walnut stands, loss of oak woodland habitat, and loss of native grasslands...”

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Response 5-69. The analysis of potential effects to Special Status Species was expanded upon in the Final EA. Furthermore, an assessment of the uncertainty associated with the lack of site- and species-specific research, and discussion of the need for adaptive management and monitoring, were added to the Final CCP/EA and revised Grazing Plan.

Response 5-70. The analysis and discussion of potential adverse cumulative effects and uncertainties associated with the cumulative effects analysis were added to the Final EA. The discussion of the need for adaptive management and further monitoring were expanded upon, given the uncertainties and lack of site-specific research.

Comments on the Draft Prescribed Grazing Plan for Bitter Creek NWR

I have already provided comments and stated my objections to the Compatibility Determination for grazing for Bitter Creek NWR and to the analyses in the Environmental Assessment. Specific comments on the draft Prescribed Grazing Plan for Bitter Creek NWR are included in this section.

Introduction Section

71 No portion of Bitter Creek NWR falls into San Luis Obispo County. In the last sentence of the first paragraph, "California Florist Province" should be "California Floristic Province."

72 Paragraph 3 refers to "grasslands". This designation is incomplete; the correct designation for these areas, as mapped by the Service, is California Annual and Perennial Grasslands. It is also not clear if the plan proposes to manage native perennial grasslands, several of which were mapped on this refuge.

Summary of Objectives 2.2 and 2.3

73 Inadequate literature and analyses was presented in the Compatibility Determination for grazing for Bitter Creek NWR or in the EA to justify the statement that this plan will meet wildlife objectives. Again, it is objectionable that such a plan would be proposed to manage for wildlife species that have not been documented on the refuge. Monitoring for native plants does not indicate to what extent native plants, including special status species that have been documented on the refuge, will be protected.

Background

76 No literature is provided to support the statement that "[o]n a large scale, however, prescribed grazing is often the most economical, reliable, and practical method used solely or in conjunction with other methods to achieve desired future conditions." It is certainly true that "[r]esearchers have amassed a large body of literature on the subject"; however, the statement that "this plan presents a pertinent range of topics concerning the use of grazing for conservation, restoration, and management but does not represent a thorough literature review" is an intolerable failure on the part of the Service to include the best science available on this subject. What criteria were used to determine what a "pertinent range of topics" would be? Why was a thorough literature review not included in this document (or in the CCP, or the Compatibility Determination, or in the EA)? Failing to review the available literature is a breach of the Service's Refuge Management policy (601 FW3 Biological Integrity, Diversity, and Environmental Health), which mandates that sound professional judgment be exercised in the comprehensive conservation planning process. One of the tenets of sound professional judgment is the application of the best available science, which has not been done here.

77 A statement that "other studies show wildlife habitat (e.g., food nutritional quality and structure) benefits from grazing" is supported by the following citations:

78 Buchsbaum et al. 1986 is a discussion of the digestive traits of Canada geese and Atlantic brant and seems completely out of context here as we are not considering whether the proposed Grazing Plan will impact or benefit Canada geese or Atlantic brant. Colwell and Dodd 1995 examined waterfowl in coastal pastures, but did

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Response 5-71. The errors were corrected in the revised Prescribed Grazing Plan for Bitter Creek NWR (Grazing Plan).

Response 5-72. The grassland terminology was revised to be consistent with the terminology used in the revised Grazing Plan and Final CCP/EA.

Response 5-73. Same as response 5-22.

Response 5-74. The commenter is correct in that some of the species in Objective 2.2 have not been documented Bitter Creek NWR. These species are noted as examples of San Joaquin Valley special status species that may benefit from shorter grass heights/lower residual dry matter (in suitable areas of the refuge) according to the Service's Recovery Plan for Upland Species of the San Joaquin Valley. The species listed in Objectives 2.2 and 2.3 in the Grazing Plan are duplicates of the objectives in the CCP chapter 4. The CCP includes rationale following each objective that discusses the relevance of these special status species.

Response 5-75. The Grazing Plan has been revised to incorporate specific management objectives for special status plants. Language has been added to the Grazing Plan to address the need to protect special status plant species within the grazing treatment areas, and to monitor the effects of treatments on sensitive native plants. Bitter Creek NWR Strategy 2.2.6 was added to the Final CCP to conduct surveys for special status plants. More information is provided in response 3-7.

Response 5-76. Same as response 5-22.

Response 5-77. Same as response 5-22.

Response 5-78. Same as response 5-22.

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cont

not study the effect of grazing in this work, although the authors suggest that grazing might be used to change vegetation structure. Germano et al. 2001 is an article published in the middle of an ongoing study, but does not provide analyses; Knopf and Rubert 1995 is a study of mountain plovers which found that the birds most favored alkali flats where they were available, and used heavily grazed rangelands when alkali flats were not available. This paper does not state that grazing benefits the habitat of this species.

The fourth and fifth paragraphs in this section are repeated from the Compatibility Determination for grazing for Bitter Creek NWR and I therefore repeat here my same comments on these citations:

79

Regarding the statement: "Grazing has been a successful conservation management tool for specific plant taxa in some herbaceous wetland communities" it must be noted that the proposed grazing units on Bitter Creek are not herbaceous wetland communities, nor are the specific taxa referred to in the citations supporting this statement present on Bitter Creek. This statement goes on to say that this "success" is due "probably through the reduction of competing non-native species (e.g., non-native annual grasses and associated thatch accumulation resulting in high RDM" even though some of the literature cited does not address "non-native annual grasses and associated thatch accumulation". For example, Bakker 1985 refers to a study in coastal salt marshes and Carvell 2001 is a study of bumblebee habitat in Great Britain and does not address any specific plant taxa including "non-native annual grasses."

Marty 2005, a study in ephemeral wetlands, is also cited here. Comments on this reference were previously provided by Dr. E. L. Painter when this work was also cited as a reference for the Bitter Creek National Wildlife Refuge Independent Rangeland Review (George and McDougald 2010):

80

"Marty (2005) reported that removal of livestock grazing decreased native vernal pool plant and aquatic invertebrate species and application of livestock grazing increased these species but "ungrazed pools had 88% higher cover of exotic annual grasses and 47% lower relative cover of native species than pools grazed at historical levels (continuously grazed)" (Marty 2005). While Marty (2005) concluded that continuous grazing led to the highest relative cover by natives, figure 1 illustrated that ungrazed sites had the highest absolute cover of natives and continuous grazing had the lowest. No plant species lists were provided in Marty 2005, so there is no way of determining if increases and decreases in native plants represent widespread taxa, local taxa, obligate vernal pool taxa, rare taxa, etc. According to Jaymee T. Marty (personal communication to E. L. Painter), "it was the average number of native species that increased and decreased by treatment. In other words, I saw the average number of natives decline in the ungrazed plots, but I did not see species extinctions in any treatments. So, the species lists would likely be identical for the treatments", and information on which native and non-native plant taxa increased or decreased "will have to wait for my next series of analyses". Additionally, the inundation period of the pools was reduced in ungrazed pools, which (based on the Pyke and Marty 2005) model with hypothesized climate changes, could make it difficult for some endemic vernal pool taxa to complete their life cycle."

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Response 5-79. Same as response 5-22.

Response 5-80. Citations and text in the Bitter Creek Prescribed Grazing Plan have been updated to include the most recent peer-reviewed literature. Some documents were changed to cite general principles rather than specific predictions about vegetation response. Some non-peer reviewed papers (e.g. Edwards 1992) were updated with more recent, peer-reviewed literature. It appears that Marty (2005), figure 1, illustrated that ungrazed sites had the highest absolute cover of non-natives. Marty 2005 is an example illustrating the variable effects of grazing on native and non-native species and is not intended as sole justification for any specific grazing practice.

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Pyke and Marty 2005, cited in this Compatibility Determination as a supporting document and also mentioned above in Dr. Painter's comments, is an analysis of ephemeral wetlands which focused on fairy shrimp species, not plants. This paper contains the following statement: "Our project was primarily a sensitivity analysis based on limited experimental data, an average distribution of vernal pool characteristics, and a plausible, but generalized, climate-change scenario."

The next paragraph, which was also included in the Compatibility Determination, goes on to state:

"Grazing" is commonly poorly characterized in these studies, making results difficult to properly interpret. Stocking rates and density, seasonality, duration, varying rainfall amounts, soils, length of rest, species/age of grazer, and grazing history are just a few of the variables confounding results. The objects being manipulated often vary greatly, and defy any broad attempt to group them into simple categories. 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."

As I previously stated when this paragraph appeared in the Compatibility Determination for grazing for Bitter Creek NWR, the objective or meaning of this paragraph is not clear. Why, if grazing is commonly poorly characterized in these studies, are these studies cited in this Compatibility Determination? What exactly does the Service mean by "...characterizing the effects of grazing depends on a narrow frame of reference"? Does this mean the Service is being (overly) selective in the references cited? And how are studies conducted in wetlands relevant to the potential effects of grazing at the dry lands of Bitter Creek NWR?

The statement "it is suggested that domestic livestock are appropriate for vegetation management in weedy plant and animal communities" is supported by the following literature: Barry 2003 is a non-peer-reviewed article included in a California Native Grassland Association conference workshop manual; Bullock et al. 2001 is a study conducted in Great Britain and includes none of the plants found on Bitter Creek NWR; Germano et al. 2001 has no methods section and few data and is therefore inappropriate; Griggs 2000 is a summary opinion piece published in *Fremontia*, a non-peer-reviewed magazine, in which the author provides anecdotal observations about a study in vernal pools but does not provide methods, data, or any analyses; and Thomsen et al. 1993, is specific to yellow star thistle (*Centaurea solstitialis*), a weedy plant that occurs only occasionally on Bitter Creek NWR. Presenting these citations for this statement is misleading and biased. Finally, what exactly is a "weedy" animal community?

The last sentence in this paragraph "Livestock grazing remains a tool for ecosystem restoration even in lands previously degraded by livestock grazing" is supported by a single citation, Papanastasis 2009, which is an editorial opinion piece.

Next we have the completely unsupported statement that

"Cattle are the livestock of choice for managing non-native annual grasses. Cattle primarily graze grasses that dominate the California annual -type grassland, including those at Bitter Creek NWR."

Response 5-81. Same as response 5-22.

Response 5-82. Same as response 5-22. "Animal" was deleted from the language in the Grazing Plan to read "weedy plant communities".

Response 5-83. The Papanastasis paper is a review with examples from Mediterranean rangelands, not an opinion piece. Clarification and additional supporting citations were added to the Grazing Plan.

Response 5-84. The text of the Grazing Plan was revised to address the comment.

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Huenneke et al. 1990 is cited to support the following statement:

“As a result, some wildflowers (also referred to as forb and legumes) may benefit from the reduction of non-native annual grass biomass, including active growing plants and standing dead plant material and thatch.”

85 Using the Huenneke et al. 1990 citation for this statement is completely misleading and inappropriate. This was a study of community structure changes and nutrient availability in serpentine soils in which the authors measured responses after the application of fertilizers. The results of this study, which again is specific to very unusual serpentine soils, cannot be applied to a general statement about the effect on wildflower growth by merely reducing annual grass biomass. Even if the statement is amended to include the qualifier *on serpentine soils*, it is irrelevant to Bitter Creek as serpentine soils do not occur on the Refuge.

86 No literature citations are offered in support of the next few sentences regarding what cattle eat or do not eat. Barry 2003, the non-peer-reviewed article included in a California Native Grassland Association conference workshop manual, is then referenced to support the statement that type and class of cattle influences “consumption of vegetation over a range of plant palatability”. There is no other literature cited here that provides scientific evidence on the subject of what cattle prefer to eat or do not eat.

87 The information on what sheep and goats consume is likewise completely unsupported with citations. Finally, Squires 1982, a study conducted in Australia, is cited for a statement that cattle, sheep, and goats can “differ somewhat in the proportions [of grasses, other herbaceous plants, and shrubs] they select.” A more appropriate reference might have been Van Dyne and Heady 1965, a study of the diets of sheep and cattle in California. The Van Dyne and Heady 1965 reference was provided to the Service by Dr. E. L. Painter in her review of the Independent Rangeland Review prepared by George and McDougald (2010). Why was it not included in this discussion?

Grazing for Vegetation and Wildlife Management at Bitter Creek NWR

88 The Independent Rangeland Review prepared by George and McDougald (2010) was roundly criticized by Dr. Painter, whose comments are posted online on the Bitter Creek NWR website. This Draft Prescribed Grazing Plan acknowledges receipt of Dr. Painter’s comments, and even goes as far as to state that Dr. Painter “raises valid points”, but then completely dismisses the comments saying that “research investigations and continuous monitoring surveys would be necessary to address the many uncertainties associated with vegetation management in xeric Mediterranean climates,” and goes on to suggest that because funding and personnel are not available to accomplish this research, this plan opts to “adapt refuge management activities (including grazing prescriptions) to dynamic natural and logistical conditions.”

90 The Service acknowledges here that uncertainties do indeed exist in xeric habitats like Bitter Creek NWR, and has also acknowledged that Bitter Creek’s habitats were previously damaged by grazing. A statement in the CCP (Section 1.8.2, Grazing Management) states:

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Response 5-85. The Grazing Plan text was revised and additional supporting references were added.

Response 5-86. The Barry citation was removed. Additional, refereed references were added.

Response 5-87. The statement was removed from the revised Grazing Plan.

Response 5-88. Additional information was added to this section in the Grazing Plan to address the comment.

Response 5-89. Comment noted.

Response 5-90. The background section of the Grazing Plan has been revised to address the comment, including citations from Briske et al. (2011), Stahlheber and D’Antonio (2013), Huntsinger et al. (2007) and Bartolome et al. (2009). Those authors concluded that the result of any specific grazing practice is highly site specific and primarily depends on the interaction of site and weather with grazing. This means that even if there were experimental results from grazing studies in the region of Bitter Creek, the results would have limited predictive value for grazing management (Bartolome et al. 2009).

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cont "An internal habitat review in 1996 found that the refuge habitats were degraded and recommended that the existing grazing program needed to be re-evaluated; therefore, the Service decided not to issue additional grazing permits."

91 Why, then, would the Service proceed with a plan that has the potential to exacerbate the damage in an already compromised system, destroying the native plants and plant communities that may now be recovering from years of overgrazing? Not having the funds or the personnel available to conduct the appropriate surveys, to conduct needed research investigations, or to conduct appropriate monitoring is not a valid reason to proceed with a potentially destructive plan. Monitoring RDM will not provide any information about species composition or the abundance of native plants. To initiate this grazing plan without a clear understanding of the composition and dynamics within the habitats of Bitter Creek has the potential to cause continuous and irreparable damage to public lands.

Site Description and Resource Inventory

Land Use History

92 This section fails completely to discuss the potential impacts to archaeological resources that have been recorded on Bitter Creek NWR, including several prehistoric resources. Artifacts that may be of prehistoric significance have been observed on the ground surface, including one that was found in an area that is proposed to be included in a grazing unit. (Personal observation 2009; a photograph of this artifact and the coordinates of its location was provided to the Service during 2009 botanical surveys.) Grazing cattle can damage and/or disrupt archaeological resources (Van Vuren 1982; Horne and McFarland 1993; Nickens 1990; J. Timbrook, personal communication).

Climate and Weather

93 No resources are cited in this discussion. Where did the precipitation information originate from? Why does the annual precipitation average only range from 1971 through the year 2000? I address this issue in more detail in my comments on the draft CCP and repeat those comments here for convenience:

Average precipitation amounts from other sources are somewhat different for the 2000 through 2012 period than the 9.82 inches (from 1971 through 2000) shown here. For example, the RAWS station on the Carrizo Plain shows an average precipitation of 9.89 inches over a period from 1991 through 2012 (CalClim 2012); however, the average precipitation at this station between 2000 through 2012 is only 8.65 inches. At the New Cuyama Fire Station, a NWS Coop resource located approximately 15 miles west of Bitter Creek at approximately 2160 ft elevation, average precipitation from 1974 through 2012 is 7.87 inches; and at Maricopa, another NWS Coop resource approximately 7.8 miles north of Bitter Creek, the average precipitation between 1922 through 1993 was 5.93 inches. A more thorough investigation into the actual precipitation totals on Bitter Creek might be in order, particularly as this

Response 5-91. Healthy rangeland ecosystems providing habitat for wildlife species and supporting native plants are the primary and overarching goals supported by grazing related objectives and strategies. Improving wildlife habitat by changing vegetation structure and composition, is a primary purpose for a prescribed grazing program. Information about species composition and abundance of native plants will be gathered under Bitter Creek NWR Strategies 2.1.2-2.1.4.

Response 5-92. Same as response 5-8.

Response 5-93. The CCP/EA was prepared in 2010 and 2011. The source (Prism 2011) included data up to 2010. Data for 2011 was not found prior to printing. Comments about variability of the average precipitation at the other weather stations in the area and the need for further investigation into actual precipitation totals at Bitter Creek are noted.

93 cont document [the draft CCP] states that increasing trends were observed in the data used, but the data from the Carrizo seem to indicate that the average precipitation is actually decreasing.

Soils and Vegetation

94 No examples are given in text to demonstrate that "soil map units are...useful for grazing cell design because vegetation is often similar with a given map unit at Bitter Creek." Table 1 list the different soil types and vegetation types associated with each; however, because the vegetation mapping for Bitter Creek was done at a fairly broad scale, many smaller areas (e.g., less than approximately 5 acres) of native herb lands or areas dominated by perennial grasslands were included within the Annual and Perennial Grassland vegetation type.

95 Additionally, no differentiation was made between several different shrub-dominated vegetation types. Areas dominated by goldenbush (*Ericameria linerifolia*) were lumped together with areas dominated by California buckwheat (*Eriogonum fasciculatum* var. *polifolium*). These two shrub communities are distinctly different.

96 The Soils Map (Figure 2) and the information on Table 1: Soil types, acres, and associated vegetation at Bitter Creek NWR, are not accurately correlated and landcover information is missing from the table. An example would be the Bitcreek-Shimmon-Badhud complex (Soil Map Unit ID Symbols 930 and 932). It is not clear on Figure 2 where each of these occur; however, according to the NRCS website, Soil Map Unit ID Symbol 930 is the type present in the south portion of Unit 9, which is west of the Steinbeck inholding. Only "annual grassland" is listed as the vegetation type for Soil Map Unit ID Symbol 930; however, shrub lands are shown on the vegetation map (Figure 5) in this area, and these shrub covered lands are clearly visible on aerial photographs (Google Earth, Imagery Dated 4/29/2011).

97 The descriptions of the vegetation types on Bitter Creek, relative to the Vegetation/Landcover map (Figure 5) are inaccurate. The vegetation map does not call out "annual grasslands"; this vegetation type has been mapped as California Annual and Perennial Grasslands on Bitter Creek. To eliminate the "perennial grasslands" is to ignore an important component of this vegetation type, one that requires special consideration when discussing any management action. Native perennial grass species that are present should also be noted as part of the common plant species that occur in this vegetation type.

98 What is small fescue? This common name for a plant does not appear on the Bitter Creek NWR plant list. If common names are going to be used in this document, it is important to include the scientific name, at least when the plant is first mentioned, to avoid confusion. If this plant is one of the *Vulpia* taxa that occur on Bitter Creek, it should be noted that there are several species that are, in fact, native annual species. Likewise, what is wild oats? Do you mean *Avena fatua* or *Avena barbata*?

101 Also omitted is any mention of the many native perennial and native annual forbs that can be abundant in this vegetation type. Different species are present during different seasons. A good source for this information would be the data collected by the California Native Plant Society in April and June 2011 on 22 Releve Plots situated throughout Bitter Creek (Buck-Diaz et al. 2011). The Service was well aware that CNPS was gathering this information as part of their study of grasslands throughout California. The raw data on these plots were

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Response 5-94. Comment about the use of soil map units to help guide grazing cell boundaries is noted. The broad scale of vegetation/landcover mapping is sufficient for CCP purposes. As the strategies in the CCP for gathering baseline information about special status plants are implemented, more detailed mapping information is expected to be developed and used to inform adaptive management.

Response 5-95. Same as response 5-94.

Response 5-96. The soils map was revised in the Final CCP/EA and appendices, including the Grazing Plan.

Response 5-97. Same as response 5-39.

Response 5-98. The common names for the grasses within the California naturalized annual and perennial grassland were updated according to The Jepson Manual (2nd edition) and scientific names were added.

Response 5-99. Same as response 5-98.

Response 5-100. Same as response 5-98.

Response 5-101. The Draft CCP (section 3.2.5) references some common forbs found in the California Naturalized Annual and Perennial Grassland (from De Vries 2009). A reference to the 2011 CNPS project on native annuals and perennial forbs (Buck-Diaz et al. 2011) was added to this same section of the Final CCP (renumbered to 3.2.6). The recommendations in the Grazing Plan for monitoring take into account information needs for native plants and seasonal and yearly variability. Bitter Creek NWR Strategy 2.1.3 in Chapter 4 of the Draft and Final CCP included surveying and mapping native grasses and forbs.

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101 cont' provided to the Service in February 2010, well in advance of the release of these documents. Why has this important information not been considered or even mentioned in this document?

102 I was personally quoted in this document (De Vries 2011, personal communication with Joe Silvera) as providing the information that "only reconnaissance-level plant surveys have been conducted at Bitter Creek NWR, so it cannot be assumed that past and current known special status plant locations are the only locations where they occur." This quote is not entirely accurate (although it is absolutely true that surveys for all special status species should be conducted on Bitter Creek). I stated that the surveys I conducted in 2009 and 2010 were primarily reconnaissance-level in nature. Limited focused surveys for specific species were in fact conducted in 2009, as documented in the *Results of the 2009 Reconnaissance and Focused Plant Surveys on the Bitter Creek National Wildlife Refuge, Kern and Ventura Counties, California* (De Vries 2009). This report, which also provides detailed descriptions of the vegetation types on Bitter Creek, is not included in the literature section of this Draft Prescribed Grazing Plan.

103 The last sentence in this section states that "[p]lant surveys will be conducted and plants identified, as resource targets will be monitored as part of the grazing program." No detail is given here as to when these plant surveys will be conducted, what protocol will be used, or how (or if) the grazing program will be adjusted based on the results of the surveys. It is not appropriate to conduct surveys for special status plant species while "monitoring resource targets" unless it can be demonstrated that the surveys are floristic in nature (e.g., all plant taxa observed during the survey are identified to the specific level), and that the surveyors use systematic field techniques that extend to all areas that may be disturbed by management actions (CDFG 2009).

Table 1

104 As stated previously, the vegetation types shown on this table do not match the Vegetation/Landcover map
105 (Figure 5) nor is this table accurately correlated with the soil types. "Annual Grassland" is not a mapped
106 vegetation type. This should be changed to the type shown on the vegetation map: "Annual and Perennial
107 Grassland." Does "shrubs" refer to Allscale Shrub or Central and south coast CA seral scrub? Mixed Herb and
108 Grass should be changed to CA annual herb/grass. Soils Map Unit ID Symbol 930 should include shrublands in
109 addition to annual and perennial grasslands. (Specifically, these shrublands are dominated by goldenbush
(*Ericameria linerifolia*) with scattered areas of juniper (*Juniperus californica*) woodland, personal observation
during surveys in 2012; survey documentation to be prepared in 2012). (Comments on these vegetation type
designations are provided in the discussion of vegetation on Bitter Creek in the CCP.)

110 The soil map Unit ID symbols shown in column one should match the symbols shown on the Soils map (Figure 2)
or the symbol shown on the map could be added to this table for clarity. In Footnote 2, a statement is made
111 that soils in Units 2 and 3 may be suitable for some special status species, but the reader is forced to interpret
the soil types by extrapolating from the Management Units map. A map showing the locations of the special
status species in relation to vegetation types and/or soils would also be helpful

Response 5-102. Text was revised and personnel communication citation was removed.

Response 5-103. Same as responses 5-41 and 5-91.

Response 5-104. Same as response 5-39.

Response 5-105. Same as response 5-39.

Response 5-106. Same as response 5-39.

Response 5-107. As used in this context, the shrub reference is general and does not mean any specific vegetation association.

Response 5-108. The term in the Grazing Plan was changed to "grassland" which refers to both herbs and grasses.

Response 5-109. The term "shrubland" is used in the Grazing Plan.

Response 5-110. The soils map in the CCP (figure 2) was revised to be consistent with the symbol/ numbering used in the soils map in the Grazing Plan.

Response 5-111. Comment noted.

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112 For your information, *Delphinium gypsophilum* subsp. *gypsophilum* and *Castilleja plagiotoma* have now been documented in Unit 9 (Central and South). These populations were found during surveys in spring 2012; the locations and other details of these new special status plant populations will be provided in a summary report after plant survey activities are ended in 2012. I believe these new locations will fall on soil types 930 and 403.

Table 2

113 I repeat the observation that the vegetation/landcover types do not match the vegetation/landcover types shown on the vegetation map (Figure 5). Plants listed in the "annual grassland" row do not reflect the fact that native perennial grasses and a variety of native forbs are also present in this vegetation; it is also not clear which species are being referred to as these common names were not explained in text.

114 It is not appropriate to include wildlife species that "may" occur on the refuge; if the Service wishes to include wildlife species that may occur, then it is only appropriate to include the additional 53 special status plant species that have the potential to occur on Bitter Creek.

115 "Alanthus Stands" is spelled incorrectly. The correct spelling is *Ailanthus*.

Footnote 1 in Table 2 refers to Hopper Mountain National Wildlife; I believe this should be Bitter Creek National Wildlife Refuge??

116 Footnote 2 in Table 2: Why is this discussion of the grassland vegetation composition included here? Is the purpose to justify using just "annual grassland" as opposed to the mapped "annual and perennial grassland" in this table? The comment that the annual grassland type is typically naturalized non-native taxa is not accurate, nor is a reference provided to support this statement. I refer the Service again to the California Native Plant Society data collected on Bitter Creek in 2011 (Buck-Diaz 2012), which clearly shows an abundance of native species throughout the "annual grassland" type. For example, CNPS plot Nos. 6 and 7 were both situated in the south part of Unit 6 in an area mapped by the Service as "annual and perennial grassland". Plot 7 had a 48% cover of a non-native annual grass (*Bromus diandrus*), but native perennial grasses were also well represented with 11% cover (*Elymus multisetus*, 10%, and *Poa secunda*, 1%) as were nine other native forbs. Plot 6, situated nearby Plot 7 (approximately 700 feet to the west), had a 13% cover of the non-native annual grass *Bromus diandrus*, but also had a 20% cover of native perennial grasses (*Poa secunda*, 20%, and *Elymus elymoides*, 3%) as well as no less than twelve different native forbs and grasses.

117 The last statement in this footnote gives an example of "annual grass dominated by a patch of alkali rye, or creeping wildrye (*Leymus triticoides*) and lesser amounts of blue wildrye (*Elymus glaucus*)". First, blue wildrye does not appear on the plant species list for Bitter Creek; where did this observation come from? Second, why
118 would a grassland dominated by native perennial grasses be called an annual grassland? No indication of any

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Response 5-112. The observations were added to the CCP Chapter 3 text about special status plants.

Response 5-113. The nomenclature for the plant communities/landcover types was revised to be consistent throughout the CCP/EA and appendices (including the Grazing Plan appendix). The map (figure) Bitter Creek NWR Vegetation/Landcover and the plant communities were revised to be consistent with the nomenclature used in the CCP/EA and appendices. Sources are cited in the legend of the maps and following the tables in the Grazing Plan.

Response 5-114. The Grazing Plan table was revised to include only wildlife that occurs on the refuge.

Response 5-115. The spelling has been corrected in the revised Grazing Plan.

Response 5-116. Footnote 1 in Table 2 refers to the refuge Complex, which has the same name as the refuge; the footnote is correct as written. Response 5-113 addresses the portion of the comment about grassland nomenclature.

Response 5-117. An updated plant list for the refuge is included in the appendices to the Final CCP/EA.

Response 5-118. Same as response 5-113.

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118 cont minimum mapping unit is give here, nor does the Service provide any criteria for determining what is or is not a perennial grassland other than to criticize the practice of using a 10% relative cover threshold. The same comment may also be applied to the "fairly dense stand of bottlebrush squirreltail (*Elymus elymoides*) [that] occurs within a heavy buildup of dead, lodged thatch from rip-gut brome (*Bromus diandrus*)."
119 Does this mean that the native perennial bunchgrass *Elymus elymoides* appears to have grown through the *Bromus diandrus* and now dominates this area? Why would this be called an annual grassland if the only living thing observable in it is a native perennial grass?

120 Footnote 3: No detail is given here for the observations made on August 11, 2011. Exactly where was this survey conducted? Exactly what species were observed and in what proportions? Were shrub vegetation types included in these "structural differences"? I would point out my previous comment that portions of Unit 9, on
121 soil Map Unit Symbol 930, appear to have been misidentified as having only annual grasslands even though shrublands are clearly present in this area.

122 Footnote 4: This footnote is somewhat less than adequate. The table presents the annual grassland type as including only non-native annual grasses (assuming these common names refer to non-native taxa); this is misleading and wrongly minimizes the fact that natives are in fact well represented in this vegetation type.

123 Figures 2, 3, 4, and 5 are included at such a small scale that it is difficult to read them.

Resource Targets and Target Conditions

124 I repeat my objection that a plan is being considered purportedly to manage for species that have not been documented on the refuge. I repeat my objection that the special status plants that have been documented on the refuge are largely ignored as "resource targets."

Some inconsistencies and or omissions observed in this section include the following:

The fifth paragraph in this section states:

125 "Vegetative production and resultant RDM levels vary considerably within short distances in each management unit; this is due to the heterogeneous nature of the geology and soils across the landscape (Figure 2). Soil Map Unit 930 (Bitcreek-Shimmon-Balhud complex), the predominant soil map unit within the prime grassland area of the refuge, is a complex of three soils ranging from shallow (10-20 inches) to very deep (>60 inches). During an August 11, 2011, Field Tour, sampled dry matter (DM) values from these two components were approximately 300 pounds/acre and 8,400 pounds/acre, respectively. The deeper component showed more than one growth year contributing to its DM value. This heterogeneity will present a challenge in targeting average RDM values across the landscape. Season of use might be a

Response 5-119. Same as response 5-113.

Response 5-120. As stated in the footnote, the observations during the refuge Field Tour on August 11, 2011 were from several stops on the "middle third of the refuge (3,300–4,000 ft.), all within Map Unit 930–Bitcreek-Shimmon-Balhud complex, 9–50% slopes".

Response 5-121. Comment noted.

Response 5-122. Same as response 5-113.

Response 5-123. Full-page (enlarged) duplicates of the figures can be viewed in CCP Chapter 3.

Response 5-124. Comment noted. The text on Resource Targets and Target Conditions has been revised.

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tool to encourage grazing on the deeper components, which tend to also be northerly facing, and lessen the impact on the very shallow components, which tend to be south facing and west facing.”

125
cont

There are several issues with this paragraph. First, it is not clear what values are being referred to “respectively”. Is it the shallow (10-20 inches) to very deep (>60 inches) portions of Soil Map Unit 930? So, were samples taken only on the shallow and on the very deep portions of these soils and nothing in between, in the 20 to 60 inch range? What methods were used to sample this material? Were random plots selected on which to collect this material? How was the material measured? If data such as these are going to be relied upon to make statements about conditions on Bitter Creek, then the methods employed, all of the data results, and the corresponding analyses of the data must also be presented in this text.

126

This paragraph also states that the Service would “encourage grazing on the deeper components, which tend to be northerly facing...” No consideration for the recovery of native perennial grass communities, particularly *Poa secunda*, which also tends to be more abundant on northerly facing slopes (De Vries 2009; personal observations on Bitter Creek), has been taken into account in this statement.

127

Regarding the discussion of bare ground, what is the definition of “fine scale”? What is “not widespread”? Does this mean less than 5% of the areas trampled by cattle? Does it mean less than 50% of the area trampled by cattle? What is “minor amounts” of bare ground? While bare ground might provide “space for annual spring and or summer wildflowers,” it also provides an opportunity for non-native invasive species to grow, particularly those that may have been transported by cattle (Ellison 1960, Schiffman 1997, Belsky and Gelbard 2000, Jones 2001).

128

Table 3: Resource Targets and Target Conditions

129

Only two of the resource targets included in this table for the Very Low RDM/Short Grass Height section have actually been observed on Bitter Creek NWR: San Joaquin kit fox and horned lark. Again, why is the Service managing for species that do not occur on Bitter Creek at the expense of biological resources that do occur there? No valid evidence that native plants found on Bitter Creek will benefit from any RDM or Grass Height target conditions has been presented.

130

Why is Figure 6 presented in this section? This figure, which is not referred to in text, shows a picture of (according to the caption),

131

“Comparison of shallow (top of hill) and very deep soil components (bottom) in Soil Map 930 (Bittercreek-Shimmon-Balhud) complex. These conditions represent 6 years of non-grazing use.”

What was this Figure intended to represent to the reader? The caption implies that these conditions are solely a result of non-grazing versus grazing use, but does not explain what the photographed conditions represent. It

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Response 5-125. Comment noted. Clarifying language was added to Grazing Plan. The approach in the Grazing Plan, outlined in Herrick et al. (2012), is to develop better ecological site descriptions, including soils descriptions, as the adaptive management is implemented.

Response 5-126. The grazing plan is designed to achieve a mosaic of habitat structure and floristic diversity within Bitter Creek NWR’s grasslands. We plan to monitor each management unit to inform adaptive management and ensure these objectives are met. The Grazing Plan was revised to clarify.

Response 5-127. This is managed by monitoring RDM through mapping. Appropriate modifications in grazing use will be made as needed to minimize adverse effects. Information was added to the Grazing Plan.

Response 5-128. These references are not relevant. However, to avoid introduction of invasive plants, livestock brought onto the refuge may be subject to quarantine. Reducing the risk of introducing noxious invasive plants is addressed in the Grazing Plan (in the section titled Cattle Distribution, Movements, and Rotation Cycles), the stipulations in the Compatibility Determination for Grazing, and will be stipulated in the grazing agreement or permit.

Response 5-129. The rationale for these resource targets for Objectives 2.2 and 2.3 is presented in Chapter 4 of the Final CCP. We are managing for these targets because either they are a high priority for the Service, they are known to occur on Bitter Creek, they are likely to occur on Bitter Creek based on their habitat needs and distribution, and/or the target habitat structure is based on published literature describing the habitat needs of these species (more detail and citations is included in the rationales for the Objectives).

Response 5-130. The Grazing Plan was revised to address the comment including citation of Jackson and Bartolome (2002).

Response 5-131. The intent of the photo was to show site variation under no grazing.

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131
cont does not provide any measurements of conditions seen in the photograph; it does not mention the time of year at which the photograph was taken; it does not describe other contributing factors like rainfall patterns over the six year period; it does it show any baseline information; and finally, it does not demonstrate that this condition is better or worse than any other.

Period of Grazing Prescriptions for Resource Targets

132 In this section, the Service acknowledges that “generalizations about grassland vegetation response to livestock grazing between California’s mesic coastal grasslands and xeric interior grasslands are tenuous.” What does the phrase “grazing during different periods would account for various species life history and provide an opportunity to monitor vegetation and species responses” mean? Grazing prescriptions would need to be developed specific to all of the plant species and habitats present on Bitter Creek, and not just “to the extent practical”. Conservation cannot just be based on what is “practical” but must be done to the level necessary to protect the biological resources that are present on the refuge. As stated in Title 16, National Wildlife Refuge System Act, Section 668dd (a) (4) (A): “In administering the System, the Secretary shall—provide for the conservation of fish, wildlife, and plants, and their habitats with the system.”

133 No prior evidence that wildflower germination would be enhanced on Bitter Creek through the removal of high accumulated thatch nor is any literature presented here. Removing accumulated thatch in March through May or early June is also likely to impact many native wildflowers that now occur on Bitter Creek, including numerous special status species. The Service acknowledges that cattle would indeed trample wildflower seedlings in late fall and early winter, but states that cattle would be removed after a short period “to reduce grazing pressure.”

134 Why would the Service agree to the destruction of native plants to any degree?

Finally, this section ends with the statement that conditions would be

135 “...assessed through monitoring surveys and potential research investigations so that resource objectives are met, while soils remain healthy and natural vegetation is enhanced.”

Earlier in this document, a statement was made that funds and personnel are not available to conduct research investigations, and the extent of monitoring has not been clearly defined; based on this document, one cannot reasonably assume that soils will indeed remain healthy and vegetation would be enhanced.

Grazing Prescriptions

136 This section does not provide any details of the grazing prescriptions proposed for Bitter Creek; it provides only the statement that AUM (animal unit months) should be determined based on measurements of RDM, and the methods proposed for collecting these measurements has not been provided. Therefore, it is difficult to comment on these “grazing prescriptions.” I can only point out that grazing has been proposed for many areas within Bitter Creek that support special status plant species, including a federally listed endangered plant

Response 5-132. This section of the Grazing Plan has been revised.

Response 5-133. The Grazing Plan was revised to clarify: In the Temblor Range, Jackson and Bartolome (2002) found that RDM influenced plant species competition, including abundance of the native *Lotus wrangelianus*, but only in some years. “Grazing” is very poorly characterized in most studies, making results difficult to properly interpret (Huntsinger et al. 2007). Characterizing the effects of grazing depends on a narrow frame of reference and is likely to be very site-specific (Jackson and Bartolome 2007). The Service maintains that this is a plausible hypothesis to test under adaptive management.

Response 5-134. The Service seeks to encourage native plants and avoid damage to native plants with the grazing prescriptions. This section of the Grazing Plan has been revised.

Response 5-135. Comment noted.

Response 5-136. The Grazing Prescription section of the Grazing Plan was modified in response to the comment. There is a variety of evidence, and it is stated in the Vegetation and Wildlife Management section and elsewhere in the Grazing Plan, that livestock have variable impacts on target organisms. Huntsinger et al. (2007) and Stahlheber and D’Antonio (2013) say that responses are highly site and weather dependent. Jackson and Bartolome (2002) found same for a Temblor Range RDM site.

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136 *cont* (Eremalche parryi subsp. kernensis), and areas that support native perennial grasslands, a vegetation type that is seriously endangered in California (Noss et al. 1995) (Table 4); grazing is proposed in seasons that would impact seeding native plants (Table 5), and the extent of the occurrence of special status species, both plant and wildlife species, is as yet, undetermined (Table 6).

Monitoring and Evaluation

137 This sections starts off with a statement that it would be necessary to determine “baseline conditions”;
138 however, the term “baseline conditions” is not clearly defined. This should include a detailed vegetation map to clearly delineate vegetation types including native perennial grasslands that should be conserved; floristic surveys conducted at the appropriate time of year and under favorable conditions (e.g., timed to coincide with the documented emergence of special status species in reference populations) in all areas to determine the presence/absence and locations of all special status species on the refuge; focused surveys for special status
139 wildlife species, particularly the Kern sphinx moth; and surveys to determine the locations of all cultural
140 resources.
141

142 In order to adequately monitor the effects of grazing prescriptions, it would be necessary to set up plots in like habitat that remain free of any “prescription” so that conditions in grazed areas can be compared to conditions in ungrazed areas. Such plots would necessarily be set up according to established scientific methods. At a minimum, data should be collected and subsequently analyzed and evaluated in both grazed and ungrazed plots in spring, summer, fall, and winter. There is no mention that such monitoring would occur on Bitter Creek. The effects of grazing prescriptions on native plants, vegetation, and wildlife cannot be determined based on the minimal monitoring proposed in this document.

143 Finally, while many fine organizations are mentioned as potential partners, there is one glaring omission. The California Native Plant Society has several programs in place to look for and monitor special status plants and vegetation types and has already visited Bitter Creek and collected valuable data. Why was this organization not included as a potential partner?

Summary of Implementation Schedule

144 This summary, Table 8, proposes a start for initial grazing activities as early as fall 2013. This does not appear to allow for adequate time to complete the necessary surveys that would be required prior to initiating any type of management action.

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Response 5-137. The Grazing Plan was revised to indicate the meaning of “baseline conditions” (a record of characteristics determined by surveys).

Response 5-138. The vegetation maps are adequate for grazing management and the purposes of the CCP.

Response 5-139. A table in the Grazing Plan provides suggested inventory and monitoring surveys for prescribed grazing and other habitat management activities at Bitter Creek NWR

Response 5-140. Same as responses 5-139 and 5-66.

Response 5-141. Same as responses 5-8 and 15-204.

Response 5-142. Huntsinger et al. (2007) and Stahlheber and D’Antonio (2013) say that responses are highly site and weather dependent. Jackson and Bartolome (2002) found same for a Temblor Range RDM site. Therefore, because responses of important variables depend on site and weather patterns, the approach described in the comment is not appropriate for Bitter Creek NWR. At Bitter Creek NWR, as the revised Grazing Plan outlines, it is more effective to use adaptive management and monitoring to determine whether grazing management is achieving the goals.

Response 5-143. Comment noted. The Service is willing to consider partnering with all organizations and researchers, including CNPS, on potential work that would support the purposes of the refuges. Therefore, rather than provide an incomplete list, the list of potential partners was deleted from the Table 8 in the revised Grazing Plan (Table 7 in the Draft Grazing Plan). CNPS’s and others’ data collection has been an asset to the Service and we are appreciative of all data that has been shared with the Service.

Response 5-144. The dates in the revised Grazing Plan have been revised to allow for necessary surveys and site improvements (fencing work, etc.).

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Section 4 - Comments on the Draft CCP

Comments on the Draft Comprehensive Conservation Plan

Chapter 1 – Introduction and Planning Background

Bitter Creek NWR Management History, Goals and Vision Statement

145 Relics from old documents appear in this section. The text calls out “grasslands, oak woodland and savanna, chaparral, riparian, and wetland habitats.” These names for vegetation types are out of date (and in the case of “chaparral,” inaccurate.) This nomenclature needs to be changed to match the vegetation types that were actually mapped on Bitter Creek.

146 The history states that monitoring for the presence of native species was a management practice that was assumed by the Hopper Mountain NWR Complex in 1995. Appendix D, Monitoring on Hopper Mountain and Bitter Creek NWR, shows that only very limited monitoring has actually taken place on the refuge. There is no indication that herpetological surveys have ever been conducted, or surveys for invertebrates. These surveys would be important to complete before management options are considered.

Chapter 3 – Refuge Resources and Environment

Hopper Mountain NWR Physical Environment

Hopper Mountain NWR Vegetation

147 Reference is made to the Hopper Mountain NWR calendar year 2002 Annual Narrative in Section 3.1.5 where it states that the plant list was updated in 2010 and cites De Vries 2010 as a reference. The De Vries 2010 (De Vries 2010) document is specific to Bitter Creek NWR and does not include any mention of plants on Hopper Mountain NWR. I did assist the Service’s vegetation mapping team on Hopper Mountain NWR in May 2011 and provided a list of plant species observed to the Service after that visit; however, no other formal report was provided to the Service. The plant species list for Hopper Mountain (Appendix D) states that plants were “documented” on May 2011. Documenting a plant species requires that voucher specimens be collected, labeled, and placed in a herbarium. No vouchers were collected on Hopper Mountain during the spring 2011 visit; these are observations only, and were not “documented”. A reference for nomenclature for plant species should also be cited in this section and the text and appendices for all of these documents (CCP, EA, and other appendices) should be reviewed to ensure that the proper scientific (and common) names have been used, according to the reference cited.

Hopper Mountain NWR Special Status Species

150 Two special status plants are included in this section for Hopper Mountain NWR, southern California black walnut (*Juglans californica*) (please note misspelling of this taxon in the text), and Hemp dogbane (*Apocynum cannabinum*). All other special status plants that have been documented on Hopper Mountain NWR have been excluded from this discussion. In addition, no analyses or discussion has been included regarding the special status plants that have potential to occur on Hopper Mountain NWR. The special status plants known to occur (documented, see previous comment) on Hopper Mountain NWR are:

Response 5-145. The plant community terminology in the Bitter Creek NWR Management History section was revised in the Final CCP.

Response 5-146. Comment noted.

Response 5-147. The incorrect citation (De Vries 2010) for updating the Hopper Mountain plant list was deleted from the Final CCP.

Response 5-148. The term “documented” was deleted from the plant lists and only plants observed are included in the list; sources are noted following the revised lists in the appendices to the Final CCP.

Response 5-149. The nomenclature was updated in the revised plant lists in the Final CCP Appendix E.

Response 5-150. Typographic error was corrected and the other special status plants known to occur on Hopper Mountain NWR were added to the Final CCP.

Section 4 - Comments on the Draft CCP

150
cont

Acanthoscyphus parishii var. *abramsii*, CA Rare Plant Rank 1B.2
Calochortus clavatus var. *clavatus*, CA Rare Plant Rank 4.3
Cryptantha corollata, Ventura County Locally Important Plants
Delphinium parryi subsp. *purpureum*, CA Rare Plant Rank 4.3
Juncus acutus subsp. *leopoldii*, CA Rare Plant Rank 4.2
Lepechinia rossii, CA Rare Plant Rank 1B.2, DFG S1.2 G1
Quercus dumosa, CA Rare Plant Rank 1B.1
Rigiopappus leptocladus, Ventura County Locally Important Plants
Symphytotricum greatae, CA Rare Plant Rank 1B.3
Thermopsis californica var. *argentata*, CA Rare Plant Rank 4.3

151

Focused surveys would be required to determine the presence/absence and extent of all special status plant species on Hopper Mountain NWR. A discussion of potential management actions cannot be undertaken unless/until these surveys have been completed.

Hopper Mountain NWR Archaeological and Historical Resources

152

Apparently, few archaeological surveys have been completed on Hopper Mountain NWR, although there is a statement that such features are known to exist on the refuge. A complete survey and documentation of these resources would need to be completed before management actions can be taken, particularly grazing as literature indicates that cattle grazing can harm and disrupt such resources (Van Vuren 1982; Horne and McFarland 1993; Nickens 1990).

*Bitter Creek NWR Physical Environment**Bitter Creek NWR Climate and Climate Change*

153

The sources of information for this section are somewhat vague; what station is the annual precipitation average based on and why is precipitation only up to the year 2000 included? Average precipitation amounts from other sources are somewhat different for the 2000 through 2012 period that the 9.82 inches (from 1971 through 2000) shown here. For example, the RAWS station on the Carrizo Plain shows an average precipitation of 9.89 inches over a period from 1991 through 2012 (CalClim 2012); however, the average precipitation at this station between 2000 through 2012 is only 8.65 inches. At the New Cuyama Fire Station, a NWS Coop resource located approximately 15 miles west of Bitter Creek at approximately 2160 ft elevation, average precipitation from 1974 through 2012 is 7.87 inches; and at Maricopa, another NWS Coop resource approximately 7.8 miles north of Bitter Creek, the average precipitation between 1922 through 1993 was 5.93 inches. A more thorough investigation into the actual precipitation totals on Bitter Creek might be in order, particularly as this section states that increasing trends were observed in the data used, but the data from the Carrizo seem to indicate that the average precipitation is actually decreasing.

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Response 5-151. Hopper Mountain NWR Strategies 2.2.2 and 4.1.1 were revised to include surveys for special status plants, and Strategy 5.1.3 was added to survey for special status plants in the coastal sage scrub community. More information is provided in response 3-18.

Response 5-152. Same as response 5-8.

Response 5-153. Same as response 5-93.

U.S. Fish & Wildlife Service Response

Section 4 - Comments on the Draft CCP

Bitter Creek NWR Biological Resources – Vegetation

154 Reconnaissance level plant surveys are ongoing this year (2012). The reference section for the CCP states that the report for 2010 (De Vries 2010) is in progress; it is in fact complete and will not be updated or changed. Any additional results or observations for Bitter Creek will be included in a summary memo in late summer or early fall 2012.

155 The description of native perennial grasslands in this section states that these areas are defined as grasslands with an estimated 10% or greater cover of native perennial grass species. While this is accurate for the text of my report describing the vegetation types on Bitter Creek NWR (De Vries 2009), I do not believe that this criterion was applied by the Service's vegetation mapping team. In fact, the practice of using this 10% threshold to map native perennial grasslands was criticized in the draft Prescribed Grazing Plan for Bitter Creek (Table 2, Footnote 2). If the Service intended to use the 10% cover threshold as the determining factor for native perennial grasslands, then the vegetation mapping for Bitter Creek NWR is completely inaccurate as there are many, many areas that have a 10% or greater cover of native perennial grasses. If the Service used some other criteria to determine what is or is not a native perennial grassland, then those criteria and the justification for using it should be included in this discussion.

156 Also missing from the discussion of vegetation types is some indication of mapping unit used.

157 Why were all of the family names removed from the plant list provided in Appendix E? The list for Bitter Creek, in terms of format (and nomenclature) is not consistent with the lists for the other refuges.

158 Central and South Coastal Seral Scrub was used to describe several very different shrub vegetation types. While I understand the need to consolidate vegetation type designations to accommodate large scale mapping, it should be noted that these vegetation types are very distinctive. Also in this section, the common name of

159 *Allium peninsulare* var. *peninsulare* is Mexicali, not "Mexican." In Mixed Saltbush Scrub, *Atriplex lentiformis* is
160 Quailbush, not "Qualbush." In the discussion on Mixed Scrub Oak Woodland, it should also be pointed out that a single blue oak was identified and documented on the refuge, in Unit 2.

Bitter Creek NWR Special Status Species

161 This section begins with a statement that Bitter Creek NWR was established to conserve "fish, wildlife, or plants which are listed as endangered or threatened species and to protect habitat for the endangered California condor." This sentence is lacking the additional requirement that the refuge must be managed to fulfill the mission of the Refuge System, as well as the specific purpose for which that refuge was established. The mission of the Refuge System, as stated in the Refuge Improvement Act, is:

"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" (16 USC 668dd et seq.).

Response 5-154. The error was corrected in the Final CCP references; "(in progress)" was deleted.

Response 5-155. The commenter is correct, the mapping criterion and the description of native perennial grasslands were inconsistent in the Draft CCP. The description was revised in the Final CCP.

Response 5-156. The minimum mapping unit used on the vegetation map is approximately one third acre, although in some cases it may be smaller if the imagery indicates a unique vegetation type.

Response 5-157. The plants lists were updated in the Final CCP and include the family names.

Response 5-158. The vegetation maps are adequate for the purposes of the CCP.

Response 5-159. The common names were corrected in the Final CCP.

Response 5-160. Comment noted.

Response 5-161. The Refuge System Mission, Refuge Improvement Act, and the Service Manual, and other policies are discussed in CCP Chapter 1 pertaining to all three refuges and not repeated in Chapter 3 for each refuge.

Section 4 - Comments on the Draft CCP

Among the goals of the Refuge System, as defined in the Refuge System Mission and Goals and Refuge Purposes Policy (601 FW1 of the Service Manual) and repeated on Page 5 of this CCP, are to:

- 161
cont
- Conserve a diversity of fish, wildlife, and plants and their habitats, including species that are endangered or threatened with becoming endangered.
 - Conserve those ecosystems, plant communities, wetlands of national or international significance, and landscapes and seascapes that are unique, rare, declining, or underrepresented in existing protection efforts.

162 Therefore, the conservation of all species, including fish, wildlife, and plants, that are threatened with becoming endangered; and declining plant communities must be included in this section.

163 A statement is including in this opening paragraph that “endangered and threatened species and species of special concern have suffered on the refuge due to habitat loss”; however, no detail is given here as to which species have “suffered”. The citation for this statement is Germano et al. 2001, which was about the Carrizo Plain, not Bitter Creek NWR.

164 The information presented as “[a]ccording to the Service’s Sacramento Fish and Wildlife Office” does not address two endangered or threatened species that could occur on Bitter Creek: Kern Sphinx moth, a federally listed endangered invertebrate species; and San Joaquin woollythreads (*Monolopia congdonii*), a federally listed endangered plant species. Why are these species not included in the Sacramento Fish & Wildlife Office’s records when both have been documented quite close to Bitter Creek NWR?

Bitter Creek NWR Special Status Plants

165 There are actually nine special status plants documented on Bitter Creek. This paragraph was written apparently based on the information provided in the 2009 report (De Vries 2009). One additional special status species, silky lupine (*Lupinus elatus*) was documented on Bitter Creek in 2010. The details and discussion for this species was included in the 2010 report (De Vries 2010). A discussion of silky lupine should also be added to the following species accounts in this section.

The introductory paragraph in the section on Special Status Plants includes the statement that

“Plant surveys were conducted throughout Bitter Creek NWR between March 2009 and October 2010, including special status species (De Vries 2009; De Vries 2010).”

166 This statement is not accurate. As stated in my reports (De Vries 2009 and De Vries 2010), plant surveys were not conducted in every area of Bitter Creek NWR as not all areas were accessible, nor were surveys for special status plants conducted with the exception of focused surveys for two federally listed endangered species (*Caulanthus californicus* and *Monolopia congdonii*) in a very limited area of the refuge in spring 2009. Not all areas where these two plants have the potential to occur could be accessed in 2009 or in 2010. No other focused surveys have been conducted on the refuge for special status plants.

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Response 5-162. Comment noted.

Response 5-163. The language in the Special Status Species section was revised in the Final CCP.

Response 5-164. The federally-listed endangered Kern sphinx moth and San Joaquin woollythreads were not included in the section 7 species lists generated by the Service in 2011; however, the oversight has been corrected and these two species are addressed in the Final CCP/EA.

Response 5-165. Same as response 5-65.

Response 5-166. The text was corrected and clarified in the Final CCP.

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167 In the discussion of special status plants, there is a statement that the information in this section comes from the 2009 report (De Vries 2009); however, some of this information was also taken from the 2010 report (De Vries 2010). This statement should be amended to reflect this source of information.

168 Gypsum-loving larkspur's scientific name *Delphinium gypsophilum* subsp. *gypsophilum*, in this discussion should be italicized.

169 As previously stated, a discussion of silky lupine (*Lupinus elatus*) should be added to this section.

170 A discussion of each and every special status plant species that has the potential to occur on Bitter Creek should also be added to this section. This information was provided in the 2009 (De Vries 2009) and 2010 (De Vries 2010) reports.

171 A discussion of rare or threatened plant communities should also be included in this section, including the riparian woodlands and scrubs, which as previously stated in this CCP has suffered an estimated 90% loss; and native perennial grasslands, a community that is estimated to have suffered a greater than 98% loss in California (Noss 1995).

Bitter Creek NWR Special Status Wildlife

172 At least two special status wildlife species have been omitted from this section. A discussion of Swainson's hawk, a special status species that has been reported on Bitter Creek NWR should be included in the discussion of special status wildlife species known to occur there. Additionally, a discussion of Kern sphinx moth, a federally listed endangered invertebrate species that has a high potential to occur on Bitter Creek, should be included in this section.

Bitter Creek NWR Archaeological and Historical Resources

173 As for Hopper Mountain NWR, few archaeological surveys have been completed on Bitter Creek NWR, although such features are known to exist on the refuge. A complete survey and documentation of these resources would need to be completed before management actions can be taken, particularly grazing as this activity can harm and disrupt such resources (Van Vuren 1982; Horne and McFarland 1993; Nickens 1990; J. Timbrook, personal communication).

Chapter 4 – Management Direction; Refuge Complex Goals, Objectives and Strategies

Hopper Mountain NWR Goals, Objectives, and Strategies

174 *Objective 2.1:* The primary strategy for this objective should be to conduct plant surveys, including surveys for special status species, to inventory the existing resources. A management plan cannot be developed unless and until all of the resources have been identified.

Response 5-167. The text and citations were corrected in the Final CCP.

Response 5-168. The scientific name was italicized in the Final CCP.

Response 5-169. Same as response 5-65.

Response 5-170. The special status species that have actually been observed at Bitter Creek NWR are included in this section. A list has been added to Appendix E of the Final CCP that includes rare plants that have the potential to occur at the refuge.

Response 5-171. Rare or threatened plant communities are included in the Vegetation sections for each refuge in CCP Chapter 3. A cross reference was added to the Special Status Plants sections in Chapter 3 of the Final CCP to direct the reader to the Vegetation sections for that information.

Response 5-172. A description of special status wildlife species that occur at Bitter Creek NWR have been added to this section of the Final CCP.

Response 5-173. Same as response 5-8.

Response 5-174. Same as response 5-151. More information is provided in response 3-18.

Section 4 - Comments on the Draft CCP

- 175 | A prescribed grazing plan has not been prepared for Hopper Mountain; such a plan should be submitted for public review prior to considering using this method.
- 176 | *Objective 2.2:* Why does this objective only mention special status animal species? Special status plant species should also be included in this objective as mandated by the goals of the Refuge System as defined in the Refuge System Mission and Goals and Refuge Purposes Policy (601 FW1 of the Service Manual).
- 177 | *Objective 3.2:* Why are two plants that are not included on the plant species list for Hopper Mountain NWR targeted for reduction (reed canary grass (*Phalaris arundinacea*) and black locust tree (*Robinia pseudoacacia*)?)
- 178 | *Bitter Creek NWR Goals, Objectives, and Strategies*
- 178 | *Objective 2.1:* Does “other special status species” include special status plants? All special status plants and wildlife should be documented on the Refuge.
- 179 | *Objective 2.2:* The Service proposes to maximize beneficial effect to resources that have not been documented on Bitter Creek NWR, but considers it an acceptable tradeoff if known, documented resources (special status plants, rare plant communities) are negatively affected as a consequence. No valid scientific evidence that grazing would benefit any special status species has been presented and the strategy for this objective should not be considered.
- 180 | *Objective 2.3:* Monitoring for native plants is not clearly defined. No management action should be taken unless and until all resources have been adequately documented (including focused special status plant surveys) and a monitoring plan is developed to protect special status species and plant communities. Based on the literature presented in these documents, prescribed grazing has not been shown to be a compatible use to achieve any of these objectives.
- 181 | *Objective 2.4:* As mentioned in the comments on the draft EA, *Cruciferae* is not an appropriate name for “non-native mustards”. The specific taxa should be indicated.
- 182 | *Implementation and Monitoring*
- 182 | *Partnership Opportunities:* The California Native Plant Society is an obvious choice for a Partnership Opportunity as they have already conduct data gathering surveys on Bitter Creek; the assistance and expertise of this organization should be actively pursued as a partner.
- 183 | Mention is made that the “collection of baseline data on wildlife populations will continue at all 3 refuges”, but again, plants are not mentioned. Conservation of plants and plant communities are every bit as important as conservation of wildlife and must be addressed fully. Unless such data are collected for all resources, the assessment is incomplete.

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Response 5-175. Comment noted.

Response 5-176. Hopper Mountain NWR Objective 2.2 is under Goal 2 for grasslands and does address “baseline information on the presence and distribution of grassland plants”. Hopper Mountain NWR Strategy 2.2.2 was revised in the Final CCP to include special status plants in addition to wildlife.

Response 5-177. The 2 invasive species were added to the revised Hopper Mountain NWR plant list.

Response 5-178. Bitter Creek NWR Objective 2.1 was revised to clarify that it includes special status plants and animals.

Response 5-179. The revisions to the Grazing Plan address the comment.

Response 5-180. Same as responses 5-75, 5-91, and 3-18. The Compatibility Determination in Appendix C concluded that prescribed grazing was a compatible use.

Response 5-181. Same as response 5-59.

Response 5-182. The beginning of the Partnership Opportunities section states that “The Service will continue to rely on these and other partners to help implement the final CCP...” The list of partners is not an exhaustive list and is those with whom the refuge staff has coordinated in the past.

Response 5-183. In section 5.6 of the Final CCP, the term “wildlife populations” was replaced with “plants and wildlife” to provide a more inclusive statement.

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Timbrook, J. May 30, 2012. Dr. Jan Timbrook personal communication to Pam De Vries.

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6. Defenders of Wildlife/Los Padres ForestWatch

[responses begin on the following page]



June 11, 2012

Sandy Osborn
Pacific Southwest Region
U.S. Fish and Wildlife Service
2800 Cottage Way, W-1832 (Refuge Planning)
Sacramento, CA 95825-1846

Delivered via Email and U.S. Mail

**Re: Comments for Hopper Mountain National Wildlife Refuge Complex Draft
Comprehensive Conservation Plan and Environmental Assessment**

Dear Ms. Osborn:

We appreciate the opportunity to provide comments for the Draft Comprehensive Conservation Plan (“CCP”) and Environmental Assessment (“EA”) for the Hopper Mountain, Bitter Creek and Blue Ridge national wildlife refuges (“Hopper Mountain NWR Complex” or “Refuge Complex”). We strongly support the mission of the refuges to restore the endangered California condor population to its native range and hope our comments will assist the U.S. Fish and Wildlife Service (“Service”) in fulfilling this important goal.

Defenders of Wildlife (“Defenders”) is a national, non-profit conservation organization with more than one million members and supporters. Defenders has been substantively involved in individual refuge issues as well as National Wildlife Refuge (“NWR”) System policy for decades, and played an active role in the passage of the National Wildlife Refuge System Improvement Act of 1997 (“Refuge Improvement Act”). The group has also been involved in the formulation of national policy guidance issued since passage of the Act, including policies addressing planning, compatibility, biological integrity, diversity, environmental health, appropriate use, wilderness, and recreational use. Defenders takes a special interest in the Refuge System planning process and has published the Citizen’s Wildlife Refuge Planning Handbook to encourage the public to become more involved in refuge planning.

Los Padres ForestWatch is a community-based nonprofit organization working to protect and restore the natural and cultural heritage of the Los Padres National Forest, Carrizo Plain National Monument, and other public lands on California’s Central Coast. ForestWatch has a particular emphasis on encouraging federal agencies in the region to protect imperiled species on the lands that they manage. Additionally, we have an active volunteer program which assists with various habitat restoration projects on public lands in the region.

1 We submit the following comments to help strengthen the CCP and management of Hopper
 2 Mountain, Bitter Creek and Blue Ridge national wildlife refuges. We also incorporate by reference
 our comments submitted in July 2008 on the Environmental Assessment for Grassland Habitat
 Management and Restoration Plan for the Bitter Creek NWR, as well as comment letters regarding
 rare plants on the Hopper Mountain NWR Complex CCP/EA from Pamela De Vries and Dr.
 Elizabeth Painter, both submitted this month. Considering the breadth and depth of the issues on
 the Hopper Mountain NWR Complex, we urge you to undertake an Environmental Impact
 Statement rather than an Environmental Assessment for the CCP as the preferred alternative may
 have significant impacts on the environment.

I. Refuge System's Responsibility to Maintain Biological Integrity

The Refuge Improvement Act directs the Secretary of the Interior to manage each refuge to achieve the conservation mission of the Refuge System and the establishing purposes for which the particular refuge was established. For the Hopper Mountain NWR Complex, this means the Service must manage the Refuge "...to conserve fish or wildlife which are listed as endangered species or threatened species...or plants." The Refuge Improvement Act also requires the Secretary to "ensure that the biological integrity, diversity, and environmental health of the System are maintained."

We urge the Service to remain cognizant of these responsibilities throughout the planning process. The planning team should formulate a CCP that maintains and, if possible, restores the Refuge's ecological integrity. In accordance with Service policy, management actions should restore or mimic natural ecosystem processes or functions to achieve refuge purpose, and the Service must ensure that all uses are compatible with fulfilling the Refuge System's mission and Refuge purposes. By pursuing a management direction that is consistent with these directives, the Service will help foster ecological resilience that will allow Hopper Mountain NWR Complex to continue providing vital habitat for imperiled wildlife into the future.

II. Livestock Grazing

3 Our previously referenced comments on the Grasslands Plan from mid-2008 provide an extensive
 discussion of the impacts of livestock grazing, and we again reference the concerns and suggestions
 outlined therein. We believe there is still a considerable scientific debate over whether seasonal
 grazing, limited in scope and duration, may have some utility in reducing the presence of non-native
 plants or meeting other management needs. If managed improperly, livestock grazing can adversely
 impact native wildlife, plant health and community composition, water quality, erosion rates, and
 riparian habitat.

4 Under the Service's compatibility regulations, proposed economic activities on national wildlife
 refuges—including commercial livestock grazing—must not only be found to be compatible with
 the mission of the Refuge system and the purpose of the individual refuge, but must actively
 contribute to the achievement of the national wildlife refuge purposes or the National Wildlife
 Refuge System mission. We believe that given the special purposes for which these refuges were
 designated, intensive grazing operations on the refuges are wholly inappropriate, incompatible and
 would not contribute to condor recovery.

5 The CCP/EA fails to clearly describe the thresholds that would trigger removal of cattle once
 specific grazing targets have been met. Such thresholds are critical to ensure that adverse impacts

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Response 6-1. Comment noted. Responses to comments in sections 5. (De Vries, P) and 15. (Painter, E.L.) provide more information.

Response 6-2. Same as response 3-1.

Response 6-3. The revisions to the Prescribed Grazing Plan for Bitter Creek NWR (Grazing Plan) added specific goals and objectives (e.g., Objective 2.4 invasive species management), have associated monitoring plans and outline the importance of adaptive management and monitoring plans in any livestock grazing operation.

Response 6-4. The purpose for which Bitter Creek NWR was established in 1985 is "...to conserve (A) fish or wildlife which are listed as endangered species or threatened species.... or (B) plants..." 16 U.S.C. Sec 1534 (Endangered Species Act of 1973, as amended). An additional directive to be followed while achieving refuge purposes and the Refuge System mission requires that the Service consider and protect the broad spectrum of native fish, wildlife, plant, and habitat resources found on a refuge (Draft CCP, page 93 provides more detail). Before activities or uses are allowed on a refuge, uses must be found to be "compatible" through a written compatibility determination. A compatible use will not materially interfere with or detract from the fulfillment of the Refuge System mission or the purposes of the refuge. The Compatibility Determination for Grazing (Appendix C) found grazing to be a compatible use on Bitter Creek NWR.

Response 6-5. The Grazing Plan has been revised, including revisions of the objectives and monitoring. The "thresholds" that trigger the removal of cattle are the resource targets and target conditions (see the section by that name in the Grazing Plan). Target conditions (measured in Residual Dry Matter [RMD]) are provided in Table 3.

U.S. Fish & Wildlife Service Response

5 cont | are avoided by overgrazing on the refuge. Further, the CCP/EA fails to address introduction of
6 | invasive species by cattle or vehicles used for transport of cattle on refuge lands.

III. Fire Management

The Refuge Improvement Act directs the Secretary of the Interior to “ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americans.” Service policy provides the following definitions for these terms:

- Biological Diversity – The variety of life and its processes, including the variety of living organisms, the genetic differences among them, and communities and ecosystems in which they occur.
- Biological Integrity – Biotic composition, structure, and functioning at genetic, organism, and community levels comparable with historic conditions, including the natural biological processes that shape genomes, organisms, and communities.
- Environmental Health – Composition, structure, and functioning of soil, water, air, and other abiotic features comparable with historic conditions, including the natural abiotic processes that shape the environment.

The “historic conditions” referred to in these definitions are further defined as “composition, structure, and functioning ecosystems resulting from natural processes that we believe, based on sound professional judgment, were present prior to substantial human related changes to the landscape.”

7 | Fire has historically been a key process in shaping California’s ecosystems, and we support the appropriate use of fire to restore its historic role in the landscape. While we recognize that there can be a need for prescribed fire in this approach, we urge the Service to maximize the use of naturally occurring wildfires to meet habitat objectives. The Service should also make it a priority to educate the public on the benefits of wildfire to the ecosystem.

8 | In our scoping comments, we asked the Service to identify and describe the natural and historic role of fire within the Refuge Complex. Unfortunately, the CCP failed to identify or describe the historic role of fire within the Refuge Complex and instead, based on comments received during the scoping meetings, eliminated from detailed analysis prescribed fire for habitat management as a considered management action. Simply because there was concern expressed at scoping meetings does not excuse the Service from providing a thorough review of prescribed fire and analyzing it as a tool for habitat management.

9 | The concerns raised about prescribed burns on Bitter Creek NWR were the negative impact on air quality and adverse health effects for residents, which are reasonable given the chronic non-attainment of air quality standards in the San Joaquin Valley Air Basin (SJVAB). However, smaller, controlled burns should be viewed as much more desirable than large, uncontrollable releases of smoke into the atmosphere that would be more likely to occur absent a prescribed fire program on the refuges. We also note the inconsistencies between the use of prescribed fire on Bitter Creek and Blue Ridge refuges, both of which are in the SJVAB. The strategies for Blue Ridge NWR regarding natural fire regimes and the use of appropriate prescribed fire are laudable and should apply equally to Bitter Creek NWR. Nearly all of the information included in section 4.3.2 of the EA (Air Quality – Blue Ridge NWR) could have been included in 4.2.2 (Air Quality – Bitter Creek). Adverse effects

Response 6-6. Stipulations in the Bitter Creek NWR Compatibility Determination for Grazing were modified to ensure that the grazing agreement or permit includes measures to reduce the risk of livestock bringing invasive plants onto the refuge. With the Final CCP, Objective 2.4 to manage invasive plants (from the CCP) was reflected in the Prescribed Grazing Plan and a monitoring approach was added to the Grazing Plan to measure progress toward the objective to prevent the infestation of new invasive plant species. A discussion of the potential adverse effects associated with invasive species due to livestock grazing and vehicles used to transport livestock was added to the Final EA, section 4.2.5.2.

Response 6-7. Comment noted. Response 16-3 provides more information about prescribed fire for wildlife habitat/vegetation management. Prescribed fire is not being proposed at Bitter Creek NWR. Prescribed fire is proposed at Hopper Mountain NWR and Blue Ridge NWR.

Response 6-8. A summary of the historic role of fire in the refuge complex area has been added to the CCP, chapter 3, under the Vegetation sections for each refuge.

Response 6-9. Prescribed fire for wildlife habitat/vegetation management is not being proposed at Bitter Creek NWR. The approved Fire Management Plan for Bitter Creek NWR allows for pile burning. Pile burning is a low risk use of fire, used primarily in winter, when air quality is less likely to be adversely affected. The Service obtains the required permits to burn from the regional air quality district. Response 2-1 provides more information about prescribed fire.

Response 6-10. Although Blue Ridge and Bitter Creek NWRs may be in the same air quality district, both vegetative cover and fuel types differ greatly between Blue Ridge and Bitter Creek NWRs and require different treatment methods. Fuel types at Blue Ridge consist of shrub and forest species that require thinning and pile burning.

10 cont from prescribed burning would be minimized through coordination with the San Joaquin Valley Air Pollution Control District.

IV. Wilderness

We support the expansion of wilderness in areas of the Refuge Complex that meet wilderness criteria as defined by the Wilderness Act of 1964, such as size, naturalness, and opportunities for solitude or primitive recreation. Unfortunately, the Wilderness Review (Appendix G) in the EA was insufficient and extremely disappointing.

11 Despite the finding that Hopper Mountain NWR possesses the required wilderness characteristics and meets the criteria necessary for a Wilderness Study Area (WSA), the wilderness review concluded that Hopper Mountain NWR is unsuitable for wilderness designation. We disagree that wilderness designation would be inconsistent with Refuge purposes; indeed, a large swath of undisturbed land would only further condor recovery and protect the species and its habitat, the primary purpose for which Hopper Mountain NWR was established. All development, facilities, access roads and all-terrain vehicle trails could be “cherry-stemmed” or excluded from the wilderness boundary to ensure continued access for the vehicles necessary to conduct management of the free-flying condors on the refuge. Given that Hopper Mountain NWR meets Wilderness criteria because it is largely undeveloped and is contiguous with the Sespe Wilderness, we believe that the Service should include a Wilderness Study Area designation for Hopper Mountain NWR in the preferred alternative.

12
13
14 The inventory findings for Bitter Creek NWR stated that none of the lands within the refuge met the criteria necessary for a WSA designation, despite the fact that Bitter Creek NWR contains features of scientific, educational, scenic and historical value. The findings also stated that of the refuge’s 14,097 acres, the largest segment of roadless land consists of 2,967 acres. It does not provide the acreage of additional segments of roadless lands, several of which appear on the maps included in the CCP to be of similar size and separated from one another by a single road or trail. As stated in the Wilderness Review, a roadless area meets the size criteria if “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.” Adjacent roadless areas could be included in a single WSA designation with roads excluded from the wilderness boundary. We believe a more comprehensive wilderness review of the Bitter Creek NWR should be conducted.

V. Oil and Gas Development

15 Oil and gas development has the potential to cause considerable harm to condors and other species. The Sespe Oil Field is located adjacent to the Sespe Condor Sanctuary and Hopper Mountain NWR, and operations there continue to present conflicts with the recovery of the endangered California condor. Condors in the area have been observed perching on oil derricks, drinking water that is tainted with oil and other toxic chemicals, and consuming microtrash, small bits of broken glass, metal, and other materials, which is one of the leading causes of condor chick mortality. Oil and gas development is an extremely intensive industrial process, requiring a complex network of access roads, pipelines, storage tanks, thumper trucks, transmission lines, and other infrastructure. The high levels of noise and human activity associated with oil drilling and production can disturb condor nesting and roosting sites, and habituate condors to human activity. These activities, if not properly

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Response 6-11. The Wilderness Review (Appendix G of the CCP/EA) adequately analyzed the suitability of Hopper Mountain NWR for recommendation for wilderness designation in accordance with the screening process outlined in Part 602, National Wildlife Refuge System Planning policy (FW 1 and 3). Hopper Mountain NWR is unsuitable for wilderness designation over the long term, due to the reasons detailed in the Review; and because wilderness designation would be inconsistent with the California Condor Recovery Program goals.

Response 6-12. Same as response 6-11.

Response 6-13. Same as response 6-11.

Response 6-14. The Wilderness Review (Appendix G of the CCP/EA) adequately analyzed the suitability of Bitter Creek NWR for wilderness designation in accordance with the screening process outlined in Part 602, National Wildlife Refuge System Planning policy (FW 1 and 3). Bitter Creek NWR does not meet the overall criteria for recommendation as a wilderness area because 1) much of Bitter Creek NWR has been impacted by man and 2) the roadless areas do not encompass 5,000 contiguous acres. The largest Service-owned segment of roadless land at Bitter Creek NWR consists of 2,967 acres.

Response 6-15. Comment noted.

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15 cont managed, can destroy wildlife habitat, fragment plant and animal populations, and increase erosion. Oil and gas development can also release oil, wastewater, and toxic materials into the environment, impacting wildlife, plant communities, and water supplies.

16 The Hopper Mountain NWR currently contains three producing oil well pads on refuge land. The Service does not own the sub-surface rights and claims to have no authority to regulate exploration or drilling. While legal minds may differ over whether the Service may or may not possess the authority to regulate aspects of the extractive process on sub-surface land, the Service does possess enforcement authority under the Endangered Species Act for take of endangered species. In this case, we would like to see the CCP provide mechanisms and authority to remediate oil and gas activities on refuge and adjacent lands and ensure that activities on existing or proposed drilling pads on lands near or inside the Refuge Complex are not harming listed species. Such an analysis is particularly important, since many of the oil wells on the Refuge were established before passage of the Endangered Species Act and the National Environmental Policy Act, and have thus never undergone a comprehensive review of their impacts. We ask the Service to consider the following actions in the CCP:

- 17
- Inventory all producing, shut-in, and abandoned oil and gas wells in and around the refuges, and other infrastructure including access roads, pipelines, power lines, and storage tanks. Include maps, schematics, and descriptions of each in the CCP's discussion of baseline conditions.
 - Thoroughly evaluate the impacts of oil and gas development and associated infrastructure on rare plants and animals, focusing on particularly susceptible species like the San Joaquin kit fox, the giant kangaroo rat, the blunt-nosed leopard lizard, and the California condor. This analysis should include an evaluation of the proximity of existing well pads to historic, current, and suitable condor nesting, roosting, and foraging sites.
 - Include species-specific standards for existing and future oil and gas development activities on refuge lands.
 - Proactively work with the BLM to inform the agency of important habitat not suitable for leasing and ensure sensitive areas are not leased for oil and gas drilling
 - For leasing pads on or near refuges, require or request regular inspection of all pipelines, storage tanks, and other infrastructure, including preparation of an annual monitoring report summarizing the results of such monitoring and identifying any necessary corrective actions.
 - Evaluate whether pipelines located in riparian areas or other environmentally sensitive areas should be relocated, replaced, or modified to prevent spills and minimize impacts to the environment.
 - Require consistent and regular monitoring and enforcement of all oil or gas development that continues in sensitive habitat.
 - Require oil and gas wells and supporting facilities to be cleaned of all trash at all times, including microtrash to reduce impacts to California condors. Establish a monitoring and enforcement plan to keep the Sespe Oil Field free of microtrash.
 - Outline specific measures to prevent spills of oil, wastewater, and other toxic materials in waterways and other environmentally sensitive areas.
 - Describe the history of oil spills on the refuge. Address whether the refuges in the Complex have oil spills or other contamination from oil and gas activity that require remediation. Require oil and gas operators to promptly report all interactions between California condors and oil and gas operations, such as perching on equipment or landing on pads, to the U.S. Fish and Wildlife Service and to the BLM.

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Response 6-16. Refuge managers work on an ongoing basis with oil and gas operators to protect refuge resources. Hopper Mountain NWR Strategies 3.3.3, 3.3.4, and 6.1.3 help ensure that activities on existing or proposed drilling pads on or near the refuge are not harming listed species. In accordance with the Service Manual 612 FW 2, Oil and Gas, section 2.4, the Service also would continue to maximize protection of water resources, while entities exercise non-federal oil and gas rights. Operators are required to clean or correct spills of oil or other contaminants in accordance with EPA's Spill Contingency Plan, as well as report any releases to the Service within 48 hours. To reduce the potential for effects, the Service trains personnel to respond to oil spills that affect refuge lands and trust resources. Also, California Code 1722.9 (ftp://ftp.consrv.ca.gov/pub/011/publications/PRC04_January_11) requires spill contingency plans. Plans are on file at the state's District 2 Division of Oil, Gas & Geothermal Resources in Ventura.

Response 6-17. Actions at the oil and gas wells are conducted by the oil and gas operators and owners. Oil drilling activities on the refuge are subject to 2 conditional use permits (CUP-3470 and CUP-2250) issued by Ventura County. Environmental compliance and review of the effects of the oil wells, as recommended by the commenter, is the responsibility of the oil and gas operators and agencies with regulatory jurisdiction over their activities. Response 6-16 provides more information.

Response 6-18. Actions related to oil and gas development and associated infrastructure and their impacts are not addressed in the CCP/EA because the actions are not federal actions by the Service; background information is provided as described in responses 6-16 and 6-17.

Response 6-19. While the federal government owns the surface lands at Hopper Mountain NWR, the mineral (oil and gas) rights, right of entry, and right of way to develop them were specifically excluded when the Service purchased the lands. For those areas where the federal government does not own the mineral estate, there is limited control over oil and gas exploration and drilling activities. Standards for existing and future oil and gas activities appear to be outlined in the Ventura County conditional use permits. Responses 6-16 through 6-18 provide additional information.

Response 6-20. The Service does not have jurisdiction over the oil and gas activities on the refuge.

Response 6-21. Same as response 6-20.

Response 6-22. Hopper Mountain NWR Objective 3.3 in the Draft CCP includes Strategies 3.3.1 through 3.3.6 to protect riparian areas on the refuge.

Response 6-23. Same as response 6-20.

Response 6-24. Same as response 6-20.

Response 6-25. Same as response 6-16.

Response 6-26. Same as response 6-17.

Response 6-27. Conditional use permit (CUP-3470), requires oil and gas operators to prohibit certain activities during the condor mating season each year unless otherwise approved by the Service (condition 30); and to provide any plans for installation of overhead electrical transmission lines within the refuge for the Service's review and approval (condition 36). The California Condor Recovery Plan (USFWS 1996) does not include reporting of condors perching on equipment or landing on pads within its recovery objectives and criteria. One of the 5 recovery strategies included in the Recovery Plan is objective 5: Implement Information and Education Programs on Condor Habitat and Use and Protection Needs. The CCP includes strategies that support this objective of the Recovery Plan to implement condor information and education programs (CCP strategies under Goal 6 for both Hopper Mountain and Bitter Creek NWRs and Goal 3 for Blue Ridge NWR).

- 28
- Consider programs to buy out existing oil and gas leases on refuge lands and acquire subsurface mineral rights. When acquiring additional refuge lands, purchase the accompanying mineral rights to preclude future development.
- 29
- Participate in future lease sales for parcels adjoining refuge lands, particularly the Bitter Creek National Wildlife Refuge. Also coordinate with state and local agencies in the permitting and monitoring process for existing and new oil and gas development activities on adjoining private lands.
- 30
- Clarify the Service's authority to regulate aspects of the extractive process on sub-surface land.

VI. Give Greater Emphasis Climate Change

31 As directed in the Refuge Improvement Act, each CCP must identify and describe the "significant problems that may adversely affect the populations and habitats of fish, wildlife, and plants" within the refuge and identify "the actions necessary to correct or mitigate such problems."¹⁹ Climate change is among the most "significant problems" affecting plants and animals today, and thus the potential impacts of climate change should be a central consideration in the CCP. In addition, Secretarial Order 3289, issued September 14, 2009, states that "[e]ach bureau and office of the Department must consider and analyze potential climate change impacts when undertaking long range planning exercises, setting priorities for scientific research and investigations, developing multi-year management plans, and making major decisions regarding potential use of resources under the Department's purview."

We support an adaptation approach that provides species the space and time to adapt to changing conditions. We encourage the Service to undertake management activities that facilitate, rather than impede, the transition of wildlife and habitats to new areas in response to climate change. Helping wildlife and habitat adapt to the effects of climate change, including warming temperatures, unpredictable water availability and weather patterns, and the spread of invasive species will all be central to sustaining American wildlife and the environmental health of the Refuge System.

32 Vulnerability assessments are recognized as a critical component in conservation planning under climate change, and many different agencies, organizations, and institutions are working to develop vulnerability assessment methodology or conducting assessments themselves. It is imperative that the Service work in a coordinated fashion both internally and with partners such as the California Landscape Conservation Cooperative and state wildlife agencies to develop a widely accessible, standardized methodology for assessing vulnerability. The Service should also consider other climate change planning documents, such as the California Climate Adaptation Strategy and its update, which should be released by the end of 2012. Refuges can help to develop and refine vulnerability methodologies by serving as "testing grounds" for assessments.

36 It is difficult to assess the vulnerability of a species to climate change without considering its full range. Though a species may be vulnerable at the Refuge Complex, it may be secure throughout the rest of its range. We therefore encourage the Service to address vulnerability of species, habitats, and management units at local and regional scales. Using information about a species' vulnerability, both locally and throughout its range, will help to inform the more detailed management strategies put forth in the Refuge's future step-down management plans. The timeframes for climate-change related Refuge Complex step-down management plans should also be accelerated in order for the Service to transition from strategy to action relating to climate-induced changes within the Refuge

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Response 6-28. Comment noted.

Response 6-29. Comment noted.

Response 6-30. Same as responses 6-16 through 6-20.

Response 6-31. The Service agrees that adaptive management is an important approach for addressing climate change effects. Management actions in the Draft CCP/EA that address the effects of climate change are included under Strategies 1.4.4, 1.4.5, 2.1.2, 3.4.1, 4.1.1 for Hopper Mountain; 1.4.5, 2.3.1 for Bitter Creek; and 1.2.4, 2.1.4, for Blue Ridge NWRs.

Response 6-32. As part of the CCP process, the Service is working, in coordination with its partners, to address climate change through an adaptive management process. To expand climate change research and monitoring to include wildlife (not just vegetation), in the Final CCP, the words "refuge's habitats" or "refuge habitats" were replaced with the words "refuge resources," for Hopper Mountain NWR Strategy 1.4.5, Bitter Creek Strategy 1.4.5, and Blue Ridge Strategy 2.1.4.

Response 6-33. The Service looks forward to continuing our partnerships with the California Landscape Conservation Cooperative organizations, state agencies, and others listed on Draft CCP page 16, as we pursue common goals.

Response 6-34. The Service will continue to evaluate and review new information on addressing the effects of climate change as they become available.

Response 6-35. The Service considers research proposals that are consistent with refuge purposes and give priority to studies that contribute to the enhancement, protection, preservation, and management of native Refuge plant and wildlife populations and their habitats. As described in the Draft CCP/EA Appendix C, Compatibility Determination for Research, research proposals are reviewed by refuge staff, and if approved, a Special Use Permit is issued by the Refuge Manager to authorize every project.

Response 6-36. The Service agrees that local species vulnerability can vary at different spatial scales. Without having detailed information, our analysis would be highly speculative. In working with our partners, we can better address resource vulnerability at both local and regional scales. Response 6-34 provides more information.

Response 6-37. The Service has been increasingly incorporating vulnerability assessments for climate change effects into refuge planning processes. In addition to the Climate Change information in Chapter 3 of the Draft CCP, the criteria noted in the comment will be taken into consideration during step-down planning. Response 6-31 provides more information about how the Service will address climate-related changes.

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Response 6-38. The Draft CCP includes strategies to educate and inform refuge staff and volunteers about climate-driven changes that effect refuge resources (Hopper Mountain NWR Strategy 1.6.4, Bitter Creek NWR Strategy 1.6.4, and Blue Ridge NWR Strategy 1.4.4). The Service will expand this to include the visiting public and will continue to take into consideration your recommendation for environmental education and interpretation planning during preparation of the Visitor Services Plans.

Response 6-39. Comment noted.

37
cont

Complex. Defenders has developed the attached evaluation (available online at: http://www.defenders.org/sites/default/files/publications/ccp_climate_change_fact_sheet.pdf), which evaluated the extent to which climate change was considered in select CCPs across the country. The criteria therein will help guide the Service in giving climate change full consideration during the planning process.

38

Environmental education and interpretation are priority public uses of the Refuge System and, when compatible, support the Refuge System's mission by building public understanding and support for wildlife conservation. According to the Service Manual, recreational uses should provide "an opportunity to make visitors aware of resource issues, management plans, and how the refuge contributes to the Refuge System and Service mission."²⁵ While the CCP outlines a plan to expand environmental education, we recommend that the plan prioritize information about climate change impacts into these programs and materials. The Service is well positioned to educate and inform the visiting public about the climate-driven changes impacting the Refuge and its wildlife, and measures the public can take to help protect them.

VII. Volunteer Service Projects

39

Defenders and Los Padres ForestWatch appreciate the added emphasis of providing opportunities for public involvement in the management of the Refuge Complex. We believe that both Alternative C activities (establishing condor interpretive hiking trail off Cerro Noroeste Road and docent program) could be accomplished with volunteer assistance and should be included in the preferred alternative. Our organizations welcome the opportunity to assist the Service with habitat restoration and other projects in the future.

VIII. Conclusion

We appreciate the opportunity to participate in the planning process and we hope our comments are helpful in finalizing the CCP. We look forward to working with the Service to help further the purposes for which the Hopper Mountain Refuge Complex was created.

Sincerely,



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REC'D APR 26 2012

Sandy Osborn, Refuge Planning
 U.S. Fish and Wildlife Service
 Pacific Southwest Region
 2800 Cottage Way
 Sacramento, CA 95825

Subject: Hopper CCP

Dear Sandy Osborn:

1 I wish to thank you for the opportunity to comment on the real progress at the refuge
 complex. As Cliff Hudson was my wife's uncle, and I had worked in the Sisquoc and
 Piru condor locales, I feel a proprietary interest in the proceedings. I am glad that the
 Nippomo Dunes is not being included in the latest flier, as inclusion has the credibility
 2 smell of the environmental cat ladies, who are not necessarily always ladies, again using
 endangered species for other agendas.

3 I would also commend you to Mark Pelz in your building who may be able to use Blue
 Ridge as a part, or even a start, for his Foothill Legacy Project. Coordination, if possible,
 would be laudable.

4 It is laudable that the focus at most refuges is on wildlife, not recreation, and grazing
 cessation will not be the creation of a fire hazard and animosity at Bitter Creek, again
 detrimental to acceptance of the Foothill Legacy Program. The Park infrastructure
 5 contemplated at Bitter Creek is indicative of a recreational mindset. People with park
 backgrounds will naturally be oriented to recreation but would be of better use at the
 National Park Service who can benefit from someone with California experience.
 6 Interpretive trails may not be conducive to returning the condor to a people free
 orientation and true wildness.

7 As cougars are a park funding icon in California there is a hesitancy to indulge their
 munching on condors. If a depredation permit can't be conditionally obtained before the
 refuge cougar café incidents shooting them in the act would seem forgivable for condors
 are endangered, while cougars are but part of a park funding scam.

8 The Service ought to consider donating the Maricopa train station to a museum for again
 that is what museums are for, not the Service.

9 I also find the Tule Elk should be considered for management. It might seem possible to
 have their restoration in numbers to the Carriso Plains but there is great pressure to
 10 eliminate water sources there, and without patrol they are being poached. Legal hunting
 of elk may be better accomplished on private lands under the SHARE program to
 11 encourage stakeholder habitat restoration by ranchers. If, in the probably very distant
 future, elk are abundant, transfer to other units may be in store and funded by a hunting

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7. Fox, D.

Response 7-1. Comment noted.

Response 7-2. Comment noted.

Response 7-3. Comment noted. As presented in CCP Chapter 5, in the Refuge Improvement Act, Congress established 3 priorities for refuge management. First, every refuge is to be managed to fulfill its purposes and the Refuge System mission, namely conservation of fish, wildlife, and plants. Secondly, refuges are to facilitate wildlife-dependent or priority public uses—hunting, fishing, wildlife observation, and photography, and environmental education, and interpretation. Of lowest priority is managing other uses and activities such as general recreation.

Response 7-4. Comment noted.

Response 7-5. Visitor services of interpretation, wildlife observation, and photography are priority public uses identified in the Refuge Improvement Act. The uses were determined to be compatible with the purposes of the refuge in the draft Compatibility Determinations in Appendix C to the Draft CCP/EA.

Response 7-6. When siting the trail on Klipstein Canyon, sensitive habitat and areas where potentially sensitive California Condor Recovery Program activities may occur were avoided. Trails for interpretation, wildlife observation, and photography were determined to be compatible with the purposes of the refuge per the draft Compatibility Determinations in Appendix C to the Draft CCP/EA. Response 7-10 provides more information.

Response 7-7. Bitter Creek NWR Strategy 1.4.4 (in CCP Chapter 4) proposes developing predator management measures as part of the Integrated Pest Management (IPM) Plan. The IPM Plan would investigate alternatives to reduce potential conflicts between mountain lions and condors on the refuge.

Response 7-8. The Service is mandated to be a responsible steward of the heritage resources it manages, as well as accomplish its core mission. To this end, the Service has identified and evaluated the Percy's Place house as a historic property, as per the NHPA. The Service has taken steps to protect the property from the elements (wrapped it) while developing a long-range planning document – this CCP Options for moving the building and adaptively reusing it as an interpretive visitor contact station have been proposed (Bitter Creek Strategy 6.4.5), along with preserving the building in place, or removing it. If an appropriate party is interested in working with the Service to transfer ownership and preserve the structure, the Service is open to discussing options.

Response 7-9. As addressed in Bitter Creek NWR Strategy 1.5.2, the Service will continue to coordinate with Wind Wolves Preserve on their annual ungulate survey. Regarding poaching, the Zone Law Enforcement Officer patrols the area and one Refuge Complex Law Enforcement officer is proposed to implement the CCP actions (see Chapter 5, Table 5-2).

Response 7-10. Comment noted. Hunting is not a proposed use on the refuges at this time.

Response 7-11. Comment noted.

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- 11 *cont* access fee. I am curious as to it would be better to require taken game to be cleaned at
12 the refuge, or would there be a problem with the bullet as opposed to having the condors
13 again foraging. No recommendation here, just curious as to the biological pros and cons.
I am recommending though that water quality be monitored at Black Bob and all other
creeks in the area, whether ephemeral or perennial for heavy metal contamination.

Sincerely,



Dennis Fox
918 Blossom Street
Bakersfield, CA 93306

(661) 366 4093

Response 7-12. Hunting is not allowed on the refuge. Many hunters prefer to use a non-lead alternative ammunition to minimize adverse health effects on humans and wildlife. However, at this time the Service cannot allow taken game to be cleaned at the refuge because no provisions are in place to ensure the ammunition used was lead-free (to protect condors that could potentially feed on the gut piles).

Response 7-13. The purpose of Bitter Creek Objective 4.2 is to obtain information on water resources contaminants at Bitter Creek NWR. Strategy 4.2.1 calls for a comprehensive inventory of springs and wetlands, including water quality. Black Bob mine and Black Bob Canyon are in Kern County, but are not within the same watersheds as Bitter Creek NWR, and would not be addressed as part of this CCP.

10 June 2012

Sandy Osborn, Refuge Planning USFWS, Pacific Southwest Region
2800 Cottage Way Sacramento, CA 95825

Re: CCP/EA for the Hopper Mountain, Bitter Creek and Blue Ridge NWRs.

Dear Ms Osborn,

I appreciate the opportunity to comment on the Draft CCP/EA for the Hopper Mountain, Bitter Creek and Blue Ridge NWRs. However, I just received the printed version on June 9th. It is a massive document with so many pieces and parts that it will be hard for me to completely understand it all by the deadline on Monday.

I have therefore chosen to be narrow minded, biased and species specific in most of my comments, and deal only with the effect of the plan on the California condor. In general, I support your Preferred Alternative B.

My career with this endangered species started in January of 1976, under then FWS Condor Biologist, Sanford Wilbur, and has continued up to today. Since the early 1990s I have been the manager of the Condor Information System that consists of over 4500 documents relating only to the condor.

My first comment concerns the fact that each and every one of the refuges you are considering in the CCP was bought specifically to aid in the recovery of the California condor. I went through about 75 documents relating to the purchase or creation of each of those refuges. Every single letter, article and press release related only to the preservation of the condor. Not one mentioned a single other species as being of importance. See Region 1 News Release dated December 4, 1986 titled "U.S. Fish and Wildlife Service Announces Purchase of Hudson Ranch for California Condor" CIS #02969 and the George and McDouglad Bitter Creek NWR Rangeland Review specifically states "Although the BCNWR provides habitat for many listed species, the primary goal for the establishment of the BCNWR was to preserve essential foraging and roosting habitat for the California condor (*Gymnogyps californianus*)".

I was pleased to note that in the Draft EA the Number 1 Goal for each refuge is supporting the CCRP. Many other E, R, or T species will automatically benefit as the refuges are better managed and maintain. However, the welfare of any other species should never impeded or take precedence over the recovery of the condor. For example, working to expand the Tule elk population by restricting cattle grazing is detrimental to the food supply for the condor. It is much easier to increase cattle than to increase the size of the elk herd. In any case, cattle and elk can coexist, as on Wind Wolves Preserve.

The number of cattle ranches and the number of cattle being grazed within the foraging range of the condor is declining rapidly. Huge areas are being converted to housing or

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8. Hamber, J.

Response 8-1. Comment noted.

Response 8-2. Before it became a refuge in 1985, the Bitter Creek area was originally recognized as important for condors. However, the 1997 National Wildlife Refuge System Improvement Act (emphasizing biological integrity, diversity and environmental health) requires the Service to conserve all endangered or threatened species (not only the condor), favoring management that restores or mimics national ecosystems or processes (601 FW3). In addition, the purpose for which the refuge was established and the Service's authority under which refuge lands may be acquired is the 16 U.S.C. Sec 1534 (Endangered Species Act of 1973, as amended), "...to conserve...fish or wildlife which are listed as endangered species or threatened species...or...plants..." (see Chapter 1 of the Draft CCP). The Service's priority is to help protect resources for which the refuge was established.

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3 commercial uses (See the plans for Newhall Cattle Ranch in the Santa Clarita area, the changes at Tejon Ranch, the loss of cattle on the Carrizo Plains and the changes in the Cuyama Valley that used to support vast flocks of sheep during lambing season). A recovered population of condors will need an ample and a secure food supply that could be partially supplied by cattle grazing on both Bitter Creek and Hopper Ranches.

4 According to Wilbur (North American Fauna #72 CIS #03352) a pair of nesting adults requires about 6 lbs of food per day. If I accurately remember the goals for a recovered population of California condors correctly, 150 birds with 12 successfully breeding pairs in the Southern California region, the amount of food required will be considerable. I therefore totally support plans to reintroduce cattle to both those refuges with the following considerations.

5 I just read all of Section H about grazing on Bitter Creek and was stunned to see not a word about cattle being used as a management tool to enhance condor use of Bitter Creek. The only reason condors were attracted to Hudson Ranch (now Bitter Creek NWR) was due to the fact that the ranch was managed as a cow/calf operation and had been for many years. A cow/calf operation results in more cow, calf deaths with calves and deer being the preferred food of condors (Koford 1953 CIS#01562). I therefore urge the Service to pursue this type of cattle operation. I hear that it is more difficult to manage cow/calf than stocker cattle, but stocker cattle brought in at an older age do not have the death rate needed to provide condor food. According to David Clendenen of the Wind Wolves Preserve, the stocker cattle on that land are so carefully tended that few die, thus defeating the goal of enhancing the CCRP. A very good, knowledgeable and caring rancher would have to be chosen to lead this type of ranching.

The above statements constitute my main concerns and efforts to aid in the recovery of the California condor. I have a few other minor comments.

6 1. I strongly support the hiring of a Refuge Complex law enforcement officer. I have often been out in the Hopper Mt. area during hunting season. It is rather frightening to see vehicles go by with gun racks on the back, hear shots fired when condors are flying overhead and watch hunters disregard the Sespe Condor Sanctuary boundary fence and walk right over and under the Koford roost snags. Now the only remedy I have is to call the local sheriff who can be hours away and some hunters are very belligerent. The refuge staff is basically helpless in this situation.

7 2. I support the concept of creating ways to introduce the public to the wonders of the refuges with the corollary enhancement to educating people about the problems faced by the California condor. The tours provided by the Friends Group are a great way to have controlled visitation to Bitter Creek and Hopper Mt. The creation of a condor observation point on Cerro Noroeste Road could attract some of the many drivers to stop and learn more about the condor. The more individuals that can learn more about the condor and refuge system the better. It takes an informed and interested public to support funding and protection of those areas.

Response 8-3. Comment noted. Hopper Mountain NWR and Bitter Creek NWR comprise a very small portion of the home range of a single condor. Neither supplemental feeding nor natural livestock mortalities at the refuges is sufficient to support the condor population. A condor's monthly home range is hundreds of square miles. The range for condors is currently expanding as their numbers and management activities have expanded throughout their historic range. The refuges are a part of a much larger region inhabited by condors. The California Condor Recovery Program (CCRP) is addressing food supply for wild condors. The CCP actions at the refuges will support the CCRP.

Response 8-4. Same as response 8-3.

Response 8-5. Grazing is not being considered as a management tool to enhance condor use of Bitter Creek for the reasons described in response 8-3. Grazing is being considered to help attain rangeland objectives described under Bitter Creek Goal 2 in the CCP, which are repeated in the Grazing Plan (Appendix H). Activities such as livestock grazing and other extractive activities are permissible practices only when prescribed in plans to meet wildlife or habitat management objectives, and only when other methods, such as fire or grazing by native herbivores, cannot meet refuge goals and objectives. It is our professional judgment that a prescribed grazing program such as the one described in Appendix H is the best means of achieving our habitat objectives, as well as, the purposes of the refuge, the Refuge System mission, and our responsibilities under the Service's Biological Integrity, Diversity, and Environmental Health policy (601 FW3). The Refuge Administration Act states that each refuge will be managed to fulfill refuge purpose(s) as well as to help fulfill the System mission, and we will accomplish this by ensuring that the biological integrity, diversity, and environmental health of each refuge are maintained, and where appropriate, restored. Further, in compliance with 601 FW3, our habitat management plans call for the appropriate management strategies that restore or mimic historic conditions while still accomplishing refuge objectives.

Response 8-6. Comment noted. Chapter 4, Hopper Mountain strategies 6.4.1 addresses patrols at the refuge by the Zone Law Enforcement Officer. Chapter 5, Table 5-2 includes a budget for adding a law enforcement officer for the 4 refuges in the Complex. Hunting is not included or proposed for the refuges at this time.

Response 8-7. Comment noted. Bitter Creek NWR Goal 6 includes strategy 6.3.3 for a visitor contact station at Bitter Creek to introduce visitors to the refuge, 6.1.4 offers regular refuge tours, and 6.1.2 offers presentations to schools, etc. Goal 6 for Hopper Mountain NWR and Goal 3 for Blue Ridge NWR include similar strategies for outreach and environmental education. All refuge goals can be found in Chapter 4 of the CCP.

Response 8-8. Comment noted.

Response 8-9. Comment noted.

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10 3. I have little to say about Blue Ridge given it's small size and remoteness. Preventing
any vandalism and educating the public are worthy objectives so long as opening the
refuge to visitors, restricts them to sites far away from the traditional roost trees. I was
11 surprised not to find some mention of all the electronic towers being erected close to the
roost area. The building and servicing of the equipment bring noise and traffic
disturbance to the area. The towers with their guy wires and antennas could possibly
cause the death of a condor. Certainly some mention should have been made about being
proactive in working with the private companies that build the towers and working with
local planning commissions to site the towers in the least harmful places.

12 4. Maybe this idea is addressed in the document but I haven't found it. In looking at the
Hopper Mtn Ownership Map, I noticed that there are several medium and small size
areas, under BLM management, adjacent or very close to the refuge. I don't know how
difficult it is to have those lands transferred to FWS but I believe it would be a good idea
to have them included in the refuge system as a way of counteracting the claim that they
are open to hunting. In addition, part of the road to the Hutton's Bowl nest site is on the
BLM lands to the south.

13 5. My last comment has to do with the cost of funding different objectives. An 8 million
price tag is given, so I went and looked at the list in an attempt to understand how much
of that 8 million would go to helping preserving the California condor.

For the Hopper Refuge the bulk of the funding is going to what I consider helping the
condor – a pole barn to store and protect expensive equipment and more housing for
biologists and volunteers.

14 At Blue Ridge only \$25,000 out of \$70,000 really directly benefits the condor – the roost
survey, and a visitor sign if it informs the public about the condor. I'm not sure now one
identifies potential effect of climate change, but at least it mentions condor roost trees.

15 It's the Bitter Creek costs that concern me the most. Out of a \$6,791,440 allocated for
Bitter Creek, I can account for \$1,432,440 expenditure that directly benefits the condor
program – the lab, the fencing to manage the cattle, the trailer pads and the mapping of
condor foraging areas. The rest of the remaining \$5,269,000 is slated for other items, the
most expensive of which is the \$4,500,000 for 3 offices and visitor contact.. I wish I
had known about that proposal when I attended the Ventura Open House. I could have
learned the justification for that a 4.5 million dollar building complex.

16 I'll end with a word of praise to all the people who spent so much time and effort putting
this document together.

Janet Hamber
Condor Biologist,
Santa Barbara Museum of Natural History
2559 Puesta del Sol Road
Santa Barbara, CA 93105

Response 8-10. Comment noted. Blue Ridge NWR Strategy 3.1.2 would designate hiking trails on existing roads and trails, while avoiding sensitive condor roosting and nesting habitat.

Response 8-11. Draft CCP Chapter 3, Refuge Resources and Environment, section 3.3.11 includes mention of the existing communications towers at Blue Ridge NWR. Chapter 4, section 4.7, page 132 of the Draft CCP includes Objective 1.1 and Strategies 1.1.2 and 1.1.3 to work with the neighboring communication station stakeholders to prevent injury or mortality to condors.

Response 8-12. The Service currently coordinates with BLM on California condor management and we would be willing to do the same on other refuge resources.

Response 8-13. Comment noted.

Response 8-14. As also described in response 14-3, the CCP includes actions to benefit the purposes for which the refuges were established; not only to benefit the condor, but to improve biological integrity, diversity and environmental health and conserve all endangered or threatened species.

Response 8-15. Same as responses 8-14 and 2-4. The purpose of the visitor contact station is to provide visitor opportunities pertaining to all refuge resources, including the California condor. An interested and informed public is more likely to appreciate and protect refuge resources. All refuge activities and all refuge outreach benefit the California condor.

Response 8-16. Comment noted.

U.S. Fish & Wildlife Service Response

From: Jill Johnson <jillandartranch@yahoo.com>
To: Jill Johnson <jillandartranch@yahoo.com>
Sent: Tuesday, June 5, 2012 6:33 PM
Subject: Comment on EA/CCP BCWR

Comments regarding current CCP/EA for the Bitter Creek Wildlife Refuge.

- 1 Nature and weather dictate how the Refuge has to be grazed. Higher elevations have snow on them in Dec.-Mar.
- 2 Economics and safety dictate how cattle need to be handled and moved. Hauling cattle and water work for small country [20-30 acres] not for range cattle on 14,000 acres.
- 3 The smart way to have grazing on this refuge is to use the bottom Bitter Creek east of corrals in winter [nov.-mar.]. Move cattle to middle elevations "Uncle Percy, Uncle Charlies, Aunt Ruths, 10a, 10b" during spring, and on to 9n, 9c, 9s, 3w, 3e, 11, 6, in summer and fall, and than back to lower Bitter Creek for Winter again 2c, 2e, 2w, 2s.
- 4 The new fence lines need to take into consideration access to established water. Hauling water in winter is impossible and summer its too costly and dangerous.
- 5 Studies of wildlife done since '05 cannot be used as leverage against cattle since grazing has been removed for those 8 seasons. Grazing will benefit vegetation and plant life and bring back wildlife.

Thank you for the consideration.
Jill Johnson and Art Steinbeck

9. Johnson, J. and Steinbeck, A.

Response 9-1. Comment noted. The Prescribed Grazing Plan for Bitter Creek NWR has been revised.

Response 9-2. Comment noted.

Response 9-3. Same as response 9-1.

Response 9-4. Comment noted.

Response 9-5. The CCP/EA and Prescribed Grazing Plan for Bitter Creek NWR were revised and additional supporting references were added including the most recent peer-reviewed literature. Response 5-22 provides more information. Comment about the benefits of grazing is noted.

From: Denis M. Kearns, PhD. Botanist, Bakersfield, Ca.

1 The following is a series of comments concerning the misguided decision to graze on a large part of the Bitterwater Condor Refuge. The situation for the other two refuges is similar. Unfortunately, I do not have the time to devote to a more careful analysis of the documents. Overall, the decision to graze is not based on good science, ignores the results from the grazing studies on the Carrizo Plain National Monument, and will waste scarce funding to implement and monitor. In addition to the comments below, I concur with the statements made by Dr. Painter and By Ms. De Vries.

2 The Boarman, W.I. 2002 reference (Effects of Livestock Grazing on a Community of Species at Risk of Extinction in the San Joaquin Valley, California. USGS, Western Ecological Research Center: <http://www.werc.usgs.gov/sandiego/lokern/lokern.htm> 1-5.) is not available on the USGS website. The link provided is inactive and a search of Boarman articles available at USGS or on the web do not return any articles with this title.

3 Two relevant studies from the adjacent Carrizo Plain National Monument were not included in the analysis used to arrive at the decision to graze. This appears to be a direct violation of NEPA, at least in the spirit of the law. Study one was from late 1990s to mid 2000. Study two is currently underway and run by UC Berkeley. These studies indicate that grazing is either detrimental or not effective in achieving vegetation and wildlife management goals. This is important scientific information that should be included in the analysis.

From the initial Carrizo Study. (12 July 2008 Christian report to BLM and included in the CPNM RMP, available online):

"the results from the Carrizo grazing study do not support the general hypothesis that seasonal grazing is beneficial for native plant communities, nor is there support for the hypothesis that grazing is important for maintaining GKR habitat."

4 "The results of the monitoring study revealed that, overall, the density of giant kangaroo rat precincts was significantly lower in grazed areas than ungrazed areas. In addition, there was a significant interaction between grazing and year, indicating that the negative effects of grazing were significantly greater in some years (1998, 1999, 2000, 2002)."

"the cover and richness of native annual forb species – by far the most diverse group of plants at Carrizo Plain – was significantly lower in grazed areas compared to ungrazed ones. However, the impact of grazing was greater in the foothill soil types relative to alluvial soils most abundant on the valley floor. In contrast, the cover of exotic annual grasses was greater in grazed areas relative to ungrazed ones, however this effect was most pronounced in certain soil types found in the foothills.

Thus, two of the primary management objectives for using grazing as a vegetation management tool – to enhance native plant species and to decrease exotic ones – are not supported by this study."

5 The ongoing Carrizo grazing studies by UC Berkeley do not offer strong support for the use of grazing as a management tool. Results are variable year-to-year and no consistent positive trends have been shown. Yearly reports are available at <http://www.carrizoscience.org/cpep/>.

The following comments concern the EA, which is here being used to support the decision to graze:

6 From Draft EA p. 8 : "Reduce non-native and invasive species composition in existing grasslands using IPM techniques including targeted grazing...."

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10. Kearns, D.M.

Response 10-1. Comment noted.

Response 10-2. The unavailable reference (Boarman 2002) was deleted from the Prescribed Grazing Plan for Bitter Creek NWR, Appendix in the Final CCP/EA (Grazing Plan). The Grazing Plan was revised and new citations and discussion were added.

Response 10-3. The Grazing Plan was revised to include in the section Vegetation and Wildlife Management (Background), a discussion of the difficulty and uncertainty introduced when extrapolating results from studies dependent on site and time specific factors. This highlights the necessity of having specific and explicit adaptive management and monitoring plans within the Prescribed Grazing Plan that allow for changes in the grazing operation if the monitoring results (or Objective targets) show a need for change (e.g., in stocking rate or grazing intensity) (Stahlheber and D'Antonio 2013, Huntsinger et al. 2007). The approach to livestock grazing proposed in the Grazing Plan applies general principles for grazing management under monitoring sufficient to inform adaptive management decisions (Herrick et al. 2012). That being said the two studies referenced in this comment are addressed here: The 2010 Prugh and Brashares report states that "Cattle grazing did not significantly affect native or exotic plant cover." It goes on to state that "Results from 2010 mark a major step towards teasing out relationships among cattle, [giant kangaroo rat], plants, and other wildlife in the grasslands of the Carrizo Plain." This means that the 2009 report, which is possibly referred to by the commenter, did not have the explanatory power to make conclusive remarks on the effect of grazing on native plants. The research done at the Carrizo Plain by Christian and colleagues, and widely cited as disproving the hypothesis that grazing favors native plants is not published. Therefore, we understand this research as inconclusive rather than showing that grazing does not benefit native plants.

Response 10-4. Same as response 10-3.

Response 10-5. Same as response 10-3. The Grazing Plan was revised and new citations and discussion were added about adaptive management and monitoring.

Response 10-6. The Grazing Plan was revised and new citations and discussion were added about adaptive management and monitoring to avoid and reduce highly disturbed weedy zones on sites where livestock congregate.

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6 cont Although targeted grazing by trained animals has shown to be effective in reducing certain specific invasive species, generalized grazing in arid environments tends to promote non-native grasses (BLM RMP 2010) and creates highly disturbed weedy zones around troughs and other sites where livestock congregate (such as hill tops).

Draft EA: P. 8: "Develop and implement stepdown grassland Habitat Management Plan to maintain a mosaic of habitats suitable for special status species. Consider grazing (e.g., sheep, cattle)"

7 Birds respond differently to grazing (see Bock. 2009. Birds & Bovines: Effects of Livestock Grazing on Birds in the West http://www.publiclandsranching.org/htmlres/wr_birds_bovines.htm). Are the target species those that have been shown to benefit from grazing? Also, grazing has been shown to promote more homogeneity in the landscape. Because grazing is identified as a threat to Special Status plant species (CNPS website), it should only be used if there is a clear demonstrable positive impact on specific target bird species. Where is the data indicating that livestock grazing results in a "mosaic of habitats" that are native and desired? Livestock grazing over the long run, tends to favor disturbance-adapted and less-palatable species.

Draft EA: P 10: "Use targeted grazing to reduce weeds and annual invasive grasses that compete with walnut and oak seedling"

8 Unless you can train livestock to only eat grass and leave tree seedlings alone, grazing will only eliminate walnut and oak seedlings. The negative impacts of grazing on California oak communities is well documented. Where is the scientific support for this prescription? How can this be justified in light of the preponderance of evidence that grazing eliminates seedlings of these species?

P. 13: "Grassland: Use best management practices to reduce invasive plants, and use targeted grazing and prescribed fire to reduce fuel loads and manage habitat."

9 This is a common misconception. In years with low rainfall, and subsequent low biomass production, livestock will remove most of the standing biomass. In wet years, however, normal livestock populations are not able to keep up with biomass production and grass levels remain high, well into fire season and beyond. The idea of livestock as fire control is promulgated without a strong evidentiary support. Where is the data to support this idea?

P 16: "Use various grassland management tools (e.g., grazing, mowing, herbicide, over-seeding with native perennials) to meet SJV habitat objectives" AND "Use prescriptive grazing if appropriate to meet habitat objectives in SJV grasslands".

10 The two Carrizo studies (not cited in the Bittercreek EA) indicate that grazing is not an effective tool for this goal. The promotion of grazing as a management tool to create habitat for these species does not have good scientific support, rather, it is an idea propagated through the literature, without supporting data. Papers by those advocating grazing rely on supposition, cite previous papers without supporting data or use only a subset of available data. The recent paper by Germano, Rathburn, and Saslaw (2011) is an example of this approach. Reporting on their years of data collection at the Lokern site, the paper (for unknown reasons) only includes data to 2005 and ignores the Carrizo studies, even though one of the authors was instrumental in managing both studies. BLM's decision to graze on the Carrizo is not based on sound science.

11 P. 40: "Prescriptive livestock grazing (e.g., using sheep or cattle) would also be utilized as one of many techniques to reduce targeted weeds and primary native grass biomass, as necessary, to achieve mosaic grassland objectives." AND "By preferentially consuming the taller, more palatable non-native grasses, cattle effectively increase light and nutrient availability for the native forms during a key stage in their development. By effectively using grazing to prevent the buildup of residual dry matter (RDM), cattle may increase the proportion of native perennial forb seeds that germinate."

Response 10-7. The Grazing Plan was revised and new citations were added. Livestock grazing itself is not expected to result in a "mosaic of habitats" in grazed areas. Rather, grazing may be applied as a tool to achieve a mosaic of grass heights and habitat types to reach the CCP objectives; and the refuge manager's distribution of grazing on the refuge per the Prescribed Grazing Plan would create the mosaic.

Response 10-8. The Grazing Plan was revised and new citations were added. Tree shelters as well as managed grazing are proven methods to boost oak recruitment and could also be useful with seedlings of other species (McCreary and George 2005).

Response 10-9. The Grazing Plan was revised and new citations were added referencing Stahlheber and D'Antonio (2013) regarding grazing as a tool for fire/fuels management.

Response 10-10. The Grazing Plan was revised and new citations and discussion were added about adaptive management and monitoring. Response 10-3 provides more information.

Response 10-11. The Grazing Plan was revised and discussion was added about applicability of the Carrizo Plain National Monument conditions and results.

11
cont

Studies from the adjacent CPNM indicate that grazing increases non-native species to the detriment of native annual flora. The concept that cattle will eat the non-native grass and benefit the native flora is not supported by evidence from the area adjacent and most like the Refuge (CPNM).

12

Germano et al. 2001 is cited as support for using grazing to provide wildlife habitat. This paper is long on ideas, but short on data. Support of ideas in the paper includes "unpublished data" (impossible to evaluate and lacking statistical analysis), personal observations, and little in the way of actual data. The data from the Lokern studies used to be available on the Cal State website, but is no longer available. It did not indicate strong support of their ideas.

FROM the Draft grazing plan

Page. 5: The review received sharp criticism for interpretation of literature reviewed to support the use of cattle grazing to enhance wildlife and plant habitats (Painter 2010). Painter (2010) raises valid points; however, research investigations and continuous monitoring surveys would be necessary to address the many uncertainties associated with vegetation management in xeric Mediterranean climates. In absence of funding and personnel needed for extensive research, refuge managers at Bitter Creek NWR will implement 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 used to adapt refuge management activities (including grazing prescriptions) to dynamic natural and logistical conditions.

13

The George and McDougald review is seriously flawed, as enumerated by Dr. Elizabeth Painter and commented on by myself. To use this document as the basis of land management decisions indicates a serious lack of understanding of science. Where is the cogent response to the review submitted by Dr. Painter? To accept the George and McDougald report at face value and to dismiss the Painter review is a significant error in the NEPA process. The "many uncertainties" mentioned in the text above were valid criticisms that should have been addressed. Given "the many uncertainties associated with vegetation management in xeric Mediterranean climates" and the known impacts to soils, riparian areas, and sensitive plant species, the decision to graze is not supported. Why is the FWS proposing to manage by grazing when there is not good evidence that it works, where it is known to have detrimental impacts, and where it will result in additional management costs in developing infrastructure, monitoring, and paperwork.

14

Page 6: "Bitter Creek NWR has an intricate and expansive water system of 22 water tanks, fed by several springs, and nearly 10.5 miles of pipes."

These springs should be returned to their natural condition. Water that is currently being used for livestock would be better left in place for use by native plants and animals, not just those that can reach a trough.

15

The San Joaquin Valley Suite of animals cited for the need to graze on the Refuge (and the justification to graze elsewhere) do not appear on the Refuge (except for kit fox). If grazing were the appropriate management, you would expect that all the previous years of grazing would have created the conditions for these species to thrive. That they are not found on the Refuge suggest that grazing is not an appropriate management tool.

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Response 10-12. The Grazing Plan was revised to update the citation to Germano et al. 2012.

Response 10-13. Comments by Elizabeth L. Painter, Ph.D., on the Independent Rangeland Review are considered to be included with those comments submitted on the Bitter Creek NWR Draft Prescribed Grazing Plan. The language and citations in the Grazing Plan have been revised. The Grazing Plan has been revised to include adaptive management and an appropriate monitoring approach.

Response 10-14. Under Objective 4.2 in CCP Chapter 4, Bitter Creek NWR Strategy 4.2.1 addresses water quality and under Objective 4.3, Bitter Creek NWR Strategies 4.3.1 and 4.3.2 address restoring natural spring flows. Responses 3-44 and 3-45 provide more information about the existing water control system and determining its potential for future use.

Response 10-15. Comment noted. Responses 3-24, 3-50, and 3-52 provide more information about the Bitter Creek NWR Objective 2.2 to create a habitat mosaic to benefit a suite of San Joaquin Valley species.

REC'D APR 23 2012



"PROTECTING OUR GREAT NATIONAL HERITAGE"

THE KERN AUDUBON SOCIETY

P. O. Box 3581 Bakersfield, CA 93385

April 19, 2012

Sandy Osborn, Refuge Planning
U.S. Fish and Wildlife Service
Pacific Southwest Region
2800 Cottage Way
Sacramento, CA 95825

RE: Draft Conservation Plan for Bitter Creek Refuge

Dear Ms. Osborn,

Because of scheduling issues, I cannot attend the workshop in Taft on May 17. However, after reading the draft CCP, I wish to make the following comments on behalf of the Kern Audubon Society.

1 First, I attended and talked at the initial meeting a few years ago at the veteran's hall in Frazier Park. The cattlemen declared that the right to graze on federal property was a right that should not be reduced if it causes economic hardship on them. Others indicated that the burning of non-native grasses should not be used as a mitigation tool in the Valley because of air quality concerns.

Second, looking at the draft CCP, you have addressed these issues. Of foremost importance, as noted in the document, the refuge exists for the benefit of condors and other native species. That is why it was created. And the full range of tools available to the USFWS, from mowing of grasses, controlled burns, restricted grazing by cattle, and enhancement of native vegetation, must be employed, using the best scientifically based practices.

2 The plan continually assesses current practices and monitors progress, with the understanding that if additional data indicates that a practice or project in use is failing to reach intended goals, then a reassessment begins. This approach is the best management tool for the refuge.

3 Finally, we hope that the Service, in its public presentations and its written responses to criticism, indicates that the healthy development of the condor population is the primary

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11. The Kern Audubon Society

Response 11-1. Comment noted.

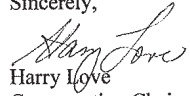
Response 11-2. Comment noted. Adaptive management proposed in the Draft CCP (page 144) includes periodic evaluation over time to adapt both the management objectives and strategies to better achieve management goals.

Response 11-3. The healthy development of the condor population is the primary function of the California Condor Recovery Program (CCRP); the refuges support the CCRP. The activities on the 3 refuges and the activities of the CCRP are closely related; the relationship between the refuges and the CCRP is described on page 27 of the Draft CCP. Response 14-3 provides more information about how the Service is now charged with conserving all endangered or threatened species, not just the condor. The purpose for which Bitter Creek NWR was established in 1985 is "...to conserve (A) fish or wildlife which are listed as endangered species or threatened species.... or (B) plants..." 16 U.S.C. Sec 1534 (Endangered Species Act of 1973, as amended). An additional directive to be followed while achieving refuge purposes and the Refuge System mission requires that the Service consider and protect the broad spectrum of native fish, wildlife, plant, and habitat resources found on a refuge (Draft CCP, page 93 provides more detail). Among the goals for other refuge resources, Bitter Creek NWR Goal 1 is to support the CCRP. Federal law and policy provide the direction and framework to protect the Refuge System from incompatible or harmful human activities and to insure that Americans can enjoy Refuge System lands. The Refuge Improvement Act is the key legislation on managing public uses and compatibility. Before activities or uses are allowed on a refuge, uses must be found to be "compatible" through a written compatibility determination. A compatible use will not materially interfere with or detract from the fulfillment of the Refuge System mission or the purposes of the refuge. Environmental monitoring will be conducted to evaluate the effects of refuge public use on wildlife habitat and wildlife populations. Response 14-7 provides more information about how the Service ensures that human activity is compatible with the refuge's goals.

3 cont function of the refuge. The word 'refuge' indicated that the land should be free of the economic issues raised by those who benefit from having grazing rights in the area. It should be free from human activity that detracts from the refuge's goals. Any changes in the management plan must only be based on scientific data from an established monitoring program. That is, data that indicates the goals for the healthy increase in condor population cannot be met. This is the only criteria to be accepted.

5 We sincerely hope that the USFWS continues to manage the refuge in the spirit in which it was created.

Sincerely,



Harry Love
Conservation Chair
Kern Audubon Society

U.S. Fish & Wildlife Service Response

Response 11-4. The CCP does not change the California Condor Recovery Plan. As described on page 143 of the Draft CCP, the goals described in this CCP that support the Recovery Plan (and all other goals) will not change until they are re-evaluated as part of the formal CCP revision process. However, the objectives and strategies may be revised to better address changing circumstances or to take advantage of increased knowledge of the resources on the refuge. Response 11-3 provides more information.

Response 11-5. Comment noted. Responses 11-3, 11-4 and 14-3 provide more information about the purpose for which Bitter Creek NWR was created.



May 31, 2012

Sandy Osborn
U.S. Fish & Wildlife Service
Pacific Southwest Region
2800 Cottage Way, W-1832 Refuge Planning
Sacramento, CA 95825

Re: Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges Draft
Comprehensive Conservation Plan and Environmental Assessment, March 2012

Dear Ms. Osborn:

KERNTAX is a member-supported, non-partisan, 501(c)(4) non-profit corporation, whose purpose is to bring about, through cooperative effort and communication, greater economy, efficiency, and effectiveness in government, basing its recommendations upon the analysis of facts obtained through research.

Being non-partisan, KERNTAX is politically independent, viewing matters and policies in an objective, impartial manner, and taking positions based on the Association's adopted principles. Founded in 1939, KERNTAX has only one bias, the best interests of Kern County taxpayers.

It has come to our attention that the management plan for the Bitter Creek Refuge in southwest Kern County is in the final draft phase. We have two comments regarding the plan which will apply to each of the three alternatives offered.

- 1 First, the \$6.7 million in budget items that has been proposed for the Bitter Creek Refuge is an exponential increase that warrants a close analysis. In 2008 and 2010, KERNTAX members have utilized the Freedom of Information Act to request reports of annual expenditures for the Bitter Creek Refuge, but those reports have not been produced. KERNTAX maintains that government agencies must be transparent and accountable for their expenditures. KERNTAX objects to the disparity between extravagant government proposals versus the private sector's imperative to make decisions based on cost effectiveness. KERNTAX recommends that the Service abandon the proposal for a \$4.5 million office on the Refuge and instead utilize the Refuge's existing structures with modest low cost improvements as necessary. KERNTAX respectfully requests that the Service review and dramatically reduce its budget proposal for the Bitter Creek Refuge with cost effectiveness and accountability to the U.S. taxpayer in view.
- 2
- 3 Secondly, KERNTAX requests that the use of fire/burning be removed from the management plan that the Service decides upon for the Bitter Creek Refuge. The risk of damage from an escaped fire is high in that location and would adversely impact

Kern County Taxpayers Association 331 Truxtun Avenue Bakersfield, CA 93301-5313 (661)322-2973

1 | 2012/KCTA/Communications/Bitter Creek Conservation Plan 120531

U.S. Fish & Wildlife Service Response

12. KernTax

Response 12-1. Comment noted.

Response 12-2. Comment noted. Same as response 2-4 regarding the purpose of the administrative office/visitor contact station and its cost.

Response 12-3. Same as responses 2-1 and 4-2.

- 4 private taxpaying neighbors. We request that the Service utilize livestock grazing as the economic alternative to mitigating the fire hazard.

Thank you for your time and consideration of our comments.

Respectfully,

Michael Turnipseed

Michael Turnipseed
Executive Director

- Cc: By Email
1. fw8plancomments@fws.gov
 2. Vince Fong, Office of Congressman McCarthy vince.fong@mail.house.gov
 3. Kyle Lombardi kyle.lombardi@mail.house.gov
 4. Supervisor Karen Goh gohk@co.kern.ca.us
 5. Supervisor Mike Maggard maggardm@co.kern.ca.us
 6. Supervisor Jon McQuiston jonm@co.kern.ca.us
 7. Zack Scrivner zscrivner@co.kern.ca.us
 8. Supervisor Ray Watson raywatson@co.kern.ca.us
 9. Lorelei Oviatt loreleio@co.kern.ca.us
 10. Richard & Susie Snedden richandsus@gmail.com

U.S. Fish & Wildlife Service Response

Response 12-4. Same as response 4-2.

U.S. Fish & Wildlife Service Response

REC'D JUN 11 2012

June 7, 2012

Regards concerning the conservation plan for BitterCreek Wildlife Refuge:

To Whom It Concerns

Thank you for providing the opportunity to express my opinions of the plans in regard to the proposed Conservation Plan for Bitter Creek Wildlife Refuge.

1 The Refuge Administration Act, as amended, clearly establishes that wildlife conservation is the primary and an all-important goal of protecting areas designated as Refuges. There has been bandied about the idea of returning the bittercreek area to its natural condition. This has led to comments that we do not know what that natural condition was and therefore we cannot aim for that goal. That is a foolish excuse for not directing plans to achieve the primary goal.

2 I say one thing we do know for sure is that cows were not a part of that original "natural condition." We also know that cows can have a very negative impact on progress toward a natural condition. Cows are heavy and impact the soils. Cows are responsible for bringing in weed seeds. Cows are heavy grazers of the grasses, native and non-native. They also enjoy eating native flower plants, plants that might well be rare and need to be protected.

3 Let us not forget that this Refuge area was purchased in order to enhance the program designed to return the Condors to our skies. Some say that without dead cows the Condors that are carrion consumers would not have food to maintain themselves. Obviously antelope and elk die and would serve the same purpose.

4 Elk and antelope have been successfully reintroduced into WindWolves so we know that their reintroduction works. In fact, some of WindWolves animals have already moved into Bittercreek. These animal species are the ones that should be inhabiting the Refuge. I emphatically urge that the management plan for this area put on the top line "reintroduce antelope and elk, true natives, to bittercreek" as a top priority.

5 Survey, survey, survey...It must be reminded that there has been very little surveying of the present plant and animal life on Bittercreek. The one outstanding exception is a very thorough plant survey carried out by a professional botanist in the last three years. Everything else reported is very sketchy and limited in time and area. One cannot make credible plans for protection of natural areas without knowing what is there.

6 The attempts to use research papers based on information collected from areas incomparable to bittercreek area to support various proposed actions is incomprehensible. Need more be said.

7 I would also like to remind you of the fact that was stated in the proposed plan: the Bittercreek area has not been adequately surveyed for Native American sites. That work should be completed before any major plans for land use in Bittercreek is decided.

To my mind the first action to be taken is make arrangements now for removal of the cattle from Bittercreek. We know that this step without doubt is a right step toward returning Bittercreek to its natural conditions.

Thank you for your attention to my proposals for development of the conservation plan being prepared for the Bittercreek Wildlife Refuge.

Mary Ann Lockhart
Mary Ann Lockhart
PO Box GG
Frazier Park, CA
93222

13. Lockhart, M.

Response 13-1. The National Wildlife Refuge System Improvement Act of 1997 provided the mission for the system, which is to preserve a national network of lands and waters for conservation of fish, wildlife, and plant resources. The Service's priority is to help protect habitat for species for which the refuge was established. In the case of these 3 refuges, they were established to conserve fish or wildlife, which are listed as endangered species or threatened species...or plants...16 U.S.C. Sec 1534 (Endangered Species Act of 1973, as amended). Additionally, Service policy (601 FW3) calls for the appropriate management strategies that restore or mimic historic conditions while still accomplishing refuge objectives.

Response 13-2. Response 6-6 provides information about stipulations to help prevent infestations of new invasive plants.

Response 13-3. Comment noted. Tule elk that were introduced on the adjacent Wind Wolves Preserve to the east have been documented on Bitter Creek NWR. Antelope also have been sighted on the refuge, although less frequently than elk. In Bitter Creek NWR Strategy 5.2.4 within 10 years of CCP approval, we plan to replace the non-wildlife-friendly fences with wildlife-friendly fences that allow native ungulates safe passage over and under the fence (no barbs on the top and bottom wires and other modifications). Response 7-9 provides more information about strategies to benefit the native elk and antelope. However, cattle are being considered to meet resource objectives rather than other livestock or elk and antelope for the following reasons. Other domestic livestock like sheep and goats would require additional infrastructure, including fences that are more restrictive of native ungulate movements (Bush 2006, Kindschy et al. 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). These references can be found in Appendix H.

Response 13-4. Comment noted. Response 21-4 provides more information about how biological surveying is a priority and has been incorporated into the CCP.

Response 13-5. Comment noted. References cited have been revised and/or supplemented in the Final CCP and appendices.

Response 13-6. Comment noted. Prior to their implementation, the Service will consider the potential effects of our undertakings on Native American sites. Under the terms of the National Historic Preservation Act (NHPA), all federal agencies are required to consider the effects of their actions on historic properties. Actions include changes in land management, expending funds, and issuance of a permit. Historic properties are defined as buildings, structures, sites, or objects that are listed or eligible for listing on the National Register of Historic Places. As each of the management actions proposed in the CCP is implemented, the area of potential effects will be defined. If Native American or historic sites are likely to be affected, the Section 106 process (36 CFR 800) will be completed prior to the initiation of the activity, in compliance with NHPA.

Response 13-7. Comment noted.

REC'D JUN 11 2012

Comments on the Draft Comprehensive Conservation Plan and Environmental Assessment for the Hopper Mountain, Bitter Creek and Blue Ridge National Wildlife Refuges.

1 I am very dismayed by the lack of adequate information, misleading and wrong information in your reports on our National wildlife refuges. It appears you will write anything to justify grazing on these lands.

My concerns are as follows:

- 2 1. The draft report shows you have not documented the necessary information on all plants, animals (listed or not) and/or cultural resources on the refuges.
- 3 2. You can not pick and choose what you or your cattle rancher wants to protect. Plants and animals must receive equal consideration and protection.
- 4 3. Water resources must also be referenced and protected from contamination.
- 5 4. Referencing material that has little or no relevance to the three areas can not be used to satisfy requirements to prove live stock grazing is a compatible use for our wild lands.
- 6 5. Where is the money to pay for the monitoring and any remediation when damage is done to the land? How will you provide for public comment on potential remediation?

7 Live stock grazing is not a compatible use on wild lands, your CCP/EA proves it.

8 I recommend you get a qualified professional to rewrite this document. I'm embarrassed for the writers of your draft plan.

Sincerely,



Patricia K. Munro
Restoration Ecologist
190 Hillhaven Ct.
Ventura, Ca. 93003

U.S. Fish & Wildlife Service Response

14. Munro, P.

Response 14-1. Comment noted. References cited have been revised and/or supplemented in the Final CCP and appendices.

Response 14-2. Same as responses 21-4 and 13-6.

Response 14-3. Service policy (601 FW3) favors management that restores or mimics national ecosystems or processes. The Service's priority is to help protect habitat for species for which the refuge was established. In the case of these 3 refuges, they were established to conserve fish or wildlife, which are listed as endangered species or threatened species...or plants...16 U.S.C. Sec 1534 (Endangered Species Act of 1973, as amended). Therefore, the foremost obligation of the Service and its cooperators (ranchers that enter into grazing agreements with the Service) is to protect threatened and endangered wildlife (including the condor) and plants, as well as other refuge resources.

Response 14-4. Bitter Creek NWR Objective 4.2 is to obtain data on water resources contaminants at Bitter Creek NWR. Strategy 4.2.1 calls for a comprehensive inventory of springs and wetlands, including water quality. Strategies 4.3.3 calls for exclusionary fencing to protect riparian and wetland areas from potential livestock grazing contamination. The compatibility determinations for grazing (in CCP Appendix C) and agreements/permits also include measures to protect water quality and other refuge resources.

Response 14-5. Same as response 14-1.

Response 14-6. Table 5-1 of the Draft CCP budgets costs estimates to fund one-time monitoring to assess resource conditions (e.g., Bitter Creek NWR Strategy 4.1.1, Avian Monitoring Plan) and Table 5-2 includes annual recurring costs for ongoing water quality, vegetation and wildlife monitoring). The Complex biologist will use monitoring and evaluation to inform resource management decisions using the adaptive management approach described in Chapter 5 of the Draft CCP, "Habitat, wildlife, and public use management techniques and specific objectives will be evaluated regularly as results of a monitoring program and other new technology and information become available. These periodic evaluations would be used over time to adapt both the management objectives and strategies to better achieve management goals. If changes are required, the refuge manager will determine the appropriate level of public involvement and environmental permitting and review."

Response 14-7. Federal law and Service policy provide the direction and planning framework to protect the Refuge System from incompatible or harmful human activities. Before activities are allowed on a refuge, uses must be found to be "compatible" through a written compatibility determination (CD). The CD for Grazing, found in Appendix C, determined that, with the stipulations listed in the CD, this use is compatible at Bitter Creek and Hopper Mountain NWRs. For this use, there is a mandatory re-evaluation every 10 years.

Response 14-8. Comment noted.

U.S. Fish & Wildlife Service Response

15. Painter, E.L.

[responses are provided on the following pages]

Elizabeth L. Painter, Ph.D.
2627 State Street N2
Santa Barbara, CA 93105
Tel: 805-687-6187
Email: painter@west.net

10 June 2012

U.S. Fish & Wildlife Service
Pacific Southwest Region
2800 Cottage Way, W-1832 (Refuge Planning)
Sacramento, CA 95825-1846

Via e-mail (fw8plancomments@fws.gov)
Subject: Hopper CCP

Subject: Comments on Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges Draft Comprehensive Conservation Plan and Environmental Assessment [draft CCP/EA], and appendices (including the draft Gazing Plan for Bitter Creek National Wildlife Refuge)

I am submitting for your consideration the comments below on the subject draft CCP/EA and appendices [including the Bitter Creek NWR draft Prescribed Grazing Plan]. I am submitting these comments as an independent expert. I am available to discuss the information I have identified and recommendations I have made further should you require clarification.

I thank you for the opportunity provided by United States Fish and Wildlife Service (USFWS) for public comment on the Draft Comprehensive Conservation Plan (draft CCP/EA) and appendices for Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges (NWRs).

By way of establishing my background and credentials as related to comments on these documents, offer the following information:

My qualifications include training and experience in plant ecology, range ecology, plant taxonomy, and plant conservation biology, dating from 1975, at the Colorado State University, where I received MS and PhD.

I am a member of the Bitter Creek National Wildlife Refuge advisory team.

I currently am a research associate at the University and Jepson Herbaria (University of California Berkeley) and at the Santa Barbara Botanic Garden¹.

I have been a museum scientist with the University of California.

I have held research appointments at Colorado State University in the range, forestry, and biology departments. I also taught in the latter.

I am a fourth generation member of a western ranching family.

I have a strong interest in the biology of plant/herbivore interactions, particularly in western North America. I have published peer-reviewed research papers on that topic in several major research journals (e.g., Journal of Range Management, Journal of Applied Ecology, Oecologia, American Journal of Botany, Vegetatio). I have also authored invited papers on the topic in Ecological Applications and Madroño.

I have participated in the preparation of grazing management plans and other environmental documents and have reviewed quite a few others for public agencies and non-profit conservation groups, including providing agency-solicited peer reviews of sections of the Interior Columbia Basin Ecosystem Management Project and serving as a member of the Science Consistency Review team for the Draft EIS for Revised

¹ My comments are made as a private citizen, not as a representative of either of these institutions.

Management Plans of the four southern California National Forests (Angeles, Cleveland, Los Padres, San Bernardino).

I am an author for both the first and second editions of The Jepson Manual, as well as The Jepson Desert Manual. I have taught several Jepson Herbarium Workshops. I was a primary botanist for a 3-year floristic inventory of a 160,000+-acre area of public land in Monterey County, California, and for rare plant inventories and preparing management plans for large public land areas in Monterey and San Luis Obispo counties.

I have been both a consultant and expert witness for legal cases involving both rare plants and livestock grazing, both for the U.S. Department of Justice and for non-profit conservation groups.

I served on the Board of Directors of the California Native Grass Association, and team-taught a grass identification workshop for them.

I serve as a science advisor to several conservation groups, including Los Padres ForestWatch and the Western Watersheds Project.

Thank you for the opportunity to comment on the Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges Draft Comprehensive Conservation Plan and Environmental Assessment [draft CCP/EA], and appendices (including the draft Gazing Plan for Bitter Creek National Wildlife Refuge)

I would appreciate if USFWS would consider my comments on the Independent Rangeland Review (Painter 2010) as part of my comments below on the draft CCP/EA and appendices, including the Bitter Creek NWF draft Grazing Plan.

My review of the draft CCP/ EA, and appendices has led to the identification of some major and lesser deficiencies, as well as unanswered questions. These are presented below as general and specific concerns. My General Comments are followed by five sections of my specific comments: (1) Comments on the Compatibility Determination, (2) Comments on Plants, Vegetation, Animals, (3) Comments on Choices of Literature Cited, (4) Comments on the Draft Environmental Assessment, (5) Comments on the Bitter Creek NWR draft Prescribed Grazing Plan. At the end, I have provided a List of Cited and Applicable Literature.

I also agree with the comments submitted by Pam De Vries and incorporate those comments herein. If you have any questions regarding these comments, please feel free to contact me.

Sincerely,

/s/ Elizabeth L. Painter, Ph.D.

U.S. Fish & Wildlife Service Response

[reponses are provided on the following pages]

U.S. Fish & Wildlife Service Response

GENERAL COMMENTS

Public land managers must be able to demonstrate that low-impact management and natural ecosystem sustainability are possible, on the basis of careful use of the best available science. They should be able to demonstrate how ecological costs can be minimized. Public employees should be advocates for the public's natural resources, since the extraction industries have their own well funded advocacy groups. Designing management plans that put protection of the natural resources first, using best available science, will be a large step toward regaining this portion of the public's confidence in government agencies to manage public lands².

I appreciate the USFWS's commitment to protecting the resources on the three Refuges. It is apparent from the draft documents that USFWS recognizes the importance of the natural and cultural resources on the Refuges and has prepared documents obviously based on a great deal of work.

1 The draft CCP/EA and appendices together are nearly 480 pp. long, requiring a great deal of time and research from public reviewers.

Because of my affiliation with Bitter Creek NWR and because I am more familiar with it, much of the discussion below centers on that Refuge. However, many of my comments use Bitter Creek NWR as an example and can be extrapolated to the other two Refuges.

The draft CCP/EA and appendices displays a noticeable zoocentric bias. USFWS appears to be victim of what has been called 'plant blindness'³ (e.g., see Allen 2003). In the draft CCP/EA and appendices, USFWS appears to see plants primarily as habitat for animals, forage for animals (primarily livestock), or loosely defined 'vegetation'. There is a significant lack of attention paid to the native plants on the Refuges in the draft CCP/EA and appendices, including (but not limited) a failure to commit to comprehensive surveys (including focuses surveys for Special Status plant taxa). It is not possible to protect what one does not adequately know one has. There is also a lack of attention to the potential impacts of proposed management actions, including livestock grazing (particularly to individual native plant taxa, in particular Special Status taxa).

2 For example, on Bitter Creek NWR federally listed plants like *Eremalche parryi* subsp. *kernensis* [*Eremalche kernensis*, Federally Endangered] merits as much conservation and management consideration and planning as any and all federally listed animals found on the Refuge. And federally listed plants like *Caulanthus californicus* [Federally Endangered, California Endangered] and *Monolopia congdonii* [*Lembertia congdonii*, Federally Endangered] merit as much conservation and management consideration and planning as any and all federally listed animals that potentially could be found on the Refuge.

3 Insufficient discussion is included concerning the management and conservation of native plants and native vegetation. However, when native plants or vegetation were discussed, the information was sometimes disturbing. Because USFWS (2001) Refuge Management documents state that "We manage populations for natural densities and levels of variation", I was very surprised to see that one of the goals is to reduce the native grasses. In the draft EA, sections 4.1.5.3 Alternative B [Preferred Alternative] and 4.2.5.2 Alternative B [Preferred Alternative] (Effects on the ...Biological Environment), USFWS says that "prescriptive livestock grazing... would also be utilized as one of many techniques to reduce... primary native grass biomass... to achieve mosaic grassland objectives" (draft EA pp. 40, 63). Noss et al. (1995) pointed out 99% of native grasslands in California have been lost and stands of native grasses are

² Unfortunately, without strong science-based management, public lands managers must sometimes overcome a perception of 'management by myth' (e.g., O'Brien 2002, Donahue 1999, Blumler 1992, Schiffman 2009) or 'faith-based management' (e.g., Nabhan 2005, James Catlin, Wild Utah Project, in presentations and personal communications).

³ the inability to see or notice the plants in one's own environment, leading to the inability to recognize the importance of plants in the biosphere and in human affairs (Allen 2003)

Response 15-1. The CCP/EA and appendices have been revised to clarify or add objectives and strategies that include native plants and plant communities.

Response 15-2. *Eremalche parryi* subsp. *kernensis* and *Monolopia congdonii* were inadvertently omitted from the Draft CCP/EA. These Federally-protected plants and other special status plants have been addressed in the Final CCP/EA and appendices.

Response 15-3. The error was corrected in the Final CCP/EA. Same as response 5-49.

Response 15-4. Same as response 15-3.

4 uncommon on Bitter Creek NWR (P. De Vries, pers. comm.) and probably the other two Refuges as well,
 cont so the thought that USFWS has set a goal to diminish further the native grasses on the Refuges is disheartening.

5 Much of the livestock-grazing-based management focuses on what the draft CCP/EA and appendices refer to as the San Joaquin Valley Special Status Species. It should be remembered that the Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998) included not only San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, Nelson's antelope squirrel, but also *Eremalche parryi* subsp. *kernensis* [*Eremalche kernensis*], *Caulanthus californicus*, and *Monolopia congdonii* [*Lembertia congdonii*]. A number of non-listed taxa were also included, including *Eriogonum temblorense*, *Eschscholzia lemmonii* subsp. *kernensis*, *Layia munzii*, and *Lepidium jaredii* subsp. *jaredii*. If much of the management is to focus on the San Joaquin Valley Special Status Species, then all San Joaquin Valley Special Status Species taxa that are documented or reported on Bitter Creek NWR or might occur there should receive similar levels of management attention. At least as much attention should be given to protecting those Special Status taxa that could be negatively impacted by livestock grazing as is currently given in the draft CCP/EA and appendices to those that purportedly would benefit.

There is a lack of consistency and connectivity throughout the draft CCP/EA and appendices that gives the impression that the documents were written by several different people who did not communicate and did not review each other's sections.

6 Terminology needs to be made consistent and accurate throughout the draft CCP/EA and appendices. For example USFWS should choose 'prescribed' livestock grazing or 'prescriptive' livestock grazing or 'targeted' livestock grazing, and then use the terminology consistently throughout all the documents. How does 'targeted grazing' to 'prescribed grazing' or 'prescriptive grazing'? How does 'targeted prescriptive grazing' fit into this mix? USFWS did not include 'prescribed', 'prescriptive', nor 'targeted' grazing in Appendix A, the Glossary of Terms. When USFWS settles on which term best describes what is proposed, the term must be added to the Glossary. Given the confusion of terms in the current draft CCP/EA and supporting documents, when a single term is chosen. USFWS needs to provide scientific literature supporting the chosen definition.

7 'Vegetation' and 'vegetative' are quite different in meaning. 'Vegetation' is a collection of plants found together in a particular area or habitat while 'vegetative' is reserved for uses dealing with growth and development, as opposed to sexual reproduction (e.g., use in Barbour and Billings 2000, Barbour and Major 1977, 1988, Barbour et al. 1980, Billings 1970, Gottlieb & Jain 1988, Stebbins 1974, Stuessy 1990). 'Vegetational' or 'vegetation' is the standard adjectival form of 'vegetation'.

In Chapter 1 section 1.2 of the draft CCP, USFWS says that Service is preparing this plan for these refuges to "[p]rovide a basis for management that is consistent with the Refuge System mission and refuge purposes and ensure the needs of wildlife and plants come first, before other uses". USFWS also says that Service is preparing this plan for these refuges to "[p]rovide a scientific foundation for refuge unit management". I do not think that the draft CCP/EA and appendices do not meet these standards.

8 The References sections are very helpful, but could be improved. It would be helpful if names of authors or authoring organizations were spelled out in the References sections, rather than using acronyms. One should not have to guess what an acronym stands for, nor have to hunt for it in the reference nor in the text of the document. The acronym should more appropriately follow the authoring organization, in parentheses so that it matches any acronym use in the text of the document. It would be helpful if the web link were included whenever there is one available for a reference.

9 In Chapter 1 section 1.2 of the draft CCP, USFWS says that Service is preparing this plan for these refuges to "[p]rovide a scientific foundation for refuge unit management". Too much of the cited literature in the draft CCP/EA and appendices is only loosely or not directly applicable to the Refuges [see comments below on Choices of Literature Cited].

10 I was disappointed that USFWS appeared to casually dismiss most of my comments on the Independent

U.S. Fish & Wildlife Service Response

Response 15-5. Same as response 15-1.

Response 15-6. The documents have been revised to improve consistency and continuity in the Final CCP/EA and appendices. Terms were added to the Glossary (Appendix A).

Response 15-7. The use of the terms vegetative and vegetation were revised and corrected as appropriate in the Final CCP/EA.

Response 15-8. The references were revised in the Final CCP/EA.

Response 15-9. Same as response 5-54.

Response 15-10. The oversight was unintentional. The references used in the Final CCP/EA and Prescribed Grazing Plan have been revised.

U.S. Fish & Wildlife Service Response

- 10 *cont* Rangeland Review (George and McDougald 2010). The references I provided were much more applicable to Bitter Creek NWR than many of those used in the draft CCP/EA and appendices.
- 11 If, as USFWS contends “research investigations and continuous monitoring surveys would be necessary to address the many uncertainties associated with vegetation management in xeric Mediterranean climates” (Bitter Creek draft Prescribed Grazing Plan p. 5), then even more research and monitoring would be necessary to test the applicability of studies of non-xeric or non-Mediterranean-climate vegetation to vegetation management on the Refuges. It is a major stretch to equate the tropical savannas of the Serengeti to the grassland, woodland, and shrubland vegetation of interior Mediterranean-climate California. None of the species discussed in Boser and Reader (1995) grow on any of the Refuges and the effects of removing litter in eastern Canada may be quite different. Neither of the Midwestern species of *Solidago* studied by Goldberg and Werner (1983) occurs in California, nor does *Primula alcalina*, a northern Rocky Mountain species studied by Muir and Moseley (1994). There are no invasive or non-invasive Commelinaceae on any of the Refuges (Burns 2004). [see comments below on Choices of Literature Cited]
- 12 Considerable research and monitoring would be necessary to test the applicability of studies of vegetation types or habitats not occurring on the Refuges, even if cited studies were conducted in xeric areas or Mediterranean-climate vegetation. Vernal-pool-management-related papers are applicable only if there are vernal pools, then only to the vernal pools. There are no salt marshes on the Refuges. Papers on management of non-native plants that do not grow on the Refuges are only applicable if the study sites are similar to the Refuges and the taxa are closely related to ones growing there.
- 13 Inclusion of literature that is not applicable or only very loosely applicable could give the impression of padding the references lists and the discussions in which the references are cited.
- 14 Not only are there inadequacies in discussions and proposed management of biological resources, but also the documentation and proposed management and protection of archaeological/cultural resources on the Refuges are not adequate. Although the draft CCP (section 1.6 p. 6) points out that the Refuges are governed by laws, orders, regulations, and policies concerning both natural and cultural resources, the draft CCP/EA and appendices fail to give adequate consideration to archaeological/cultural resources on the Refuges, including a failure to commit to comprehensive surveys. There is also a lack of attention to the potential impacts of proposed management actions, including livestock grazing. The draft CCP (p. 11) points out that “[v]ery few archaeological surveys have been performed within the boundaries of Hopper Mountain NWR, so the potential for significant cultural resource sites is not clearly understood. Only approximately 7.5% of Bitter Creek NWR has reportedly been surveyed for archaeological/cultural resources (draft CCP p. 13), and “[i]t is highly probable that additional archaeological sites will be exposed by human actions or natural causes in the future.” It is not clear from the discussion in the draft CCP (pp. 76–77) whether the records discussed include the sites photo-documented and reported (P. De Vries pers. comm.) during the plant surveys (De Vries 2009b, 2010b). Apparently, “none of the 897-acre Blue Ridge NWR has been systematically surveyed” (draft CCP p. 24), although there is one reported survey [draft CCP p. 92]. “Cultural resources are not renewable” (draft CCP p. 129), and it is not possible to protect what one does not adequately know one has, so the objective of assessing all known cultural/archaeological resources (draft CCP p. 129) is admirable. To that should be added a commitment to conducting comprehensive surveys for as yet unknown cultural/archaeological resources. There should be a commitment to complete these surveys before any changes in management are implemented that might negatively impact archaeological/cultural resources is essential. For example, livestock grazing can adversely impact archaeological/cultural resources, damaging and/or disrupting them (Van Vuren 1982, Horne and McFarland 1993, Nickens 1990, J. Timbrook, pers. comm. to P. De Vries). However, the draft EA does not discuss these (e.g., sections 4.1.10.2 and 4.2.10.2). Without adequate surveys and literature reviews, it is inappropriate to assume that effects would be minor. Therefore, livestock grazing plans should not be implemented until surveys are conducted, literature is reviewed, and adequate protections are in place.
- 17

Response 15-11. Text and citations have been updated in the Final CCP/EA and appendices. Response 15-22 provides more information.

Response 15-12. Same as response 15-11.

Response 15-13. Same as response 15-11.

Response 15-14. Same as response 5-8.

Response 15-15. Same as response 5-8.

Response 15-16. The two sections of the Draft CCP do not appear to conflict. Page 24 of the Draft CCP states that, “According to the records, none of the...Blue Ridge NWR has been systematically surveyed.” Page 92 states, “Whether [the 1984 BLM 1-acre survey] was done on lands that later became the refuge in 1982 is unknown.... It appears that none of the 897-acre Blue Ridge NWR has been systematically surveyed.”

Response 15-17. Same as response 3-18. Response 5-8 provides more information about the National Historic Preservation Act. The discussion of the potential effects of grazing has been revised in the Final EA.

U.S. Fish & Wildlife Service Response

(1) Comments on the COMPATABILITY DETERMINATION Bitter Creek NWR Compatibility Determination for Grazing

18 Based on the information provided, it does not appear that USFWS has made a compelling and convincing case that livestock grazing meets the standards needed to support the determination that the proposed livestock grazing program is a compatible use.

19 In Chapter 1 section 1.2 of the draft CCP, USFWS says that Service is preparing this plan for these refuges to "[p]rovide a basis for management that is consistent with the Refuge System mission and refuge purposes and ensure the needs of wildlife and plants come first, before other uses". Therefore, USFWS must clearly and conclusively demonstrate that the proposed livestock grazing program ensures the needs of wildlife and plants, before all else. Unfortunately the draft CCP/EA and appendices has a deficit of information concerning the native plants documented and reported as occurring on Bitter Creek NWR, including insufficient information provided about Special Status plants, their biology and ecology, their distribution, their protection, and their management. Until this is rectified it cannot be said that USFWS has demonstrated a commitment to ensuring that the needs of plants come before other uses.

20 Based on readily available literature providing information on negative impacts of livestock grazing to native plant taxa documented or reported to occur on or near Bitter Creek NWR (especially, but not limited to *Eremalche parryi* subsp. *kernensis* and possibly *Caulanthus californicus* and *Monolopia congdonii*), it is apparent that livestock grazing as proposed in the Bitter Creek draft Prescribed Grazing Plan is not a compatible use, as it will materially interfere with the Refuge mission to ensure that the needs of plants (and wildlife) come first come first, before other uses (contrary to USFWS 2000b 2.6.B).

21 Because of a number of short-comings on which I have commented, including a deficit of information concerning the native plants documented and reported as occurring on Bitter Creek NWR, the draft CCP/EA and appendices, including the draft Prescribed Grazing Plan and the Compatibility Determination for Grazing, do not adequately describe the desired future conditions of the Refuge nor provide adequate long-range guidance and management direction to achieve the purposes of the Refuge mission to ensure that the needs of plants (and wildlife) come first, before other uses (contrary to USFWS 2000b 2.6.C).

22 Because of a number of short-comings on which I have commented, including inadequate and inappropriate use of available scientific literature and a deficit of information concerning the native plants documented and reported as occurring on Bitter Creek NWR, the draft CCP/EA and appendices, including the draft Prescribed Grazing Plan and the Compatibility Determination for Grazing, do not adequately assure that the proposed management actions would sustain, restore, and enhance, healthy populations of [plants (fish, and wildlife) utilizing methods and procedures associated with modern scientific resource programs, consistent with protection, research, census, law enforcement, habitat management, propagation, live trapping and transplantation, and regulated taking (contrary to USFWS 2000b 2.6.D).

23 Because of the a deficit of information concerning the native plants documented and reported as occurring on Bitter Creek NWR, the draft CCP/EA and appendices, including the draft Prescribed Grazing Plan and the Compatibility Determination for Grazing, do not adequately assure that the proposed management actions will not materially interfere with or detract from the fulfillment of the Refuge mission to ensure that the needs of plants (and wildlife) come first, before other uses (contrary to USFWS 2000b 2.11.B(1)).

24 Based on readily available literature providing information on negative impacts of livestock grazing to *Eremalche parryi* subsp. *kernensis* (documented on the Refuge), *Caulanthus californicus* (possible on the Refuge), and *Monolopia congdonii* (possible on the Refuge), it is apparent that the draft CCP/EA and appendices, including the draft Prescribed Grazing Plan and the Compatibility Determination for Grazing, do not adequately assure that 'take' would not occur with livestock grazing, since the take of even one individual of these threatened or endangered species could significantly impact the Refuge's ability to

Response 15-18. Same as response 5-37.

Response 15-19. Same as response 5-75.

Response 15-20. Same as response 5-37.

Response 15-21. The CCP/EA and appendices have been revised to address the comment.

Response 15-22. Same as response 15-21.

Response 15-23. The CCP/EA and appendices have been revised to address the comment.

Response 15-24. Prior to finalizing the CCP/EA, the Service completed section 7 Endangered Species Act compliance on the implementation of CCP activities.

U.S. Fish & Wildlife Service Response

Response 15-25. Same as response 5-37.

Response 15-26. Same as response 5-37.

Response 15-27. Same as response 5-37.

Response 15-28. 601 FW 3, section 3.15 B states “Farming, haying, logging, livestock grazing, and other extractive activities are permissible habitat management practices only when prescribed in plans to meet wildlife or habitat management objectives, and only when more natural methods, such as fire or grazing by native herbivores, cannot meet refuge goals and objectives.” Additional information was added to the Compatibility Determination for Grazing at Bitter Creek NWR; grazing was determined to be compatible with the purposes for which the refuge was established. Responses 5-44 and 5-75 provide more information.

Response 15-29. Same as response 5-37.

Response 15-30. Same as response 5-37.

Response 15-31. Same as response 5-37. Response 5-22 provides more information about the updated citations.

Response 15-32. Same as response 3-48.

Response 15-33. Same as responses 5-45 and 5-37.

24 cont manage for and perpetuate these taxa and even unintentional minor disturbance during critical biological times, in critical locations, or repeated over time could exceed the compatibility threshold (contrary to USFWS 2000b 2.11.B(2)).

25 Because of the a deficit of information concerning the native plants documented and reported as occurring on Bitter Creek NWR, the draft CCP/EA and appendices, including the draft Prescribed Grazing Plan and the Compatibility Determination for Grazing, do not adequately assure that not only the direct impacts of livestock grazing but also the indirect impacts associated with livestock grazing, and the cumulative impacts of livestock grazing were considered (contrary to USFWS 2000b 2.11.B(3)).

26 The draft CCP/EA and appendices, including the draft Prescribed Grazing Plan and the Compatibility Determination for Grazing, do not adequately provide documentation that habitat management plans (including livestock grazing) mimic historic conditions while still accomplishing Refuge objectives, especially putting the needs of plants (and wildlife) first, before other uses (contrary to USFWS 2001 2.11.B(3)).

27 The draft CCP/EA and appendices, including the draft Prescribed Grazing Plan and the Compatibility Determination for Grazing do not adequately demonstrate that more natural methods, such as grazing by native herbivores (including tule elk, black-tailed deer, pronghorn), cannot meet Refuge goals and objectives (contrary to USFWS 2001 2.15.B, which states that livestock grazing is permissible only under this condition).

28
29 The draft CCP/EA and appendices, including the draft Prescribed Grazing Plan and the Compatibility Determination for Grazing do not adequately demonstrate that, with the proposed management actions USFWS is managing populations for natural densities and levels of variation, while assuring that densities of endangered or otherwise rare species are sufficient for maintaining viable populations (contrary to USFWS 2001 2.15.C).

30 The draft CCP/EA and appendices, including the draft Prescribed Grazing Plan and the Compatibility Determination for Grazing do not adequately demonstrate that livestock grazing is compatible with managing populations for natural densities and levels of variation nor for assuring that densities of endangered or otherwise rare species are sufficient for maintaining viable populations (contrary to USFWS 2001 2.15.C).

31 In General, the literature cited in the Bitter Creek NWR Compatibility Determination for Grazing fails to support the proposed determination that the draft Prescribed Grazing Plan is a compatible use for this Refuge. [see comments above on Choices of Literature Cited]

32 The Description of Use section states that livestock grazing will be conducted in accordance with the Bitter Creek NWR Prescribed Grazing Plan, which it says includes “prescriptions for specified refuge cells (grazing units) including duration, dates and stocking rates”. The Prescribed Grazing Plan does not provide specific durations, dates, or stocking rates, only suggestions for seasons (not dates) and duration. Stocking rates are not included in the draft Prescribed Grazing Plan, only a statement that stocking rates will be determined in the future based on future monitoring. Monitoring methods are not provided in the draft Prescribed Grazing Plan. No provision for public review of the methods used to determine stocking rates and duration of grazing is provided; therefore, the public has been effectively excluded from participating in this process.

33 Under the discussions of the four target conditions (p. 2), native plants are included only once as ‘resource targets’ for improved habitat conditions (habitat quality), under (2) low RDM/short grass height, and then with absolutely no discussion. Native plants documented or reported to occur on Bitter Creek NWR should merit at least as much consideration as ‘resource targets’ as animals that have not been reported as occurring on the Refuge (e.g., giant kangaroo rat, agile kangaroo rat, blunt-nosed leopard lizard, California horned lark). USFWS needs to document that the management actions (livestock grazing) and the target conditions are appropriate to the native plants (particularly Special Status plants), as well for a small group of animals (some not known to occur on the Refuge).

34 USFWS states that "[i]nventory 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" (p. 3) but does not state which taxa will be inventoried (it should be all plants and animals in the affected areas) nor if vegetation/plant community types will be inventoried (also essential for adequate baseline data and livestock grazing plan design).

35 If use of livestock grazing as a conservation tool for native vegetation/plant community restoration and management report mixed results (at best) (p. 3), how can USFWS propose the use of livestock grazing without adequate vegetation/plant community surveys in the field and without adequate review of literature appropriate to Bitter Creek NWR?

36 Grazing may have been used as a conservation management tool for specific plant taxa but the cited literature is either not readily applicable to Bitter Creek NWR: Carvell (2001) Britain and Europe; Muir and Moseley (1994) Rocky Mountains; Bakker (1985) salt marshes; Marty (2005), Pyke and Marty (2005) vernal pools; Coppoletta and Moritsch 2001; Davis and Sherman (1992) and Hayes and Holl 2003 coastal grasslands; George et al. (1992) examination of use of nonequilibrium models, no direct grazing data. As USFWS points out, "grazing" is commonly poorly characterized in the above studies, which can make the results difficult to interpret. This should make USFWS cautious in citing them, and should lead USFWS to only select studies to cite where the methods and results are unequivocal and the study location and/or studied plants readily applicable to Bitter Creek NWR (e.g., Kimball and Schiffman 2003, Mazer et al. 1993).

The rationale present (p. 4) deals only with a few animals (some not known to occur on the Refuge), again without any regard for potential negative impacts to native plants or native vegetation/plant communities.

The 'Anticipated Impacts of the Use' are at best weakly supported by the cited references. Often the cited references are inappropriate to Bitter Creek NWR, not science-based, or both. Some are not relevant or are very weakly relevant to the 'impact' to which they are attached.

37 Despite the citation of Edwards (1992) (not peer-reviewed) and Edward (1996) (peer-review status unclear), there is very little evidence that there were significant numbers of true grazers in California prior to the introduction of domestic livestock. As Dr. Herbert G. Baker eloquently pointed out, "a few bones do not thundering herds make" (H.G. Baker, pers. comm.). Well-respected experts in applicable fields, including G.L. Stebbins (1992_ and H.G. Baker (1992), questioned many of Edwards's opinions in the Fremontia article. Joy Belsky (1992), Mark Blumier (1992, 1993), and Jon Keeley (1993) also weighed in to the Fremontia 'discussion'. Baker (a well respected evolutionary biologist) pointed out that Pleistocene megafauna in California "does not appear to have had a tremendous influence on grazing resistance by bunchgrasses" and that modern elk, pronghorn, deer, rodents, and lagamorphs, part-time grazers in the California 'grasslands', had a "minor selective influence". He also pointed out that "selective agents of the Holocene operated more recently than the Pleistocene factors, and we can expect that present-day taxa will reflect the more recent environment". Based on all these and other available literature, there is reasonable question as to whether "[g]razing by native wildlife species has long occurred in the California landscape where it has shaped its botanical and zoological resources". Grazing may have played a role, but as Baker pointed out, it may have been a minor one.

38 Neither Barry (2003) nor Griggs (2000) provide direct evidence that grazing is an important method of vegetation management. Griggs (2000) has anecdotal observations but no references and no scientific documentation to support them. Barry (2003) does not provide data, discussion, or analyses and has only four references, three that are sources for the 'forms' used in the publication and a fourth that is a range textbook.

39 Thomsen et al. (1993), which deals with a study of livestock grazing to control *Centaurea solstitialis*, not to the reduction of accumulated dead plant material or reduction in non-native invasive weeds in general.

U.S. Fish & Wildlife Service Response

Response 15-34. Bitter Creek NWR Strategy 2.2.6 was added to the Final CCP to conduct surveys for special status plants. More information is provided in responses 5-75 and 5-91 about surveys at Bitter Creek NWR; response 5-41 about surveys at Hopper Mountain NWR; and response 3-18 about baseline surveys in general.

Response 15-35. Text and citations in the Compatibility Determination for Grazing have been updated to include the most recent peer-reviewed literature.

Response 15-36. Same as responses 5-22 and 5-37.

Response 15-37. Comment noted.

Response 15-38. Citations in the Compatibility Determination for Grazing have been updated.

Response 15-39. Same as response 5-37. Comment noted about Meyer and Schiffman (1999) and Kimball and Schiffman (2003).

U.S. Fish & Wildlife Service Response

Response 15-40. Same as response 5-37.

Response 15-41. Same as response 5-37.

Response 15-42. The sentence about the benefits to black-tailed deer and tule elk was deleted.

Response 15-43. Same as response 5-37.

Response 15-44. Same as responses 3-4 and 3-18.

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cont

USFWS has not demonstrated that reduction in accumulated dead plant material is always or usually beneficial to the native plants documented or reported on Bitter Creek NWR. Meyer and Schiffman (1999) and Kimball and Schiffman (2003) did not find that removal of accumulated dead plant material promoted native plant growth, nor did it reduce non-native plant in their research plots. Thus, this may not be a general benefit of the proposed livestock grazing program. In fact, it may be a detriment to at least some native plants, and therefore not a compatible use.

Meyer and Schiffman (1999) and Kimball and Schiffman (2003) found that hand removal of accumulated mulch did not promote native plant growth or reduce non-natives in their research plots.

40

USFWS provides no evidence that livestock grazing would increase native plants, including Special Status plants, documented or reported on Bitter Creek NWR. *Chorizanthe valida* (Coppoletta and Moritsch 2001, Davis, and Sherman 1992) is known only from Marin and Sonoma counties. Menke (1992) presents no data and cites no literature. Muir and Moseley (1994) studied *Primula alcalina*, a northern Rocky Mountain species. Marty (2005) reported on unspecified plants in vernal pools. [see comments above on Choices of Literature Cited]

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None of the cited literature directly supported benefits to aquatic invertebrates, insects, and Special Status species from potentially grazed herbaceous habitats on Bitter Creek NWR. Bratton (1990) and Bratton and Fryer (1990) were conducted in Britain. Panzer (1988) looked at small isolated prairie remnants in the Midwest. Germano et al. (2001) included no methods and few data in a paper published in mid-study. The most recent publication (Germano et al. 2012) "found no fixed effects" from grazing, although Heermann's kangaroo rats were more abundant on non-grazed sites. Knopf et al. (1995) studied mountain plovers, which are not reported for Bitter Creek NWR.

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USFWS needs to document the purported benefits of removal of residual dry matter (RDM) to black-tailed deer and tule elk, as no literature was cited to support this contention.

43

USFWS needs to provide substantially more literature citation concerning the potential negative effects and to include native plants, native vegetation/plant communities, and Special Status Species to wildlife and wildlife habitat as being potentially negatively impacted. A single citation relating to migratory birds is totally inadequate, particularly given that USFWS provided numerous citations purportedly supporting 'benefits'. Additional citations to be considered should include Anderson et al. (1984), Andreasen (2010), Baker (1978), Belsky and Gelbard (2000), Belsky et al. (1999), Bethlenfalvay et al. 1984, Blumler (1992, 2002), CNPS (2010), Christian et al. (2008b), Correy (2006), Derlet et al. (2008), Donahue (1999), Ellison (1960), Fleischner (1994, 2010), Jones (2001), Kimball and Schiffman (2003), Lacey 1987, Mazer et al. (1993), Meyer and Schiffman (1999), Painter (1995, 1996, 2009, 2010), Roberson 1996, Schiffman (1997, 2009), Wagner et al. (2004). For example, in their study of *Eremalche parryi* subsp. *kernensis* [*Eremalche kernensis*, Federally Endangered], Mazer et al. (1993) reported that grazing was "very detrimental to the reproductive success", reduced plant size, and had a significant effect on plant size (as measured by the number of branches and the average branch length). They pointed out that "because *Eremalche* plants are present for most of the growing season of desired forage (from January through May) any grazing may place the endangered species at risk." They reported that they "found no effects of competition from other plants on *Eremalche* reproductive success, therefore, grazing is not a benefit to *Eremalche* through reduction of competitors."

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I fully agree with USFWS that, "[g]iven the many uncertainties associated with vegetation management in xeric Mediterranean climates, research investigations and continuous monitoring surveys would be necessary to ensure refuge habitat objectives are met through utilization of a prescriptive grazing program." In the absence of guaranteed adequate funding for comprehensive monitoring, no livestock grazing program should be initiated. Anything less than full, comprehensive, continuous monitoring could put Endangered and Threatened species, Special Status taxa (both plants and animals), species of concern, migratory birds, many native plants, native vegetation/plant communities, etc., at considerable risk. If, as stated in Chapter 1 section 1.2 of the draft CCP, that USFWS is committed to ensuring that the needs of wildlife and plants come first, before other uses, then USFWS should also be willing to commit to not implementing a management program that cannot be adequately monitored.

45 The Bitter Creek NWR Compatibility Determination for Grazing does not address the potential impacts to archaeological/cultural resources on Bitter Creek NWR. Livestock grazing can cause potentially adverse effects by damaging and/or disrupting archaeological resources (Van Vuren 1982, Horne and McFarland 1993, Nickens 1990, Horn and McFarland 1993, J. Timbrook, pers. comm. to P. De Vries). Grazing cannot be determined to be a compatible use based on the provisions of the draft Prescribed Grazing Plan, since no protections for archaeological/cultural resources is included in that document.

USFWS (2000b, Refuge Management, Chapter 2, Compatibility) states that
 "Compatibility determinations are inherently complex and require the refuge manager to consider their field experiences and knowledge of a refuge's resources, particularly its biological resources, and make conclusions that are consistent with principles of sound fish and wildlife management and administration, available scientific information, and applicable laws."

46 Clearly, not all of the Refuge's biological resources are known, and, clearly, best available scientific information was not considered in the Compatibility Determination. In addition, information and resources that have previously been made available to the Service from several sources were ignored. Therefore, no finding of compatibility for this use can be made by any reasonable person exercising sound professional judgment, be it a refuge manager or any one else, based on the biased information presented in this Compatibility Determination. I strongly object to the finding that livestock grazing is a compatible use for Bitter Creek NWR.

47 It appears that the same literature and text was used to develop the Compatibility Determination for livestock grazing for Hopper Mountain NWR. I therefore extend my comments above to include the Hopper Mountain NWR Compatibility Determination for grazing, and I also strongly object to the finding that livestock grazing is a compatible use for Hopper Mountain NWR.

(2) Comments on PLANTS, VEGETATION, ANIMALS

48 In Chapter 1 section 1.2 of the draft CCP, USFWS says that Service is preparing this plan for these refuges to "[p]rovide a basis for management that is consistent with the Refuge System mission and refuge purposes and ensure the needs of wildlife and plants come first, before other uses" (draft CCP p. 4. In order to do this, a complete assessment of the wildlife and plants is needed, including comprehensive surveys for both plants and animals and compilation of files with as much information as can be garnered on each plant and animal species, including biology and ecology and any known threats. Any and all management decisions must take these into consideration. Because the draft CCP/EA and appendices do not take in to consideration all native plants and animals and the possible impacts to all native species/taxa collectively and individually (or even all Special Status species/taxa), the draft CCP/EA and appendices do not meet this standard.

49 All taxa that have been documented or reported for each Refuge should be included in the plant and animal lists. The term 'documented' (when used with plants) should be reserved to those taxa for which there are herbarium specimens that vouch the occurrence. The only taxa that should be omitted are those that clearly appear to be errors, and even then a footnote might be in order.

50 The previous plant surveys were general reconnaissance, not focused on specified taxa (Lawrence 1983, Werner 1997, Thomas and Wishner 1996, De Vries 2009b, 2010b). Focused surveys targeting possible habitat for all documented and reported Special Status plant taxa from on and near Bitter Creek NWR are needed before any management programs are implemented that might negatively impact any of them.

U.S. Fish & Wildlife Service Response

Response 15-45. Same as response 5-8.

Response 15-46. Same as responses 5-75 and 5-91.

Response 15-47. The analysis and discussion of effects to native plant species and vegetation communities was expanded in the CCP/EA, including further consideration of adverse effects of livestock grazing at Hopper Mountain NWR. Furthermore, given the lack of site-specific research, the need for adaptive management and monitoring were further developed and discussed.

Response 15-48. The goals and monitoring sections in the Prescribed Grazing Plan for Bitter Creek NWR (Grazing Plan) have been revised to reflect the importance of an inventory of special status plants. A special status species table for plants with information related to livestock grazing has been added to the Grazing Plan. More information about conducting baseline surveys prior to CCP activities and strategies to conduct baseline surveys that are in the Draft CCP are provided in response 3-18.

Response 15-49. The refuge plant and wildlife lists were revised in the appendix to the Final CCP/EA to include taxa that have been observed or reported at each of the refuges. Separate lists were added to clarify which special status plants have the potential to occur at the refuges, but have not been reported there. The term "documented" was replaced with "observed" in the plant lists and more information was added about the sources of the lists in the appendices.

Response 15-50. Bitter Creek NWR Strategy 2.2.6 was added to the Final CCP to conduct surveys for special status plants. The Grazing Plan has been revised to reflect the importance of monitoring special status species that occur at Bitter Creek NWR. More information is provided in responses 5-45 and 15-49.

U.S. Fish & Wildlife Service Response

50 cont With such surveys, new locations will be added for Special Status already documented on the Refuge⁴. Locations for those reported but not yet documented probably will also be found. Visits to herbaria (e.g., California Polytechnic State University San Luis Obispo, California State University Bakersfield, Victor Valley College, California Academy of Sciences) to look at specimens will probably also add locations and taxa.

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52 It is very important that the full name of the taxon found on each Refuge is included in all statements and lists. There is a conservation-status difference between and *Eremalche parryi* subsp. *kernensis* and *Eremalche parryi* subsp. *parryi* that is not apparent from using only *Eremalche parryi* in text or on a list. The same is true for *Caulanthus coulteri* (var. *coulteri* and var. *lemmonii*), *Eschscholzia lemmonii* [subsp. *kernensis* and subsp. *lemmonii*], *Allium howellii* (var. *clokeyi* and var. *howellii*), *Gilia latiflora* (subsp. *cuyamensis* and subsp. *davyi*) that just identifying to species does not acknowledge.

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53 The people composing the draft CCP/EA and appendices and putting together the plants lists need to learn the differences among sp. (species, singular), spp. (species, plural), ssp. (subspecies, singular), and sssp. (subspecies, plural). The abbreviations subsp. and subspp. are now the preferred form for subspecies singular and plural, and might be less confusing than ssp. and sssp.

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54 The draft CCP/EA and appendices displays a noticeable zoocentric bias. USFWS appears to be victim of what has been called 'plant blindness' (e.g., see Allen 2003). In the draft CCP/EA and appendices, USFWS appears to see plants primarily as habitat for animals, forage for animals (primarily livestock), or loosely defined 'vegetation'. There is a significant lack of attention paid to the native plants documented or reported on the Refuges. Insufficient discussion is included of the management and conservation of native plants and clearly defined native vegetation.

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56 Much of the livestock-grazing-based management focuses on what the draft CCP/EA and appendices refer to as the San Joaquin Valley Special Status Species. It should be remembered that the Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998) included not only San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, Nelson's antelope squirrel, but also *Eremalche parryi* subsp. *kernensis* [*Eremalche kernensis*], *Caulanthus californicus*, and *Monolopia congdonii* [*Lembertia congdonii*]. A number of non-listed taxa were also included, including *Eriogonum temblorense*, *Eschscholzia lemmonii* subsp. *kernensis*, *Layia munzii*, and *Lepidium jaredii* subsp. *jaredii*. All San Joaquin Valley Special Status Species taxa that are documented or reported on Bitter Creek NWR or might occur there should receive similar levels of management attention.

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57 The Hopper Mountain NWR plant list (Appendix E-1) provides no source(s) for the information in the list, although it says that quite a few of the taxa were 'documented' in 2011. However, I could not find any herbarium specimens in the California Consortium of Herbaria (CCH) for that year. Most of the plant taxa reported by De Vries (2011b) were included and most were reported as 'documented', but not all. Some of the taxa for which there are herbarium specimens accessioned and listed in CCH were reported. There are taxa on the list for which no obvious source could be worked out and sources of information were not cited.

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58 The Bitter Creek NWR plant list (Appendix E-3) provides no source(s) for the information in the list. It appears to have been based primarily on De Vries (2009b, 2010b), although Werner (1997) is mentioned on Table D-3. Lawrence (1983) is mentioned other parts of the document, but not in Table D-3 nor in any format related to plants or vegetation. The short survey by Thomas and Wishner (1996) was not referenced anywhere in the documents. There are plant taxa records from Bitter Creek NWR documented in CCH. Plant taxa were both documented with vouchers and reported as seen during the CNPS grassland survey on Bitter Creek NWR (Buck-Diaz et al. 2011). There are plant photographs taken on Bitter Creek NWR on CalPhotos, and on R. Spjut's The World Botanical Associates Web Page need. All of these are sources of plants documented or reported on the Refuge, and all should have been used to prepare the plant list (and credited on the list). The only taxa identified at least to species from any of

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⁴ For example, new sites for *Delphinium gypsophilum* subsp. *gypsophilum* and *Castilleja plagiotoma* were added to documented in Unit 9 (Central and South) this spring (2012, P. De Vries, pers. comm.).

Response 15-51. Comment noted.

Response 15-52. When known, the subspecies or variety was added to the Final CCP/EA and appendices. When only the genus and species were known, a note of clarification was added.

Response 15-53. The abbreviations were corrected and made consistent throughout the Final CCP/EA and appendices.

Response 15-54. Comment noted.

Response 15-55. Bitter Creek strategies were revised to address plants and native plants in the Final CCP Chapter 4. More information is provided in responses 5-75, 5-134, 15-48, 15-49, 15-134, and 15-137.

Response 15-56. Management efforts are typically focused on species known to occur on site or special status or target species for which habitat is known to occur on the site. The Final CCP was revised to include the Federally-protected plants that were inadvertently omitted from the Draft CCP.

Response 15-57. Same as response 15-49.

Response 15-58. Same as response 15-49. Explanation and information in comment is noted.

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cont

these sources that could be justifiably omitted are those for which a case for misidentification or change in circumscription can be made: *Artemisia californica* (Werner 1997, Lawrence 1983, and 2006, 2008 Bitter Creek EAs, probable misidentification, no Kern Co. specimens); *Quercus dumosa* (Lawrence 1983, out of range under current circumscriptions; *Quercus wislizenii* var. *frutescens* (2006, 2008 Bitter Creek EAs, not documented from this area); *Acanthomintha obovata* subsp. *obovata* (Lawrence 1983, out of range under current circumscriptions. *Acanthomintha obovata* observed by Werner 1997 and Lawrence 1983 was more likely to have been subsp. *cordata*).

59

The Blue Ridge NWR plant list (Appendix E-6) provides a single source for the list, with no indication as to whether there are any voucher specimens to support the information. I was unable to find any specimens in CCH that I could say with confidence were or could have been collected on the Refuge. However, a search in CCH by a locally knowledgeable person might yield some records.

60

USFWS should include all taxa documented or reported on or very near the Refuges that fit the broad definitions of Special Status Species used in the CCP/EA and appendices in the initial Special Status Species sections: Hopper Mountain NWR 3.1.7, Bitter Creek NWR 3.2.7, Blue Mountain NWR 3.3.7. These should include all federally listed and candidate taxa, state-listed and candidate taxa, birds such as eagles protected under specific legislation, and all taxa on the California Department of Game & Fish Natural Diversity Database (CNDDDB) Special Animals and Plants Lists⁵ (CNDDDB 2011a,b). Just as USFWS has included as Special Status Species birds that are recognized by California Partners in Flight, USFWS should extend the same consideration to all plants on non-federal and state conservation lists, such as taxa that have been given a California Rare Plant Rank (formerly CNPS list) by the California Native Plant Society and CNDDDB (Ranks 1B, 2, 3, 4), inclusion on Bureau of Land Management (BLM) Special Status lists, inclusion on US Forest Service sensitive species lists, and (where appropriate) inclusion on a county list of locally important/sensitive/rare plants. Draft CCP section 3.1.7 also includes one plant species as Special Status because of its cultural importance to the Chumash. It would be appropriate if the Refuges were to check with Dr. Timbrook (whose work was cited) and other appropriate ethnobotanists (e.g., Kat Anderson), to determine which, if any, other native plants should be considered Special Status because of cultural / ethnobotanical importance among the plant taxa documented or reported on the Refuges.

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Any and all Special Status Species listed or discussed in other sections or in the appendices should first be included in 3.1.7, 3.2.7, or 3.3.7. All taxa documented or reported on the Refuges (and many of those found very near) should be discussed subsequently whenever Special Status Species are discussed.

63

There should be a map for each Special Status taxon for each Refuge. There should also be clear indications of which Special Status taxa have been documented or reported, as which have the possibility to occur (e.g., appropriate habitat) in areas that would be directly impacted by management actions, including which areas that would or could be open to livestock grazing on Bitter Creek and Hopper Mountain NWRs.

64

If Culturally Important Plants are considered for management for Hopper Mountain NWR, then they should also be considered for Bitter Creek NWR and Blue Ridge NWR. In addition to including all culturally important plants discussed in Timbrook (2007), USFWS should consider all those discussed in Anderson (2007) and other California ethnobotanical sources referenced by Timbrook and Anderson.

65

The Special Status plants documented, reported, or possible on Hopper Mountain NWR in 3.1.7 Special Status Species) were *Juglans californica* [CA Rare Plant Rank 4.2] and *Apocynum cannabinum* [Culturally Important Plant]. Among the plants documented, reported, or possible from Hopper Mountain NWR that qualify as Special Status taxa were omitted from the Special Status Species discussion are the following:

| | |
|---|-------------------------|
| <i>Symphotrichum greatae</i> | CA Rare Plant Rank 1B.3 |
| <i>Thermopsis californica</i> var. <i>argentata</i> | CA Rare Plant Rank 4.3 |

⁵ For example, CNDDDB status is listed for *Juglans californica* on Hopper Mountain NWR in draft CCP section 3.1.7 as part of the rationale for including it as a Special Status Species.

U.S. Fish & Wildlife Service Response

Response 15-59. More source information was added to the plant lists in the Final CCP/EA appendix.

Response 15-60. The discussions of Special Status Species at each of the refuges were expanded upon in the Final CCP/EA and the revised Grazing Plan includes a special status species table for reference.

Response 15-61. A list of culturally significant plants was compiled for each of the refuges based on the US Department of Agriculture's database on culturally significant plants, accessible at: <http://plants.usda.gov/java/>. The USDA site states that the information was gathered directly from tribes and through published literature sources based upon indigenous knowledge. A table of special status plants with information related to livestock grazing has been added to the Grazing Plan.

Response 15-62. Comment noted.

Response 15-63. Maps have not been developed for each special status taxon on the refuge; however, as the CCP strategies to inventory special status species are implemented the information will be mapped. The State's California Natural Diversity Database includes maps and data. The Final CCP/EA was revised to clarify which taxa have been reported on the refuge and which may occur on the refuge.

Response 15-64. Same as response 15-61.

Response 15-65. The Final CCP/EA (Appendix E) includes revised or new lists of special status plants for each of the three refuges. Also, in the Final CCP the sections about special status plants for each refuge were revised to include: a) plants that are federally listed or proposed for listing as threatened or endangered, and species that are "candidates" for listing by the Service under the provisions of the Endangered Species Act; b) species listed by the state as threatened or endangered; and c) species that have been observed on Bitter Creek NWR and are ranked 1B (or rarer) in the California Native Plant Society's (CNPS) California Rare Plant Rank (<http://www.cnps.org/cnps/rareplants>). This section also refers the reader to Appendix E, which includes an expanded special status species list with additional plants that have been reported on the refuge and other plants that may occur on the refuge.

U.S. Fish & Wildlife Service Response

Response 15-66. Comment noted. Same as response 15-65.

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cont

| | |
|---|--------------------------------------|
| <i>Quercus dumosa</i> | CA Rare Plant Rank 1B.1 |
| <i>Juncus acutus</i> subsp. <i>leopoldii</i> | CA Rare Plant Rank 4.2 |
| <i>Lepechinia rossii</i> | CA Rare Plant Rank 1B.2 |
| <i>Calochortus clavatus</i> var. <i>clavatus</i> | CA Rare Plant Rank 4.3 |
| <i>Acanthoscyphus parishii</i> var. <i>abramsii</i> | CA Rare Plant Rank 1B.2 |
| <i>Delphinium parryi</i> subsp. <i>purpureum</i> | CA Rare Plant Rank 4.3 |
| <i>Rigiopappus leptocladus</i> | Ventura Co. Locally Important Plants |
| <i>Cryptantha corollata</i> | Ventura Co. Locally Important Plants |

The Special Status plants documented, reported, or possible on Bitter Creek NWR (3.2.7 Special Status Species) were *Caulanthus californicus* [US Endangered; CA Endangered; CA Rare Plant Rank 1B.1], *Eremalche parryi* subsp. *kernensis* [US Endangered; CA Rare Plant Rank 1B.1], *Androsace elongata* subsp. *acuta* [CA Rare Plant Rank 4.2], *Castilleja plagiotoma* [CA Rare Plant Rank 4.3], *Caulanthus lemmonii* (*Caulanthus coulteri* var. *lemmonii*) [CA Rare Plant Rank 1B.2], *Delphinium gypsophilum* subsp. *gypsophilum* [CA Rare Plant Rank 4.2], *Fritillaria agrestis* [CA Rare Plant Rank 4.2], *Gilia latiflora* subsp. *cuyamensis* [CA Rare Plant Rank 4.3], and *Perideridia pringlei* [CA Rare Plant Rank 4.3]. Among the plants documented, reported, or possible from Bitter Creek NWR that qualify as Special Status taxa were omitted from the Special Status Species discussion are the following:

documented:

| | |
|-----------------------|------------------------|
| <i>Lupinus elatus</i> | CA Rare Plant Rank 4.3 |
|-----------------------|------------------------|

reported:

| | |
|--|---|
| <i>Eriophyllum jepsonii</i> | CA Rare Plant Rank 4.3 |
| <i>Eriophyllum lanatum</i> var. <i>obovatum</i> | CA Rare Plant Rank 4.3 |
| <i>Amsinckia douglasiana</i> | CA Rare Plant Rank 4.2 |
| <i>Astragalus hornii</i> var. <i>hornii</i> | CA Rare Plant Rank 1B.1 |
| <i>Acanthomintha obovata</i> subsp. <i>cordata</i> | CA Rare Plant Rank 4.2 |
| [species reported, only subsp. in range] | |
| <i>Monardella linooides</i> subsp. <i>oblonga</i> | CA Rare Plant Rank 1B.3 |
| <i>Trichostema ovatum</i> | CA Rare Plant Rank 4.2 |
| <i>Eriastrum hooveri</i> | US Delisted ; CA Rare Plant Rank 4.2 |
| <i>Eriogonum gossypinum</i> | CA Rare Plant Rank 4.2 |
| <i>Eriogonum temblorense</i> | CA Rare Plant Rank 1B.2 |
| <i>Delphinium inopinum</i> | CA Rare Plant Rank 4.3 |
| <i>Delphinium parryi</i> subsp. <i>purpureum</i> | CA Rare Plant Rank 4.3 |

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possible:

| | |
|--|--|
| <i>Allium howellii</i> var. <i>clokeyi</i> | CA Rare Plant Rank 1B.3 |
| <i>Eriophyllum lanatum</i> var. <i>hallii</i> | CA Rare Plant Rank 1B.1 |
| <i>Lasthenia glabrata</i> subsp. <i>coulteri</i> | CA Rare Plant Rank 1B.1 |
| <i>Layia heterotricha</i> | CA Rare Plant Rank 1B. |
| <i>Layia munzii</i> | CA Rare Plant Rank 1B.2 |
| <i>Lessingia tenuis</i> | CA Rare Plant Rank 4.3 |
| <i>Madia radiata</i> | CA Rare Plant Rank 1B.1 |
| <i>Monolopia congdonii</i> [<i>Lembertia congdonii</i>] | US Endangered ; CA Rare Plant Rank 1B.2 |
| <i>Stylocline masonii</i> | CA Rare Plant Rank 1B.1 |
| <i>Symphytotrichum defoliatum</i> [<i>Aster bernardinus</i>] | CA Rare Plant Rank 1B.2 |
| <i>Syntrichopappus lemmonii</i> | CA Rare Plant Rank 4.3 |
| <i>Phacelia exilis</i> | CA Rare Plant Rank 4.3 |
| <i>Phacelia mohavensis</i> | CA Rare Plant Rank 4.3 |
| <i>Lepidium jaredii</i> subsp. <i>jaredii</i> | CA Rare Plant Rank 1B.2 |
| <i>Nemacladus gracilis</i> | CA Rare Plant Rank 4.3 |
| <i>Atriplex coronata</i> var. <i>coronata</i> | CA Rare Plant Rank 4.2 |
| <i>Convolvulus simulans</i> | CA Rare Plant Rank 4.2 |
| <i>Astragalus leucolobus</i> | CA Rare Plant Rank 1B.2 |
| <i>Astragalus macrodon</i> | CA Rare Plant Rank 4.3 |
| <i>Thermopsis californica</i> var. <i>argentata</i> | CA Rare Plant Rank 4.3 |
| <i>Frasera neglecta</i> | CA Rare Plant Rank 4.3 |

U.S. Fish & Wildlife Service Response

Response 15-67. The Final CCP/EA (Appendix E) includes revised or new lists of culturally significant plants for each of the three refuges.

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| <i>California macrophylla</i> [<i>Erodium macrophyllum</i>] | CA Rare Plant Rank 1B.1 |
| <i>Calochortus clavatus</i> var. <i>clavatus</i> | CA Rare Plant Rank 4.3 |
| <i>Calochortus fimbriatus</i> | CA Rare Plant Rank 1B.2 |
| <i>Calochortus palmeri</i> var. <i>palmeri</i> | CA Rare Plant Rank 1B.2 |
| <i>Fritillaria striata</i> | CA Threatened ; CA Rare Plant Rank 1B.1 |
| <i>Sidalcea neomexicana</i> | CA Rare Plant Rank 2.2 |
| <i>Cordylanthus rigidus</i> subsp. <i>brevibracteatus</i> | CA Rare Plant Rank 4.3 |
| <i>Eschscholzia hypocoides</i> | CA Rare Plant Rank 4.3 |
| <i>Eschscholzia lemmonii</i> subsp. <i>kernensis</i> | CA Rare Plant Rank 1B.1 |
| <i>Antirrhinum ovatum</i> | CA Rare Plant Rank 4.2 |
| <i>Gilia tenuiflora</i> subsp. <i>amplifauca</i> | CA Rare Plant Rank 4.3 |
| <i>Navarretia peninsularis</i> | CA Rare Plant Rank 1B.2 |
| <i>Navarretia setiloba</i> | CA Rare Plant Rank 1B.1 |
| <i>Acanthoscyphus parishii</i> var. <i>abramsii</i> | CA Rare Plant Rank 1B.2 |
| <i>Chorizanthe blakleyi</i> | CA Rare Plant Rank 1B.3 |
| <i>Eriogonum kennedyi</i> var. <i>alpigenum</i> | CA Rare Plant Rank 1B.3 |
| <i>Eriogonum nudum</i> var. <i>indictum</i> | CA Rare Plant Rank 4.2 |
| <i>Mucronea californica</i> | CA Rare Plant Rank 4.2 |
| <i>Delphinium recurvatum</i> | CA Rare Plant Rank 1B.2 |
| <i>Delphinium umbraculorum</i> | CA Rare Plant Rank 1B.3 |
| <i>Viola purpurea</i> subsp. <i>aurea</i> [<i>Viola aurea</i>] | CA Rare Plant Rank 2.2 |

Because part of Bitter Creek NWR is in Ventura County, it is appropriate to apply the Ventura Co. Locally Important Plants to plants documented, reported, or possible from Bitter Creek NWR that qualify as Special Status taxa were omitted from the Special Status Species discussion are the following:

| | |
|---|--------------------------------------|
| documented: | |
| <i>Chaenactis stevioides</i> | Ventura Co. Locally Important Plants |
| <i>Caulanthus inflatus</i> | Ventura Co. Locally Important Plants |
| <i>Eleocharis quinqueflora</i> [<i>Eleocharis pauciflora</i>] | Ventura Co. Locally Important Plants |
| <i>Mentzelia affinis</i> | Ventura Co. Locally Important Plants |
| <i>Mirabilis multiflora</i> var. <i>pubescens</i> | Ventura Co. Locally Important Plants |
| <i>Clarkia purpurea</i> subsp. <i>viminea</i> | Ventura Co. Locally Important Plants |
| <i>Tetrapteron palmeri</i> [<i>Camissonia palmeri</i>] | Ventura Co. Locally Important Plants |
| <i>Gilia latiflora</i> subsp. <i>davyi</i> | Ventura Co. Locally Important Plants |
| <i>Myosurus minimus</i> | Ventura Co. Locally Important Plants |
| <i>Plectritis ciliosa</i> subsp. <i>insignis</i> | Ventura Co. Locally Important Plants |

Quite a few native plant taxa documented or reported on Bitter Creek NWR have historical and/or current importance to the Chumash (J. Timbrook pers. comm.). A list of Culturally Important Plants (including rating of importance to the Chumash) documented or reported on Bitter Creek NWR was provided by Jan Timbrook (Santa Barbara Museum of Natural History, pers. comm. to me and to P. De Vries), using information available in her book (Timbrook 2007):

67

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| <i>Sambucus nigra</i> subsp. <i>caerulea</i> [<i>Sambucus mexicanus</i> , mispl.] | high importance |
| <i>Hesperoyucca whipplei</i> | high importance |
| <i>Lomatium californicum</i> | very high importance |
| <i>Asclepias eriocarpa</i> | high importance |
| <i>Asclepias fascicularis</i> | high importance |
| <i>Achillea millefolium</i> | moderate importance |
| <i>Baccharis salicifolia</i> | moderate importance |
| <i>Grindelia camporum</i> | moderate importance |
| <i>Hemizonia</i> [including <i>Deinandra</i> , <i>Centromadia</i>] | moderate importance |
| <i>Pseudognaphalium canescens</i> [<i>Gnaphalium canescens</i>] | moderate importance |
| <i>Amsinckia intermedia</i> [<i>Amsinckia menziesii</i> var. <i>intermedia</i>] | moderate importance |
| <i>Plagiobothrys nothofulvus</i> | minor importance |
| <i>Lepidium nitidum</i> | moderate importance |
| <i>Lonicera subspicata</i> var. <i>denudata</i> | moderate importance |

U.S. Fish & Wildlife Service Response

Response 15-68. Comment noted.

Response 15-69. Comment noted.

67
cont

| | |
|---|----------------------|
| <i>Chenopodium californicum</i> | moderate importance |
| <i>Juniperus californica</i> | high importance |
| <i>Ephedra viridis</i> | high importance |
| <i>Acmispon glaber</i> [<i>Lotus scoparius</i>] | low importance |
| <i>Quercus berberidifolia</i> | moderate importance |
| <i>Quercus douglasii</i> | moderate importance |
| <i>Ribes quercetorum</i> | moderate importance |
| <i>Juncus balticus</i> | high importance |
| <i>Juncus effusus</i> var. <i>pacificus</i> | moderate importance |
| <i>Salvia carduacea</i> | moderate importance |
| <i>Salvia columbariae</i> var. <i>columbariae</i> | very high importance |
| <i>Calochortus venustus</i> | high importance |
| <i>Toxicoscordion</i> [<i>Zigadenus</i>] | minor importance |
| <i>Calandrinia ciliata</i> | very high importance |
| <i>Claytonia perfoliata</i> | high importance |
| <i>Pinus monophylla</i> | very high importance |
| <i>Distichlis spicata</i> | moderate importance |
| <i>Leymus condensatus</i> [<i>Elymus condensatus</i>] | high importance |
| <i>Muhlenbergia rigens</i> | high importance |
| <i>Rumex hymenosepalus</i> | moderate importance |
| <i>Populus fremontii</i> subsp. <i>fremontii</i> | high importance |
| <i>Populus trichocarpa</i> [<i>Populus balsamifera</i> subsp. <i>trichocarpa</i>] | high importance |
| <i>Salix exigua</i> | high importance |
| <i>Salix laevigata</i> | high importance |
| <i>Salix lasiolepis</i> | high importance |
| <i>Datura wrightii</i> | very high importance |
| <i>Nicotiana quadrivalvis</i> | very high importance |
| <i>Dichelostemma capitatum</i> | very high importance |
| <i>Typha angustifolia</i> | moderate importance |
| <i>Typha domingensis</i> | moderate importance |
| <i>Urtica dioica</i> subsp. <i>holosericea</i> | moderate importance |
| <i>Verbena lasiostachys</i> | minor importance |
| <i>Phoradendron serotinum</i> subsp. <i>tomentosum</i> | moderate importance |

68

The Special Status plants documented, reported, or possible on Blue Ridge NWR (3.3.7 Special Status Species) were *Brodiaea insignis* [CA Rare Plant Rank 1B.2] and *Clarkia springvillensis* [CA Rare Plant Rank 1B.2].

69

Based on taxa in the California Department of Fish & Game Special Animals List and/or inclusion in Appendix 4.2.7, among the Special Status animals included for Bitter Creek NWR (3.2.7 Special Status Species) that were omitted are the following:

- reported:
- Bald Eagle
 - Sharp-shinned Hawk
 - Cooper's Hawk
 - Swainson's Hawk
 - Merlin
 - Peregrine Falcon
 - Prairie Falcon
 - Long-billed Curlew
 - California Gull
 - Long-eared Owl
 - Short-eared Owl
 - Costa's Hummingbird
 - Rufous Hummingbird
 - Lewis' Woodpecker

69
cont

Red-breasted Sapsucker
 Nuttall's Woodpecker
 Olive-sided Flycatcher
 Loggerhead shrike
 Oak Titmouse
 Bewick's Wren
 Bewick's Wren
 California Thrasher
 Le Conte's Thrasher
 Spotted Towhee
 Rufous-crowned Sparrow
 Black-chinned Sparrow
 Vesper Sparrow
 Lark sparrow
 Vesper Sparrow
 Grasshopper Sparrow
 Black-headed Grosbeak
 Bullock's Oriole
 Lawrence's Goldfinch
 Western mastiff bat
 Nelson's Antelope Squirrel
 San Joaquin pocket mouse
 Western spadefoot
 Blainville's horned lizard
 possible:
 Kern primrose sphinx moth
 blunt-nosed leopard lizard
 giant kangaroo rat
 short-nosed kangaroo rat
 agile kangaroo rat
 vernal pool fairy shrimp
 valley elderberry longhorn beetle
 California red-legged frog
 Buena Vista Lake shrew
 Vaux's swift

70

The Kern primrose sphinx moth has been found on the Carrizo Plain National Monument and in Ballinger Canyon, both near Bitter Creek National Monument. In a personal communication, Peter M. Jump (entomological consultant) said that "there is a good chance the sphinx may occur on Bitter Creek, especially on the lower drainages flowing north toward the central valley". Therefore, the Kern primrose sphinx moth deserves specific mention in section 3.2.7 Special Status Species.

71

The draft CCP/EA and appendices would be easier to read and assess if the various sections and tables were consistent for all three Refuges. That the types of information provided and the styles in which they are provided differ considerably among Refuges makes comparing information for the Refuges complicated.

Tables such as the lists of plants and animals for the Refuges should be consistent among Refuges. If families are identified in a list for one Refuge, they should be identified in all.

Plant and animal nomenclature should be standardized across all lists and other uses and a nomenclature sources identified. Plant scientific names for Hopper Mountain NWR and Bitter Creek NWR lists (Appendix E-1, Appendix E-3) appear to come from the first Jepson Manual (Hickman 1993), with a few from the second Jepson Manual (Baldwin et al. 2012). Plant scientific names for the Blue Ridge NWR list (appendix E-6) appear to have come from Munz (1958 and/or 1968). The result of this mixture is that there are names on the lists of taxa for which different names are now applied to the plants

U.S. Fish & Wildlife Service Response

Response 15-70. The Kern primrose sphinx moth was added to the special status species section of the Final CCP, Chapter 3.

Response 15-71. Same as response 15-49. Page 59 of the Draft CCP addresses bush lupine (*Lupinus excubitus*), found in Central and South Coastal Seral Scrub at Bitter Creek NWR; and page 38 of the Draft CCP/EA addresses small fescue (*Vulpia microstachys*), found at Hopper Mountain NWR in California Annual and Perennial Grassland. In Appendix E, another common name is listed for *L. excubitus*, "grape soda lupine." In Appendix E, another common name is listed for *Vulpia microstachys*. The Final CCP/EA will include 1 common name for each species. The misspelling of *Vulpia* in Appendix E was corrected in the Final EA.

U.S. Fish & Wildlife Service Response

Response 15-72. The error in the scientific name for California jewelflower has been corrected to *Caulanthus californicus* in Table 2.2 of the Final EA. The Grazing Plan has been revised and the common name 'chocolate lily' has been replaced by 'stinkbells.'

Response 15-73. The common name noted (for *Apocynum cannabinum*) that may be offensive to some was replaced with another commonly used name, "hemp dogbane."

Response 15-74. Same as response 15-7.

Response 15-75. The nomenclature for the various plant communities/cover types was made consistent throughout the CCP/EA and appendices (including the Grazing Plan).

71
cont

in the areas where the Refuges are found or that do not occur in California (e.g., *Agrostis alba* on the Blue Ridge list).

Common names should be consistent across all the lists in the CCP/EA and appendices and no common name should be used for which a scientific name is not provided at least once. Use of a common name used for more than one taxon or more than one common name for the same taxon can be very confusing. Lists of common names for plants can be found with each taxon on the Jepson Interchange.⁶ I found 'bush lupine' and 'small fescue' used as common names, but I could not find them identified with scientific names. I found common names specific to infraspecific taxa used at the specific level and vice versa. The common names 'mule deer' and 'black-tailed deer' were used as common names, apparently for the same species. The common name 'wild oats' is applied to multiple *Avena* taxa, and does not convey much information as to which of several species occurs on a Refuge, in a vegetation/plant community type (e.g., 'annual grassland) or a particular part of a Refuge (e.g., see Table 2, draft Prescribed Grazing Plan).

72

It is important that the common name used be appropriate to the scientific name. In Bitter Creek NWR Alternatives Table 2.2 Goal 2, *Caulanthus coulteri* var. *lemmonii* (*Caulanthus lemmonii*, Lemmon's jewelflower) is mistakenly identified as California jewelflower (*Caulanthus californicus*). While both should be considered Special Status species for Bitter Creek NWR, *Caulanthus californicus* is the a federal and California Endangered Species [California Rare Plant Rank 1B.1], while *Caulanthus coulteri* var. *lemmonii* (*Caulanthus lemmonii* is CA Rare Plant Rank 1B.2. The common name 'Chocolate lily' (see Table 1, Bitter Creek NWR draft Prescribed Grazing Plan) is more commonly applied to *Fritillaria biflora* than to *Fritillaria agrestis*. *Fritillaria biflora* has not been documented or reported on Bitter Creek NWR and is not considered a Special Status species.

73

An effort should be made to avoid possibly 'racist' common names. The Jepson Manual (Baldwin et al. 2012) does not use 'Indian' in common names except those related to the India or the Indian subcontinent. As a Cheyenne friend of mine rather pointedly put it, the use of 'Indian' for Native American is seen by many as 'subtly racist' (D. LeFever, pers. comm.).

74

'Vegetation' and 'vegetative' are quite different in meaning. 'Vegetation' is a collection of plants found together in a particular area or habitat while 'vegetative' is reserved for uses dealing with growth and development, as opposed to sexual reproduction (e.g., use in Barbour and Billings 2000, Barbour and Major 1977, 1988, Barbour et al. 1980, Billings 1970, Gottlieb & Jain 1988, Stebbins 1974, Stuessy 1990). 'Vegetational' or 'vegetation' is the standard adjectival form of 'vegetation'.

75

The same names should be used for the same vegetation types throughout the draft CCP/EA and appendices. For example, the only names used for vegetation at Hopper Mountain NWR through out the documents should be the names used in section 3.1.5, at Bitter Creek NWR the names used in section 3.2.5, and for Blue Ridge NWR the names used in section 3.3.5. As currently written, there are quite a few different sets of names used for vegetation in different parts of the CCP/EA and appendices. For example, the names in section 3.2.5 do not match those in the draft Environmental Assessment or the Bitter Creek NWR draft Prescribed Grazing Plan).

3.2.5 Vegetation ["Nomenclature for vegetation types generally follows that of *A Manual of California Vegetation*, Second Edition (Sawyer et al. 2008)"]
California Naturalized Annual and Perennial Grassland
California annual grasslands
Non-native Grassland
California Annual Herb-land
Wildflower Field [CDFG: high priority for inventory]
California Perennial Grassland
[CDFG: high priority for inventory]
Central and South Coastal Seral Scrub
California Juniper Woodland

⁶ accessible through search by taxon: <http://ucieps.berkeley.edu/interchange/>

Mixed Saltbush Scrub
 Mixed Scrub Oak/Single Leaf Pinyon Pine Woodland
 Riparian Woodland and Scrub
 Other Vegetation Types
 remnant ornamental
 orchard
 marsh vegetation [wet depression near Refuge office, around man-made ponds and tanks]
 pure stand of western chokecherry
 Draft Environmental Assessment
 Chapter 1
 grasslands
 oak woodlands
 riparian and wetland
 Chapter 2
 grasslands
 riparian and wetland
 oak woodland
 Table 2.2
 grasslands
 headland oaks
 woodland and savanna
 riparian and wetland
 Alternatives B & C
 grasslands
 riparian and wetland
 oak woodland
 4.2.5 Vegetation
 grasslands
 riparian areas
 oak woodlands
 Appendix 1
 riparian/wetland
 upland/woodland
 Compatibility Determination
 Use: Grazing
 annual grassland types
 draft Prescribed Grazing Plan
 Table 2
 annual grassland
 shrubs
 mixed herb and grass
 Alvord oak woodland
 California juniper woodland
 Mixed saltbush
 chokecherry thicket
 Table 2
 annual grassland
 perennial grassland
 mixed herb and grass
 wet depression/wetland
 riparian scrub
 riparian forest
 shrubs
 mixed saltbush
 western chokecherry thicket
 Alvord oak woodland

U.S. Fish & Wildlife Service Response

[response 15-75 is provided on the previous page]

U.S. Fish & Wildlife Service Response

Response 15-76. Same as response 15-75.

Response 15-77. Same as response 5-113.

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cont

California juniper woodland
Ailanthus stands
Figure 5. Vegetation/land cover
CA juniper woodland
annual and perennial grassland
perennial grassland
CA annual herb/grass vegetation
allscale scrub
mixed scrub and juniper woodland
non-native trees
chokecherry thicket
riparian woodland and scrub
Central and South CA seral scrub
Alvord oak woodland
CA warm temperate marsh/seep
developed/disturbed
Table 4. management units
California Annual Grassland
Native Perennial Grassland
California Buckwheat
Mixed Saltbush Scrub
Alvord (Scrub) Oak
Riparian Scrub
Bush Lupine Scrub
Rubber Rabbitbrush
Goldenbush Scrub
Shrubs
California Juniper Woodland/Savanna
California Juniper Woodland
Singleleaf Pinyon Pine
Red Willow
Wetlands

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Footnotes 2, 3, and 4 with Table 2 in the draft Prescribed Grazing Plan provide additional vegetation terminology (e.g., Valley grasslands) but do not refer to the CCP section 3.2.5 Vegetation nomenclature or any of the other terminology used in the EA or in the appendices, thus adding an addition layer to the mix. The imprecision in vegetation nomenclature not only confuses the reader but also could result in inadvertent errors in implementing management.

USFWS needs to carefully and completely define and map each and every vegetation type designated as occurring at each Refuge, including a list of all plant taxa that are used to define a particular vegetation type, including citation of pertinent literature. Data provided by Lawrence (1983), Werner (1997), De Vries (2009a,b, 2010a,b), as well as the CNPS grassland survey (Buck-Diaz et al. 2011), need to be integrated into the vegetation maps.

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Since much of the proposed management centers on 'grasslands', it is particularly that a complete, accurate, and comprehensive definition be given for 'grassland', 'annual grassland', 'perennial grassland', 'native' grassland', 'California Naturalized Annual and Perennial Grassland', 'California Perennial Grassland', etc. The only definition of 'perennial grassland' I could find was footnote 2 in Table 2 in the Bitter Creek NWR draft Prescribed Grazing Plan. However, it is not clear whether USFWS is among those who have chosen to accept >10% combined relative cover of all perennial grasses as defining 'perennial grasslands' as per Stromberg et al. 2007a. In her study of similarity among California 'native grasslands', Schiffman (2007b) decided that "[b]ecause there is ambiguity about the definition of 'grassland,' [her] analysis was limited to low-stature native plants that could be considered to be grassland species, at least in a broad sense (grasses, graminoids, annual, biennial, and perennial forbs, geophytes, and subshrubs)".

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'Range type' is not defined in the Glossary (Appendix A). 'Range type' should not be equated with vegetation type. Management of vegetation on Bitter Creek NWF (and the other Refuges) should be based on the latter, not the former.

As I pointed out in my comment (Painter 2010) on the Independent Rangeland Review (George and McDougald 2010), I think it is important that USFWS consider the possibilities for concerning the pre-settlement vegetation of Bitter Creek NWR. I would like to expand this suggestion to the other two Refuges.

In considering what the original vegetation may have been (and what the target vegetation for restoration might be), land managers need to consider the following information:

Twisselmann 1967, pp. 188-189

"Ecologists frequently assert that [*Stipa cernua*] was one the dominant grass in the valley grassland and that it has been replaced by annuals because of grazing; there is little evidence to support this view at least for the upper San Joaquin Valley and surrounding foothills. While the historical record is not detailed, the writings of early explorers strongly imply it was a region of winter annuals (Jose Maria Zalvidea in 1806; John C. Frémont in 1844; Charles Preuse in 1844; William Ingraham Kip in 1855; and William Brewer in 1863. "The scant rainfall furnishes an even stronger argument; it is extremely doubtful that a perennial grassland ever existed in a region with a median rainfall of less than six inches. Despite a century of grazing, [*Stipa cernua*] still grows in dense colonies in the foothills in light soils on open slopes in regions with more than eight inches of rainfall. Dense and extensive stands may have grown on flats and valleys in the hills; if so, these were destroyed by tillage, not grazing. Some of the best surviving colonies in eastern San Luis Obispo County grow in the Pinole Hills; here an entire colony of German settlers abandoned their homesteads when their last horse starved in the dry year of 1898 (Mrs. Nellie King Cooper, oral communication).

"Thus, it is reasonable to assume that the present annual grassland of the upper San Joaquin Valley did not replace a perennial grassland in which *Stipa cernua* was a dominant but a vegetation of native annuals; in this process grazing played an important but far from fully understood role."

Hoover 1970, p. 13

"Extensive areas toward the east were clearly treeless in their primitive state, but it is also known that many trees have been, and are being, removed from rangelands. It is therefore sometimes difficult to determine whether an herbaceous community represents the natural condition of a specific locality. I am not convinced that grasses were originally particularly abundant in such communities, and therefore prefer the term 'herbaceous' to 'grassland.' In any case, native grasses are not now a conspicuous element in the flora of the area in question. Herbaceous communities differ conspicuously from one another, because of soil differences and local climates."

Wester 1981

"...early accounts of Spanish and Anglo-Americans provide some information about their former condition. They suggest that the dry alluvial fans of the San Joaquin Valley, which account for 60 percent by area of California grasslands, were dominated by annual species and xerophytic shrubs. Perennial bunchgrasses were common only on certain well-watered floodplains."

Keeley 1990

"Bartolome and Gemmill (1981)...*S. pulchra* established seedlings most readily on bare ground but poorly under a cover of litter, a situation typical of an undisturbed grassland. They suggested that one should expect a 'climax' species to recruit seedlings without disturbance and therefore this species probably was not one of the dominant grassland species of the pristine prairie."

Blumler 2002

"Initially, grazing was concentrated in what is now known as 'valley grassland,' as well as the interfingering oak park forests, which together covered much of the lower elevation portions of the State (Griffin, 1997; Heady, 1997)." These ecosystems sport an extremely high

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U.S. Fish & Wildlife Service Response

Response 15-78. The Grazing Plan now includes the statement: "The potential for Bitter Creek NWR to have been previously dominated by native perennial grasses is uncertain, as for most of the California grassland (Bartolome et al. 2008)." Furthermore, management guidelines are focused on providing habitat for special status species based on structural characteristics of the vegetation and monitoring of special status species populations. None of the documents make the assumption that perennial grassland was the pre-settlement vegetation type on the refuges.

[response 15-78 is provided on the previous page]

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number of endemic plant species, most of them flowering annuals (Raven and Axelrod, 1978; Blumler, 1992b). But today the herbaceous cover is dominated by introduced plants from the Mediterranean region, also mostly annuals, which have been spreading in California since before Spanish settlement (Blumler, 1995; Mensing and Byrne, 1997)."

"Paleobotanical (phytolith) investigation of a single site suggests that perennial bunchgrasses such as needle grasses (*Nassella* spp.) may have been more common than they are today (Bartolome et al., 1986). In contrast, geographers examining the earliest accounts left by Spanish and other explorers have concluded that native annuals dominated many areas (Wester, 1981; Blumler, 1992b, 1995; Mattoni and Longcore, 1997; Minnich and Dezzani, 1998; Minnich and Franco Vizcaino, 1998). Current habitat preferences of native species also suggest that native annuals have been displaced to a greater extent than native perennials. Moreover, although spectacular displays of native annual wildflowers still occur, they have been declining for at least the past century (Roof, 1971). In contrast, there is little evidence for significant decline of bunchgrass abundance during the same time period. Nonetheless, environmental NGOs, such as the Nature Conservancy that are concerned with biodiversity conservation, and government agencies overseeing parks and preserves have almost unanimously assumed that the pre-European ecosystem was bunchgrass-dominated. Management tends to focus on expunging alien species and 'restoring' a bunchgrass landscape."

"Clements (1920, 1934) first claimed that perennial bunch-grasses were the natural dominants of California grasslands, based on his model of succession. Evidence he presented to support his opinion was weak (Blumler, 1995), whereas under today's paradigm about succession, it is plausible that annual plants could have dominated (Blumler, 1984). Before Clements came to California, a consensus had long existed that the grassland was naturally dominated by annuals. Yankee settlers in the mid-nineteenth century quickly accepted this as fact and managed their livestock accordingly. They understood many facets of California range ecology that scientists had to relearn in the twentieth century, in part because the scientists were misled by Clementsian theory."

"...our emphasis should be on biodiversity, not on landscape and on native species number, not native purity. Prior to 'restoration,' the area should be surveyed and the native species already present identified. Native species should be carefully monitored to ensure that none are seriously harmed by the manipulations used to favor bunchgrasses or oaks."

Jackson and Bartolome 2007

"...searching for edaphic and geographic correlates with *N. pulchra*, Bartolome and Gemmill (1981) rejected the notion that this species represented relictual dominance and hypothesized that it likely is a disturbance-adapted species that finds refuge in places where light is less limiting than belowground resources."

Keeler-Wolf et al. 2007

"*Nassella pulchra* (purple needle grass) has been considered the flagship species of the bunchgrasses (Clements 1934; Kuchler 1964; Heady 1988; Holland 1986), but its past role and extent in the Central Valley and the central and southern coast regions of California are currently being debated (Wester 1981; Brown 1982; Hamilton 1997a; Stromberg et al. 2001; Holstein 2001). Some ecologists have concluded that purple needle grass was not the overall dominant but rather was the most opportunistic, r-selected bunchgrass, which explains why it is the most common and widespread bunchgrass in today's disturbed grassland."

Schiffman 2007b

"Frederic E. Clements' (1934) relict analysis indicated that the perennial bunchgrass *Nassella pulchra*...had been the historical dominant in California's grasslands. ...Clements' reputation as a leading twentieth-century ecologist led to the acceptance of his hypothesis among California biologists (e.g., Piemeisel and Lawson 1937; Munz and Keck 1959; Burcham 1961; Heady 1988). However, the relatively mesic and periodically burned fragments that were Clements' exemplars did not constitute a good representation of the wide range of habitats that supported grassland vegetation in California. In addition, as Hamilton (1997a) convincingly explains, the scientific basis for Clements' hypothesis was shaky because it relied upon little real data and several erroneous assumptions. Nevertheless, relatively

[response 15-78 is provided on a previous page]

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recent references that discuss California grassland composition and ecology in detail still usually identify *N. pulchra* as the likely historically dominant species (Heady 1988; Schoenherr 1992; Holland and Keil 1995), and field studies, particularly those focused on conservation and restoration, have continued to give more attention to *N. pulchra* than to any other native grassland species. However, it has also been suggested that several other perennial grasses (e.g., *Poa secunda*, *Leymus triticoides*, *Melica* spp., *Muhlenbergia rigens*) were historically more important community constituents in some environments (Keeley 1990; Heady et al. 1992; Holland and Keil 1995; Holstein 2001)."

"But what about the historical importance of forbs? Historical accounts, though limited in ecological detail, did clearly point to the impressive diversity and cover of colorful spring wildflowers. Even Clements recognized perennial forbs as 'subdominants' and stated that 'even more typical are the great masses of annuals, representing more than 50 genera and several hundred species' (Clements and Shelford 1939: 288). ...Clements' endeavor to draw ecological linkages between California's grasslands and those of the Midwestern United States demanded that he emphasize perennials, especially grasses (Hamilton 1997a), despite the ubiquity of so many annual forbs."

"The ruderal nature of annual plants (Grime 1979a) was another feature of California's native forbs that precluded Clements from considering them to be ecologically important. By definition, he viewed climax communities as generally stable associations of species that developed through succession (Hamilton 1997a). So, although vegetation make up of weedy, invasive, non-native annuals including *Avena*, *Bromus*, *Hordeum*, *Festuca* (*Vulpia*), and *Erodium* was considered a 'proclimax' community, a stable community dominated by an association of disturbance-adapted native annual plants completely violated his theoretical framework and, therefore, went unrecognized. Today, it is well known that native forbs repeatedly reappear on the same sites or decades, though their covers vary with annual rainfall amounts. In addition, soil disturbances by small burrowing mammals, herbivory, periodic fires, and environmental management by Native people were integral ecosystem processes that had compositional consequences including the promotion of annuals (Blumler 1992; Hobbs and Mooney 1995; Painter 1995; Schiffman 2000; Reichman and Seabloom 2002; Keeley 1990, 2002; Anderson 2005). Surely, the endurance of native annual forbs in California's grasslands and their apparently adaptive interactions with other organisms and processes reflects their historical ecological significance."

"In recent years, researchers have used evaluations of historical accounts, floristic surveys, relict analyses, and modern experimental and comparative findings to propose alternatives to Clements' vision of California's grasslands composition. Several of these reconstructions have suggested that annual plants, rather than *N. pulchra* or other perennial grasses, had been the most ecologically important species in much of southern California and relatively arid inland environments including the Central Valley (Talbot et al. 1939; Twisselmann 1967; Western 1981; Blumler 1995; Holstein 2000, 2001; Schiffman 2000, 2005). In more mesic areas, annual forbs still constitute a diverse group of plants. ...These habitats continue to support very large numbers of native species, particularly forbs, just as they did when Europeans first encountered them."

Minnich 2008

"The diarists had a mandate to look at California from a 'barnyard/resource' point of view, with the intent to establish a mission system and to convert the indigenous population to Christianity."

"Most Spanish entries [in diaries] use *pasto* and *zacate* (*sacate*) to describe dry herbaceous cover, or variations of the words, such as *pastales* and *zatatón*.... The Velázquez Spanish-English dictionary describes *zacate*, a Nahuatl word from central Mexico, as 'grass, herbage, or hay.' It can also refer to forbs (E. Franco-Vizaino, pers. comm.). *Pasto* is defined from an agrarian perspective as 'pasture,' and 'the grass which serves for the feeding of cattle'. The Velázquez dictionary also equates *pasto* with *hierba*, which means an 'herb, a plant not possessing a woody stem, but dying down after flowering'.... *Pasto* also means 'green food for cattle, grass (chiefly in plural, pasturage and grass.' In view of these definitions, *pasto* and *zacate* doubtless have various meanings from one region to another. *Zacate* can refer to any form of grass, even a lawn. In the Chihuahuan Desert, *zacate* was used to [refer] to

Response 15-79. The Service is evaluating the effects of plants on sensitive animal species through peer-reviewed research on the efficacy of grazing as a restoration tool for native animals (Germano 2012). Language has been added to the adaptive management sections of the Grazing Plan to monitor the effects of management on sensitive plant and wildlife populations.

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Erodium cicutarium, the dominant forb there, and other ephemeral ground cover (A. Kaus, pers. comm.). Other words used for 'grass' consistently refer to plants in riparian settings, not broad scale cover. The word *pajon* (*pajonales*), meaning 'tall grass,' was used only once in apparent reference to *Sporobolus* near a river. At one swampy locality, Garcés found a plant that looked like rye (*centano*), very likely *Elymus condensatus*, now called wild rye (the whole genus is called wild rye; Brewer 1883). Other words include *carrizo* (reeds) and *tule*, plants that both grow near streams or in swamps. *Prado* was used in the traditional usage, 'wet meadow.' The antonym for 'pasture' is *esteril*, which means barren, sterile, or unproductive. Perhaps most significant is that words that traditionally refer to 'bunch grass' such as *grama*, *sabaneta*, or *zacate amacollado*, never appear in the diaries. In addition, the word *grama*, is Spanish and refers to a couple of species from Spain, but can also refer to pasturage (E. Franco-Vizaino, pers. comm.)."

"The Spanish expeditions never examined herbaceous cover of interior California in the winter growing season, but the Crespi and Fages expedition of 1772 and the second Anza expedition of 1775-76 reached the Central Valley at Antioch just after herbaceous cover had cured. Crespi and Fages also traversed the Central Valley, both journeys in summer, but their brief journals left little record of the vegetation. All these expeditions leave the same impression: a spectacular barrenness of the interior in the dry season (Wester 1981), in striking contrast with coastal pastures. In contrast with the coast, no burns were described in the interior except in tule swamps."

"A few accounts by the Franciscans suggest that the interior valleys of southern California lacked good forage for livestock in summer. ...Not only had the winter herbage dried out, but so little residue was left that the cracks of the earth and the soil were the most conspicuous aspect of the landscape."

"When he [Fages] traveled the plains near Bakersfield, he wrote that he was 'passing by dry lagunas...and a level plain much undermined by pocket gophers [*tusas*]. His observations of a landscape of rodent tailings suggest that vegetation was too sparse to obscure them."

"The Zalvidea expedition provided an unwelcoming assessment of the southern San Joaquin Valley. The western and central Cuyama Valley was 'arid and saline [with] ...no grass' (July 22-23, 1806). The eastern Cuyama Valley was 'arid, without herbage... [but] pasture grew on the nearby hills' (July 24). ...He wrote that the southern San Joaquin Valley 'from north to south... is surrounded by hills which make a semicircle. All this territory is covered by a species of herb which has a little stem with a yellow flower, the stalk being no more than a quarter [of a yard] high. All the hills which encircle this area have also a little herbage that... is not very dense' (July 28-30). The flower appears to be a tarweed (*Hemizonia* spp. or *Madia* spp.)."

USFWS also needs to consider which plants, particularly which native plants, are important in the lives of the native animals found on the Refuges. Many of the native plants are essential food items for some of the Special Status animals, while other native plants provide habitat⁷. What would be the impacts to the

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⁷ As part of my contributions as an advisor for the Refuge, I sent USFWS personnel an Excel worksheet with preliminary information on which native plants documented or reported on Bitter Creek NWR were reported diet and/or habitat components of which animals reported on or near the Refuge 18 May 2010. Examples: *Sambucus nigra* subsp. *caerulea* has been reported for California quail, Lewis's woodpecker, northern flicker, Steller's jay, cedar waxwing, western bluebird, white-crowned sparrow, song sparrow, wren, northern mockingbird, American robin, spotted towhee, hermit thrush, phainopepla, Bullock's oriole, Anna's hummingbird, rufous hummingbird, black bear, mule deer, tule elk; *Deinandra pallida* has been reported for California quail, mourning dove, horned lark, western meadowlark, red-winged blackbird, Brewer's blackbird, wren, spotted towhee, lesser goldfinch, white-crowned sparrow, golden-crowned sparrow, savannah sparrow, lark sparrow, song sparrow, desert cottontail, California ground squirrel; *Amsinckia douglasiana* has been reported for California quail, mourning dove, horned lark, western meadowlark, Lawrence's goldfinch, California ground squirrel; *Bromus carinatus* has been reported for California quail, horned lark, savannah sparrow, vesper sparrow, lark sparrow, white-crowned sparrow, golden-crowned sparrow, song sparrow, desert cottontail, Heermann's kangaroo rat, giant kangaroo rat, mule deer, tule elk.

79 cont native animals if these native plants were reduced or extirpated? This is another part of ensuring that the plants and animals come first, before other uses (Chapter 1 section 1.2 draft CCP).

(3) Comments on CHOICES OF LITERATURE CITED

In Chapter 1 section 1.2 of the draft CCP, USFWS says that Service is preparing this plan for these refuges to "[p]rovide a scientific foundation for refuge unit management". Too much of the cited literature in the draft CCP/EA and appendices is only loosely or not directly applicable to the Refuges.

I was disappointed that USFWS appeared to casually dismiss most of my comments (Painter 2010) on the Independent Rangeland Review (George and McDougald 2010). The references I provided were much more applicable to Bitter Creek NWR than many of those used in the CCP/EA and appendices.

If, as USFWS contends "research investigations and continuous monitoring surveys would be necessary to address the many uncertainties associated with vegetation management in xeric Mediterranean climates", then even more research and monitoring would be necessary to test the applicability of studies of non-xeric or non-Mediterranean-climate vegetation.

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As USFWS points out in the Bitter Creek NWR draft Prescribed Grazing Plan, "generalizations about grassland vegetation response to livestock grazing between California's mesic coastal grasslands and xeric interior grasslands are tenuous". It is a much much greater stretch to extrapolate from the tropical savannas of the Serengeti (McNaughton 1985) to the grassland, woodland, and shrubland vegetation of interior Mediterranean-climate California. Bratton (1990), Bratton and Fryer (1990), Bullock et al. (2001) and Carvell (2001) were conducted in Great Britain and Europe. Squires (1982) was conducted in Australia.

None of the species discussed in Boser and Reader (1995) grow on any of the refuges and the effects of removing litter in eastern Canada may be quite different than effects in interior California. Neither of the Midwestern species of *Solidago* studied by Goldberg and Werner (1983) occurs in California, nor does *Primula alkalina*, a northern Rocky Mountain species studied by Muir and Moseley (1994). There are no invasive or non-invasive Commelinaceae on any of the Refuges (Burns 2004). Thus, none of these studies is readily applicable to the Refuges. Facelli and Pickett 1991 did their work in old fields in New Jersey. Knapp and Seastedt (1986) was a study conducted on tallgrass prairie on the Kansas. Panzer (1988) looked at small isolated prairie remnants in the Midwest. Evans and Young 1970 worked in the Great Basin.

As USFWS points out in the Bitter Creek NWR draft Prescribed Grazing Plan, "generalizations about grassland vegetation response to livestock grazing between California's mesic coastal grasslands and xeric interior grasslands are tenuous". Considerable research and monitoring would be necessary to test the applicability of studies of vegetation types or habitats not occurring on the Refuges, even if cited studies were conducted in xeric areas or Mediterranean-climate vegetation.

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Finding appropriate literature to cite concerning livestock grazing impacts to native plants and native vegetation is not always easy, nor the applicability to the regions including Bitter Creek and Hopper Mountain NWRs. As D'Antonio et al. (2003) pointed out, "[a]lthough an extensive literature documents the impact of grazing effects in [non-native-dominated] California annual grasslands (e.g. Heady 1956, 1958, Pitt and Heady 1979, Rosiere 1987, Bartolome and McClaran 1992), relatively few studies have examined the impact of grazing on native plants.... Of the studies that have considered the native flora, many lack replication and control plots..., complicating the interpretation of their results and limiting their applicability to other sites. Moreover, studies of grazing and native plants suffer from a narrow taxonomic scope, often focusing solely on *Assella pulchra*. Additionally, the spatial distribution of the existing studies is restricted to a small portion of the broad geographical range formerly occupied by California

U.S. Fish & Wildlife Service Response

Response 15-80. The drivers of grassland species composition are highly spatially variable and depend largely on abiotic site conditions. Adaptive management and monitoring sections have been expanded to address the lack of site-specific information. Response 5-22 provides more information.

U.S. Fish & Wildlife Service Response

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native grasslands...so regional variation in grazing effects cannot be reliably detected." However, it is very important that USFWS consider the applicability of every citation included in the draft CCP/EA and appendices. If applicability is not readily obvious, USFWS needs to justify use.

Hayes and Holl (2003) is [a] publication that merits careful review. There are issues with methodology that may be a limitation for generalization. I discussed Hayes and Holl (2003) in my comments on the Independent Rangeland Review (Painter 2010).

In their study, Hayes and Holl (2003) reported that "forbs represent the majority of species native to grasslands" and "the majority of grassland species diversity is not in the grass family", which may indicate that the areas studied may have been herblands (not 'grasslands') before settlement or that these relictual forbs that were more resilient to human impact than the taxa no longer present. They found that native annual forb richness and cover were greater in grazed sites and this effect coincided with decreased vegetation height and litter depth. Native grass cover and species richness did not differ in grazed and ungrazed sites but cover and species richness of native perennial forbs was higher on ungrazed sites. Hayes and Holl (2003) concluded that their results suggested that cattle grazing may be a valuable management tool to conserve native annual forbs and possibly other species of concern. This study was done in 'California coastal prairie' that is much more mesic (up than 84 cm (33 inches) annual rainfall during the study) than BCNWR (about 8–12 inches (ca. 20–30 cm) annually, M. Stockton personal communication), so it is much less applicable than studies done in habitats similar to BCNWR (e.g., the Carrizo Plain and nearby areas). Hayes and Holl used different methods in surveying for native annual herbs (7 minute survey time for grazed, 22 minute survey time for ungrazed), which could influence their results. The numbers of sites surveyed differed between years, so between year data may not be comparable. It appears that only 2 transects were surveyed at each site, which limits the robustness of some statistical tests (n=2, 1 degree of freedom), and no within site differences are reported. No data on individual taxa, common or rare, is provided so it is not possible to tell if there were similar suites of native taxa in the paired plots, nor to determine if more rare or very common taxa were found in one treatment than the other. There is no way to determine if the numbers of ruderals and local endemics varied between livestock grazing treatments or between sites. Thus, it cannot be determined whether rare plants actually benefited from or were adversely impacted by either treatment. There is no indication whether the sites were similar enough in species compositions of 'guilds' at each site to warrant combining all sites. Schiffman (2007a) found very limited similarity among the 'grasslands' she studied: only 1% of the plants species were present in all 'grasslands' studied. This could be a study of 'fruit salad' rather than 'apples' or 'oranges'. As Hayes and Holl pointed out, "[g]razing regimes for the sites varied with respect to duration, stocking rate, and timing", all of which could profoundly influence species composition and success. There is no species list nor any analysis of how many of the species occurred in multiple sites. To support of their contention that the areas studied were 'grasslands' before settlement, they used outdated literature to support, either ignoring the current primary literature or failing to do a sufficiently comprehensive literature search. For example, they cited Heady et al., which is not a primary source, but rather is one of a long series of publications that have perpetuated a Clementsian paradigm (Hamilton 1997). Despite their citation of Edwards 1992 (not peer-reviewed), there is very little evidence that there were significant numbers of grazers in California prior to the introduction of domestic livestock. As Dr. Herbert G. Baker eloquently pointed out, "a few bones do not thundering herds make" (H.G. Baker, personal communication to E.L. Painter). Well-respected experts in applicable fields, including G.L. Stebbins (1992) and H.G. Baker (1992), questioned many of Edwards's opinions in the Fremontia article. Joy Belsky (1992), Mark Blumler (1992, 1993), and Jon Keeley (1993) also weighed in to the Fremontia 'discussion'. Baker pointed out that Pleistocene megafauna in California "does not appear to have had a tremendous influence on grazing resistance by bunchgrasses" and that modern elk, pronghorn, deer, rodents, and lagomorphs, part-time grazers in the California 'grasslands', had a "minor selective influence". He also pointed out that "selective agents of the Holocene operated more recently than the Pleistocene factors, and we can expect that present-day taxa will reflect the more recent environment". The cited Axelrod (1985) paper is strictly about the Great Plains. It has nothing to do with 'grasslands' in California, and it is inappropriate (at best) to cite it as if it were relevant. The California 'grasslands' in which Hayes and Holl worked are very different from the 'mesic grasslands' of the Great Plains, with which they compare them. Both Stebbins (1992) and Baker (1992) discuss the differences between

Response 15-81. The Service reconsidered the applicability of citations included in the Draft CCP/EA and updated some (as listed in this appendix). Reference citations are provided in the various reference sections. Evaluating whether a reference's applicability is readily obvious can be subjective. Other responses to comments that questioned specific references cited in the report provide more information.

Response 15-82. Text and citations in the Bitter Creek NWR Prescribed Grazing Plan have been updated to include the most recent peer-reviewed literature. Some documents were changed to cite general principles rather than specific predictions about vegetation response. Some non-peer reviewed papers (e.g., Edwards 1992) were updated with more recent, peer-reviewed literature. Response 5-80 provides additional information.

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Response 15-83. Same as response 15-82.

Response 15-84. The salt marsh reference was removed from the Bitter Creek Grazing Management Plan.

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Great Plains and California grasses and environment and reasons why they are not comparable. The California 'grasslands' in which they worked have winter rains (falling mostly between November and April) and little or no measurable summer precipitation. The Great Plains can experience precipitation year-round, although the majority (ca. 75%) of the precipitation falls between April and August. Great Plains grasslands are dominated by native rhizomatous grasses. The California Mediterranean-climate 'grasslands' are often dominated by non-native annual grasses, having some native annual grasses and some native perennial bunchgrasses. There is compelling evidence that most of these non-native-annual-dominated 'grasslands' probably were not dominated by grasses before settlement.

Vernal-pool-management-related papers (e.g., Marty 2005, Pyke and Marty 2005, Griggs 2000) would applicable only if there are vernal pools on the Refuges, then only to the vernal pools and if the flora, fauna, hydrology, etc., were similar to the pools where the studies were conducted. I provided brief reviews of Marty (2005) and Pyke and Marty (2005) in my comments on the Independent Rangeland Review (Painter 2010):

Marty (2005) reported that removal of livestock grazing decreased native vernal pool plant and aquatic invertebrate species and application of livestock grazing increased these species but "ungrazed pools had 88% higher cover of exotic annual grasses and 47% lower relative cover of native species than pools grazed at historical levels (continuously grazed)" (Marty 2005). While Marty (2005) concluded that continuous grazing led to the highest relative cover by natives, figure 1 illustrated that ungrazed sites had the highest absolute cover of natives and continuous grazing had the lowest. No plant species lists were provided in Marty 2005, so there is no way of determining if increases and decreases in native plants represent widespread taxa, local taxa, obligate vernal pool taxa, rare taxa, etc. According to Jaymee T. Marty (personal communication to E.L. Painter), "it was the average number of native species that increased and decreased by treatment. In other words, I saw the average number of natives decline in the ungrazed plots, but I did not see species extinctions in any treatments. So, the species lists would likely be identical for the treatments", and information on which native and non-native plant taxa increased or decreased "will have to wait for my next series of analyses". Additionally, the inundation period of the pools was reduced in ungrazed pools, which (based on the Pyke and Marty 2005) model with hypothesized climate changes, could make it difficult for some endemic vernal pool taxa to complete their life cycle.

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Pyke and Marty (2005) evaluated the ecological implications of interactions between grazing and climate change for branchiopods and the California tiger salamander. Their grazing data covered 3 years from 1 ranch in eastern Sacramento County. They collected no data on salamanders (all extrapolations and modeling based on data from other sites) and data for branchiopods was not directly reported. No information was given on reproductive success of branchiopods with or without grazing in sampled pools. No information was provided about water quality in sampled pools nor how temperature changes might affect water quality (e.g., bacteria levels), nor how bacteria and other livestock-related pollutants might affect branchiopods and salamanders. Although their data was limited to a short time at a single ranch in the Sacramento Valley, their climate simulations covered more of the Central Valley over a 100-year time frame. The simulation model was based on the hypothesis that data (and conditions) for vernal pools in a localized area of the Sacramento Valley can be applied to all vernal pools in the Central Valley, despite possible soil differences, vegetation differences, weather pattern differences. The model extrapolations for 100 years are based on nothing changing except climate, even if livestock remained excluded for all 100 years (no recovery or natural revegetation anticipated). The assumption is made that changes in vegetation before experiment and in 3 years are permanent and unchanging over 100 years. Although the authors stated that "There is no a priori reason, however, to suspect that site or species-specific variation would confound or contradict the general pattern of results", there is also no a priori reason to assume that such variation would not. Based on the potential differences among vernal pools throughout the Central Valley and the limited time-frame of data collection (which may not have included rainfall and temperature extremes possible), there is no a priori reason to suspect that these are actually general patterns. Because of the limitations of this study, there is no reason to assume that it is applicable to BCNWR.

84 | There are no salt marshes on the Refuges. Papers on management of non-native plants that do not grow

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84 cont' on the Refuges are only applicable if the study sites are similar to the Refuges and the taxa are closely related to ones growing there.

85 Serpentine-related papers are applicable only if there is serpentine habitat on Refuges, then only to the serpentine areas. Huenneke et al. 1990 is a study conducted in a more mesic serpentine grassland in the Bay Area. Concerning serpentine-habitat grazing research, it should be noted that Harrison et al. (2003) found that "[g]razing increased native species richness on serpentine soils but not on nonserpentine soils." Thus, even if grazing were effective for very specific management on serpentine areas, it can be inappropriate to extrapolate from these studies to non-serpentine areas.

86 The draft CCP/EA and appendices (including the Bitter Creek NWR draft Prescribed Grazing Plan) appear to rely heavily on the annual reports and publications related to the Lokern studies, with at least 15 citations relating to the studies. When considering the 10-year-long Lokern studies, one needs to critically examine the data in all of the 1997–2006 annual reports (Germano et al. 1999–2006, Rathbun et al. 1997, 1998), the mid-study summary (Germano et al. 2001a), the in-press paper cited by USFWS (Germano et al. in press), and the only data-based peer-reviewed paper to have been published to date (Germano et al. 2012). Germano et al. (2001a) was published in the middle of the study and is a summary of the CPNM study with no methods section and few data. The results in Germano et al. (2012) may support not grazing, rather than grazing. They reported that "[b]ased on repeated measures analysis of variance (ANOVA) and a 0.05 alpha level, only Heermann's kangaroo rats showed a treatment effect; they were more abundant on the control plots. However, this effect could be accounted for by the natural re-establishment of saltbush (*Atriplex* spp.) on part of the study site. Saltbush return also favored western whiptail lizards and San Joaquin antelope squirrels." I made the following comments about the Lokern studies in my comments on the Independent Rangeland Review (Painter 2010):

There are a number of design problems apparent in 1997–2006 annual reports (Germano et al. 1999–2006, Rathbun et al. 1997, 1998). Stocking rates within the grazed areas varied between study plots and between years, so at least some of the between-plot data and between-year data may not be directly comparable. Kern mallow (*Eremalche parryi* subsp. *kemensis*, *Eremalche kemensis*) data from the 2004 through 2006 growing seasons were collected on different sampling belts than in previous years (see Germano et al. 2006 figure 4), which means that the later data are not directly comparable to the early data.

In his comments on the 2008 BCNWR draft EA, Michael J. Connor (2008) reviewed the data available in the annual reports in detail and discussed his findings:

87 "Germano et al. (2001) hypothesized that removing livestock grazing could result in localized extinction of native plants and animals that have 'evolved in sparsely vegetated habitats and rely on open ground to forage and avoid predation' due to a build of herbaceous cover from introduced grasses that creates an 'impenetrable thicket for small ground-dwelling vertebrates'. This particularly pertinent to Bitter Creek since Germano et al. suggested that this was relevant to populations of giant kangaroo rats (*Dipodomys ingens*), San Joaquin kangaroo rats (*D. nitratoides*), San Joaquin antelope squirrels (*Ammospermophilus nelsoni*), and blunt-nosed leopard lizards (*Gambelia sila*). However, long-term studies by these same and other researchers provide data to indicate that Germano et al.'s hypothesis does not apply to these species.

Germano et al. have been studying the efficacy of light grazing on these species at the Lokern study site that is located near to the Refuge. They have released annual reports of their surveys of the study site since 1997. These are available on the internet.⁸ The reports document observations of listed and sensitive species and habitat conditions. The Lokern Study Area control plots typically have 2 - 7 times more Residual Dry Matter than treatment (grazed) plots so would seem a useful model for evaluating build up of herbaceous cover. Although the authors frequently state in the reports that based on numbers of individuals observed listed species are more abundant on treated (i.e., grazed) plots species than control plots this fails to take into account the large disparity in the size of treated versus control plots (920 hectares versus 116 hectares) and ignores edge effects which are much larger on the smaller control plots. The differences in abundance between the control and treatment plots look very different when the

⁸ <http://www.csub.edu/~dgermano/GrazingWebSite.htm>

Response 15-85. Same as response 15-82.

Response 15-86. This citation was updated in the Grazing Plan to the published Germano 2012 paper which does support grazing for a suite of sensitive vertebrate species.

Response 15-87. The Service disagrees. The Germano et al. 2012 paper has undergone peer review and been published, unlike the Christian et al. (in prep) paper which had inconclusive results. It is presumed that the Germano et al. 2012 study followed reasonable methods.

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Response 15-88. The references in the Grazing Plan have been updated to Germano et al. 2012, which has undergone peer review and been published, unlike the Christian et al. (in prep) paper. It is therefore presumed to have sound methods.

Response 15-89. Citations in the Prescribed Grazing Plan for Bitter Creek NWR have been updated to include the most recent peer-reviewed literature. Williams et al. is not cited in the Grazing Plan because a more recent study (Germano et al. 2012) is, which is where the most recent, relevant, experimental data is used.

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cont

observations are normalized for plot size. For example, in Germano et al. 2006 the summed control areas support a density of blunt nosed leopard lizards of 1 per 22.5 acres or 10.5 hectares versus the summed treatment areas which support 1 per 34.5 acres or 13.7 hectares. Similarly, for San Joaquin Ground Squirrels the control areas support 1 per 3.3 acres or 1.5 hectares versus the summed treatment plots which only support 1 per 16.5 acres or 6.6 hectares. For both species the population densities are higher on the control versus treatment plots. Similar results are found with the other species of concern and for the other years.

A long-term study is also underway on the Carrizo National Monument, specifically designed to evaluate the effects of grazing on native plants and giant kangaroo rats, prey for the San Joaquin kit fox, creating burrows used by the San Joaquin antelope squirrels and blunt-nosed leopard lizards and (through vegetative clipping and seed harvesting) creating habitat for the endangered San Joaquin species. This study is being conducted by the BLM, The Nature Conservancy, the California Department of Game and Fish, and researchers from Sonoma State University. Despite a working hypothesis that cattle grazing would benefit native species, the results of the study has concluded that two of the primary management objectives for using grazing as a management tool, enhancing native species and decreasing exotic plant species, cannot be supported. Similarly, although the study was undertaken with the hypothesis that grazing would have a positive effect on giant kangaroo rat habitat by removing exotic grass, the study has shown that grazing has had a negative effect for four years and no effect for the other two years studied. Results of this study are being readied for publication (Christian et al. in prep. Cited in EA CA169-07-009).⁹

Although the draft CCP/EA and appendices (including the Bitter Creek NWR draft Prescribed Grazing Plan) rely heavily on unpublished reports from the Lokern study Germano et al. 1999–2006, Rathbun et al. 1997, 1998, equally relevant unpublished grazing studies from the Carrizo Plan (which is closer to Bitter Creek NWR), Williams et al. (1993), Christian (2008), Christian et al. (2008), Christian et al. (in prep.), and Prugh and Brashares (2007–2011).

In my comments on the Independent Rangeland Review, I included the following comments about the Christian et al. study:

Christian et al. (2008) pointed out that "...although the results from the study indicate that grazing has negative effects on native plants and GKR, the ecological reasons underlying these results were not assessed."

Christian (2008) pointed out that "[a]s with any study, it is critical to point out limitations. First, the results from the Carrizo grazing study cover only a seven-year period from 1997–2003. However, during this time, a major rainfall event occurred (1998), and despite dramatic increases in plant biomass during this period, no benefits of grazing were detected for the plant community or GKR. Indeed, results indicate that grazing during the high-rainfall years had adverse effects on native plants and GKR. Another limitation is that this study does not address grazing impacts on other sensitive species found at CPNM, especially blunt-nosed leopard lizard and other federally endangered species. Thus, caution must be applied when extrapolating results from this study to other taxa. Similarly, the study was conducted only on plant communities found on the valley floor and lower foothills. The effects of grazing have not been assessed for the more mountainous regions found in the Caliente and Tumbler Mountains. Finally, although the results from the study indicate that grazing has negative effects on native plants and GKR, the ecological mechanisms underlying these results were not assessed."

In my comments on the Independent Rangeland Review, I included the following comments about the Williams et al. (1993):

Williams et al. (1993) reported that, in their 20-month study on the Carrizo Plain, impacts of cattle grazing on populations of kangaroo rats and blunt-nosed leopard lizards were not statistically apparent and that more topsoil eroded from the grazed pasture compared to the enclosure protected from cattle grazing.

⁹ Christian, C.E., Saslow, L.R., Pollock, J.F. and Doak, D.F. 2007. Conditional Impacts of Livestock Grazing on an Arid California Grassland. Manuscript in preparation.

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90 In my comments on the Independent Rangeland Review, I included the following comments about the Prugh and Brashares:

The Prugh and Brashares study is 4 years into a long-term study of interrelationships between giant kangaroo rats (GKR), plant dynamics, and cattle grazing, with three annual reports available (Prugh and Brashares 2007, 2008, 2009). In neither the 2007 nor the 2008 annual report were there any short-term conclusions concerning these interrelationships, although in 2008 it was noted that "discrepancy among years highlights the sensitivity of this annual plant community to changes in rainfall patterns and indicates that more years of data will be necessary to adequately assess the relationships between native plant cover, cattle grazing, GKR activity, and rainfall." In the 2009 annual report, it is noted that "[t]otal plant biomass and native plant cover were both higher on plots inside cattle and GKR enclosures in comparison to plots exposed to grazing by GKR and cattle."

91 Citations from non-peer-reviewed sources without scientific references included cannot be considered as documenting science. Menke (1992) and Griggs (2000) are commentaries published in Fremontia, a non-peer-reviewed popular publication. Menke (1992) proposed using fire and livestock grazing for management, but provides no scientific evidence to support his proposals. Griggs (2000) has anecdotal observations but no references and no scientific documentation to support them. Neither Barry (1995) nor Barry (2003) was peer-reviewed and neither contains references of scientific literature related to livestock grazing. Barry (1995) does not provide data, discussion, or analyses and has only four references, three that are sources for the 'forms' used in the publication and the fourth a range textbook. Barry (2003) is a non-peer-reviewed article included in a California Native Grassland Association conference workshop manual, with the same four references.

(4) Comments on the DRAFT ENVIRONMENTAL ASSESSMENT

The draft Environmental Assessment displays a noticeable zoocentric bias. There is a significant lack of attention paid to the native plants on the Refuges. USFWS appears to be victim of what has been called 'plant blindness' (e.g., see Allen 2003).

92 According to the "Purpose of and Need for the Comprehensive Conservation Plan and EA" (draft EA p. 1), one purpose of the draft CCP is to "15-year management plan for the conservation of fish, wildlife, and plant resources, and their related habitats". If this is so, then one of the first goals of the CCP/EA should be to access as completely as possible those resources through comprehensive surveys. It would seem prudent that no management action be implemented until comprehensive surveys of plants, animals, vegetation, etc., are complete. It is not possible to assess the compatibility of management actions with resources until it is clearly understood what resources are present nor is it possible to "restore ecological integrity".

93 Based on the number of times 'invasive species' is mentioned in the draft EA, it would appear that a list of 'invasive species' for each Refuge is needed, including all invasive taxa documented or reported for each Refuge. It would also be helpful to have a list of 'invasive species' that might be of risk for introduction to the especially for Bitter Creek NWR and Hopper Mountain NWR from areas where livestock may originate, since livestock are known to transporting seeds on their coats, feet, and in their guts (Lacey 1987, Schiffman 1997, Belsky and Gelbard 2000, Jones 2001, CallIPC).

94 What does USFWS mean by 'targeted grazing' and 'targeted seasonal grazing', and how does this term related to 'prescribed grazing' or 'prescriptive grazing'?

96 In addition to the three alternatives for Bitter Creek NWR, USFWS should discuss a fourth: Native Plant Re-seeding, but No Livestock Grazing, No Herbicide Application, and No Mowing as Primary Strategies (enhanced native plants alternative). A number of studies have documented that one limiting factor in

Response 15-90. The 2010 Prugh and Brashares report states that "Cattle grazing did not significantly affect native or exotic plant cover." It goes on to state that "Results from 2010 mark a major step towards teasing out relationships among cattle, Giant kangaroo rats, plants, and other wildlife in the grasslands of the Carrizo Plain." This means that the 2009 report to which the commenter refers did not have the explanatory power to make conclusive remarks on the effect of grazing on native plants.

Response 15-91. The citations in the Grazing Plan were updated. Some references were changed to cite general principles rather than specific predictions about vegetation response. Some non-peer reviewed papers (e.g. Edwards 1992) were updated with more recent, peer-reviewed literature.

Response 15-92. More information about the potential effects to vegetation and special status plants has been added to the environmental consequences chapter of the Final Environmental Assessment (Appendix B). Monitoring and adaptive management sections of the Grazing Plan have been developed to meet the need for baseline inventory information.

Response 15-93. Invasive species at Bitter Creek NWR are addressed in CCP Chapter 4, grassland Objectives 2.4 (plants) and 2.5 (animals), oak woodland Objective 3.3, riparian and wetland Objectives 4.3 and 4.5, and their related strategies. The Integrated Pest Management Plans will include lists of known and expected invasive species at the refuges. Plant lists were updated in Appendix E to the Final CCP/EA.

Response 15-94. Recommendations in the revised Grazing Plan include improving the information base and providing means for updating. Response 5-63 provides more information about reducing the risk of introducing invasive plants through livestock grazing.

Response 15-95. Glossary (Appendix A) has been revised to include definitions for the terms used.

Response 15-96. Alternative A involves no grazing. The alternatives were formulated to represent the range of possible management tools and actions to achieve Refuge purposes. Based on the input received during public and internal scoping, we developed each alternative by combining potential management actions that followed a consistent theme. Of the alternatives evaluated in the environmental assessment, we believe Alternative B achieves these objectives. The alternative being proposed by the reviewer was considered but eliminated from further consideration as addressed in the Final CCP/EA.

- 96 *cont'* | reestablishment of native vegetation is lack of an available seed bank (e.g., Hamilton et al. 1999). Therefore, in order to determine if recovery is possible, enhancement of native plants but no livestock is a reasonable alternative. A similar fourth alternative should be considered for the other two Refuges.
- 97 | It is surprising and disappointing that there is no Goal in Table 2-2 for *Eremalche parryi* subsp. *kernensis*, similar to Bitter Creek NWR Goal 1 supporting recovery of the California condor, since the *Eremalche* (like the condor) is a federally listed taxon. As such, it deserves more than just survey (Goal 3). It is unclear why surveys for Kern mallow were only listed under Goal 3. De Vries [2011] listed grasslands and scrub as the vegetation types for *Eremalche parryi* subsp. *kernensis*. The habitats for the specimens collected on Bitter Creek NWR listed in CCH are
- 98 | De Vries 7274 [RSA]: annual grassland
De Vries 7289 [RSA]: annual grassland
Gross 3918 [RSA]: woodland/shrubland/grassland
Gross et al. 3642 [RSA]: woodland/shrubland/grassland
Gross et al. 4453 [RSA]: woodland/shrubland
Gross & Conway 4530 [RSA]: woodland/shrubland
- 99 | In addition to surveys for *Eremalche parryi* subsp. *kernensis*, surveys are needed for potential pollinators of Kern mallow, particularly mallow-specialist bees (e.g., *Diadasia*, which are ground-nesting bees). A
- 100 | survey for native bees and other native insects is very much needed.
- 101 | Under Bitter Creek NWR Goal 2, *Caulanthus coulteri* var. *lemmonii* (*Caulanthus lemmonii*, Lemmon's jewelflower) is mistakenly identified as California jewelflower (*Caulanthus californicus*). While both should be considered Special Status species for Bitter Creek NWR, *Caulanthus californicus* is the a federal and California Endangered Species [California Rare Plant Rank 1B.1], while *Caulanthus coulteri* var. *lemmonii* (*Caulanthus lemmonii* is CA Rare Plant Rank 1B.2.
- 102 | Bitter Creek NWR Goal 2 should include (by name) surveying for all Special Status plants documented or reported to occur in 'grasslands' on or near the Refuge (not just *Caulanthus californicus* [California jewelflower] and/ or *Caulanthus coulteri* var. *lemmonii* [*Caulanthus lemmonii*, Lemmon's jewelflower]), as well as migratory birds, grassland-obligate birds, San Joaquin Valley kit fox, giant kangaroo rat (as yet not been found on the Refuge), blunt-nosed leopard lizard (as yet not been found on the Refuge). It is unclear why surveys for Kern mallow were not included in Goal 2. De Vries [2011] listed grasslands and scrub as the vegetation types for *Eremalche parryi* subsp. *kernensis*, and Bitter Creek NWR specimens were collected in grasslands woodlands, and shrublands. On Carrizo Plain National Monument, *Eremalche parryi* subsp. *kernensis* has been found in grasslands and shrublands, including near or under *Ephedra*.
- 103 | Surveys for vernal pools are very important. However, it is unclear why a vernal pool survey is included under 'grasslands' (Goal 2) rather than under 'riparian and wetlands' (Goal 4). I believe that Pam De Vries identified areas that she thought might be vernal wetlands in favorable years, but that, with exception of the area known locally as the 'toad pond', was unable to visit them at appropriate times (P. De Vries, pers. comm.).
- 104 | In a personal communication, Peter M. Jump (entomological consultant) said that "there is a good chance the sphinx [Kern primrose sphinx moth] may occur on Bitter Creek, especially on the lower drainages flowing north toward the central valley". Therefore, the Kern primrose sphinx moth merits focused surveys. However, since there has been "no flight in the last two years" (P.M. Jump, pers. comm.), it should be recognized that this moth might not be seen in surveys in any given year. Management decisions (e.g., livestock grazing) in those areas that might negatively impact the moth should be deferred until "until there is a good flight year that we could prove the presence or absence of the sphinx".
- 105 | All of the particular invasive plant species documented or reported that are to be targeted for removal under Goal 2 need to be listed by name, not just *Centaurea solstitialis*. Cruciferae [a traditional alternative to the now more commonly used Brassicaceae] is a plant family name for which there are several invasive species [spp.] found on Bitter Creek NWR, not just one species [sp.]

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Response 15-97. The Service has revised and expanded management considerations for the species mentioned, as outlined in the Final CCP/EA. The Grazing Plan has been revised to incorporate specific management objectives for special status plants.

Response 15-98. Bitter Creek NWR Strategy 3.1.4 was revised in the Final CCP to include woodland, shrubland, and grassland habitats.

Response 15-99. Comment noted.

Response 15-100. Comment noted.

Response 15-101. The error regarding the species name for *Caulanthus* was corrected in the Final EA.

Response 15-102. Same as response 5-12.

Response 15-103. Bitter Creek NWR Strategies 2.1.4 and 2.1.5 for vernal pools were moved to under Goal 4 for riparian and wetland areas with new strategy numbers 4.1.4 and 4.1.5.

Response 15-104. The information about the Kern primrose sphinx moth was added to the rationale for Bitter Creek Objective 2.1.

Response 15-105. Same as response to 5-59.

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Response 15-106. In the Final CCP, Bitter Creek NWR Strategy 2.2.1 was revised to clarify that both plants and animals shall be included in the mapping of habitat for special status species, including San Joaquin kit fox (*Vulpes microtis mutica*), giant kangaroo rat (*Dipodomys nitratoides exilis*), blunt-nosed leopard lizard (*Gambelia sila*), Kern mallow (*Eremalche parryi* subsp. *kernensis* [*Eremalche kernensis*]), California jewelflower (*Caulanthus californicus*), and San Joaquin woollythreads (*Monolopia congdonii* [*Lembertia congdonii*]).

Response 15-107. In the Final CCP, Bitter Creek NWR Strategy 3.1.4 for Kern mallow surveys was revised to clarify that other habitat types are included.

Response 15-108. The terminology was corrected in the Final EA.

Response 15-109. Same as response 15-47.

Response 15-110. Same as response 15-47.

Response 15-111. A definition of prescribed grazing from USDA Natural Resources Conservation Service's Conservation Practice Standard (2010) was added to the Glossary (Appendix A) of the Final CCP: managing the harvest of vegetation with grazing and/or browsing animals.

Response 15-112. Same as response 3-36.

106 Under Goal 2, USFWS lists as 'San Joaquin Valley Special Status Species' only San Joaquin kit fox, giant kangaroo rat, and blunt-nosed leopard lizard. It should be remembered that the Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998) included not only San Joaquin kit fox, giant kangaroo rat, and blunt-nosed leopard lizard, but also *Eremalche parryi* subsp. *kernensis* [*Eremalche kernensis*], *Caulanthus californicus*, and *Monolopia congdonii* [*Lembertia congdonii*]. A number of non-listed taxa were also included, including *Eriogonum temblorense*, *Eschscholzia lemmonii* subsp. *kernensis*, *Layia munzii*, and *Lepidium jaredii* subsp. *jaredii*. At least as much attention should be given to protecting those Special Status taxa that could be negatively impacted by livestock grazing as is currently given in the draft CCP/EA and appendices to those that purportedly would benefit.

107 Bitter Creek NWR Goal 3 should include (by name) all Special Status plants documented or reported to occur in 'woodland and savanna' on or near the Refuge. If woodland birds merit specificity, so do woodland and savanna plants. It is unclear why surveys for Kern mallow were only listed under Goal 3. De Vries [2011] listed grasslands and scrub as the vegetation types for *Eremalche parryi* subsp. *kernensis*, and Bitter Creek NWR specimens were collected in grasslands, woodlands, and shrublands.

Effects on the Hopper Mountain NWR Biological Environment 4.1.5.2 Alternative B – Preferred Alternative

108 When USFWS says that "[i]mplementing Alternative B would have a minor positive effect on native ...vegetative communities", does it mean that there would be no positive effects on reproductive communities (see comments on between 'vegetative' and 'vegetation' under General Comments above) or was what is meant is that there would be effects on native 'vegetation' or 'native plant communities'.

109 Section 4.1.5.2 includes the following statement:
"Under Alternative B, a step-down grassland HMP would be implemented that would result in active management and restoration of over 600 acres of grasslands, using a range of management measure to include prescribed burning, targeted grazing, disking, and mowing for habitat management and invasive species control. Such actions would have a long-term positive impact on grassland communities by reducing invasive species and noxious weeds, while improving habitat quality and plant biodiversity."
This statement is completely unsupported here or elsewhere in the draft CCP/EA and appendices. No scientific literature appropriate to the Refuges has been cited in the draft CCP/EA and appendices that clearly scientifically support the claim that grazing would have a long-term positive impact on grassland communities.

110 When USFWS makes statements like "[i]mplementing Alternative B would have a minor positive effect on native plant species and vegetative communities", it is essential that literature citations be provided that are appropriate for the native plant species and vegetation/plant communities on Hopper Mountain NWR. If there is not evidence that this has been found to be an accurate statement for the local plant species and/or plant communities, this statement is a highly inappropriate guess.

111 USFWS should choose 'prescribed' livestock grazing or 'prescriptive' livestock grazing or 'targeted' livestock grazing, and then use the terminology consistently throughout all the documents. How does 'targeted grazing' to 'prescribed grazing' or 'prescriptive grazing'? USFWS did not included 'prescribed', 'prescriptive', nor 'targeted' grazing in Appendix A, the Glossary of Terms. When USFWS settles on which term best describes what is proposed, the term must be added to the Glossary.

112 Because there is no draft Prescribed Grazing Plan for Hopper Mountain NWR, it is surprising that this section says that "[p]rescriptive livestock grazing (e.g., using sheep or cattle) would also be utilized as one of many techniques to reduce targeted weeds and primary native grass biomass, as necessary, to achieve mosaic grassland objectives" (draft EA p. 40). If this is indeed part of the preferred alternative, then a Prescribed Grazing Plan is needed (as is a Prescribed Burning Plan). Until and unless these plans are prepared, it is inappropriate to include fire and grazing as proposed grazing tools for Hopper Mountain NWR.

113 USFWS says that "prescriptive livestock grazing... would also be utilized as one of many techniques to reduce... primary native grass biomass... to achieve mosaic grassland objectives" (draft EA p. 40). Noss et al. (1995) pointed out 99% of native grasslands in California have been lost, so the thought that USFWS has set a goal to diminish further the native grasses on the Hopper Mountain NWR is disheartening.

114 When arguing that "prescriptive livestock grazing... would also be utilized as one of many techniques to reduce targeted weeds and primary native grass biomass... to achieve mosaic grassland objectives" (draft EA p. 40), USFWS needs to (1) clearly spell out which specific 'weeds' on the Hopper Mountain NWF plant list [Appendix E-1] would be targeted, (2) make very clear that livestock grazing has been found to effectively reduce targeted weeds, providing appropriate scientific literature demonstrating that livestock have been found to reduce these particular taxa (or clearly stating that no literature was found), (3) explain why it is appropriate to reduce native grass biomass (if Goal 2 is to "enhance refuge grasslands" and if prescribed burning is proposed for "maintaining native plant species").

115 If, as stated, "the Service plans to reduce by 80% invasive non-native species, including reed canary grass (*Phalaris arundinacea*), black locust tree (*Robinia pseudoacacia*), rabbit-foot grass (*Polypogon monspeliensis*), and vinca (*Vinca major*), then USFWS should provide a list of all plant taxa documented or reported on Hopper Mountain NWR that are invasive non-native species. *Phalaris arundinacea* and *Robinia pseudoacacia* not on the Appendix E-1 plant list. Clements (1920) long ago pointed out that *Polypogon monspeliensis* is a grazing indicator (increasing, not decreasing with livestock grazing) and Cal-IPC points out that its seeds can be dispersed by clinging to the fur and feet of animals, thus livestock may increase rather than reduce or control this species. It has been reported to cause 'annual ryegrass toxicity' in grazing animals (Merck Veterinary Manual on-line) and sometimes carries bacteria that cause livestock poisoning (Cal-IPC). *Vinca major* contains cardiac glycosides, which can poison livestock (Knight and Walter 2001).

117 Livestock have different feeding preferences (Heady and Child 1994, Heitschmidt and Stuth 1991, Vallentine 2001, Van Dyne and Heady 1965). The particular species of weedy plants that can be targeted can vary depending on those preferences. USFWS needs to examine the literature and select targeted species from among those known to be preferred food items to that there is a high probability of successful reduction with minimal damage to non-target species (particularly native species). USFWS needs to cite all appropriate literature supporting the selection of targeted species and the success in using livestock to control them in similar habitat, climate, etc. Van Dyne and Heady (1965) found that livestock preferentially grazed perennials over annuals. At both Hopland Field Station¹⁰ and Bitter Creek NWR the perennials are primarily native (including native grasses) while the annuals include most of the 'weedy' non-native grasses.

118 Noss et al. (1995) pointed out 99% of native grasslands in California have been lost, so the thought that USFWS has set a goal to diminish further the native grasses on Hopper Mountain NWR is disheartening.

119 Reducing native grass biomass appears to be incompatible with having a positive effect on native plants, unless USFWS believes that native grasses in some way interfere with other unspecified native plants what a preferable in the grasslands that are targeted for restoration. If so, then USFWS needs to spell out which native plants are worth sacrificing the native grasses.

120 USFWS provides no support for the statement that "[b]y preferentially consuming the taller, more palatable non-native grasses, cattle effectively increase light and nutrient availability for the native forms during a key stage in their development" (draft EA p. 40). In a study of the dietary preferences of cattle and sheep in California grasslands, Van Dyne and Heady (1965) found that the opposite, that 'in general, perennial grasses were selected more often by cattle and sheep than were annual grasses or forbs'. Unless, USFWS can provide support contradicting Van Dyne and Heady, this statement and all discussion accompanying needs to be removed.

¹⁰ http://ucanr.org/sites/hopland/Natural_Resources/Plants/

U.S. Fish & Wildlife Service Response

Response 15-113. Same as responses 5-49 and 5-60.

Response 15-114. The Prescribed Grazing Plan was revised to include specific goals and objectives for managing weeds which include the Strategy 2.4.4: "Evaluate the use of prescriptive livestock grazing to reduce invasive plants as part of the IPM Plan."

Response 15-115. *Phalaris arundinacea* and *Robinia pseudoacacia* were added to the Hopper Mountain NWR plant list and the lists were updated in the Final CCP Appendix E.

Response 15-116. The mention of those specific non-native plants in the documents is not in the context of grazing being the only control measure. Additional objectives have been added to the Grazing Plan that address the need to evaluate the efficacy of grazing as invasive plant control.

Response 15-117. Revisions to the Grazing Plan include specific objectives for managing weeds, which include the Strategy 2.4.4: "Evaluate the use of prescriptive livestock grazing to reduce invasive plants as part of the IPM Plan."

Response 15-118. Revisions in the Grazing Plan address the lack of literature on site-specific effects of management and provide more information on how monitoring and adaptive management will inform management decisions. Text and citations in the Prescribed Grazing Plan for Bitter Creek NWR have been updated to include the most recent peer-reviewed literature.

Response 15-119. Same as response 5-49.

Response 15-120. The Grazing Plan was revised including the following citation. "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."

U.S. Fish & Wildlife Service Response

Response 15-121. Same as response 15-118.

Response 15-122. Same as responses 15-47 and 3-36.

Response 15-123. Same as responses 15-47.

Response 15-124. The effects of cattle feces were added to the CCP/EA. Response 15-151 provides more information.

Response 15-125. Same as response 15-118.

Response 15-126. Same as response 15-118.

121 USFWS needs to consider palatability of non-native (and native) grasses to livestock on a species by species basis. Palatability varies greatly among the non-native annual grasses, with many be ranked fair to poor, much lower than native grasses (Subbendieck et al. 1992, 1997, Crampton 1974, CallPC). Palatability varies by plant age and season (Subbendieck et al. 1992, 1997, Crampton 1974, CallPC). Leaves are more palatable than stems (Trlica 2006), and older "stemmy" plants are less palatable (Crampton 1974). Quite a few true grasses (Poaceae) are chemically defended, which can significantly lower palatability or even poison livestock (Redak 1987).

122 USFWS states that "[c]arefully managed prescriptive grazing programs can provide many benefits to vegetative¹¹ communities, including: enhanced biodiversity, reduction in dead plant biomass, reduction in non-native invasive weeds, increased genetic variability, increased primary productivity, lessening of wildfire threats, and other direct and indirect benefits (Barry 2003; Griggs 2000; McNaughton 1985; Menke 1992; Muir and Moseley 1994; Marty 2005; Thomsen et al. 1993) (draft EA p. 40). However, most of this literature does not provide scientific support for this statement or is inappropriate for Hopper Mountain NWR [e.g., Barry 2003, Griggs 2000, McNaughton 1985, Menke 1992, Muir and Moseley 1994, Marty 2005, see comments above on Choices of Literature Cited]. That leaves only Thomsen et al. (1993), which deals with a study of livestock grazing to control *Centaurea solstitialis* (which has not been documented or reported on Hopper Mountain NWR) and does not address most of the issues in this statement. USFWS must find appropriately published experimental science that supports (1) that carefully managed livestock grazing has been demonstrated to 'benefit' vegetation/plant communities similar to those on Hopper Mountain NWF, (2) that it has been demonstrated to enhance native biodiversity in natural communities similar to those on Hopper Mountain NWR, (3) that the reduction of dead plant biomass is beneficial to native taxa documented or reported on or near Hopper Mountain NWR, (4) that it has been demonstrated to reduce the taxa of non-native invasive weeds documented or reported on Hopper Mountain NWR, (5) that it has been demonstrated to increase genetic variability in native taxa documented or reported on or near Hopper Mountain NWR, (6) that it has been demonstrated to increase primary productivity in native taxa documented or reported on or near Hopper Mountain NWR, (7) that it has been demonstrated to lessen wildfire threats. To this last point it should be noted that, in their review, Huntsinger et al. (2007) pointed out that "[t]he effectiveness of grazing on fire behavior has not at this point been quantified...."

124 Since cattle feces are slow to or do not decompose (Anderson et al. 1984) and thus are not a source of nutrient input, the negative effects of these do not fit in any of the "three distinct components" of impacts of livestock listed by USFWS (forage consumption, trampling, and nutrient input) (draft EA p. 40). Cattle feces, dropped at the rate of 0.97 m²/animal/day (354 m²/animal/year), are slow to decompose in arid and semi-arid climates (Heady and Child 1994). In much of the West (including California), livestock fecal decomposers are limited or missing (Anderson et al. 1984, Mack and Thompson 1982). Anderson et al. (1984) found that feces can require several years to decompose. Insecticides orally administered to livestock can be excreted in feces, negatively impacting dung insects and further inhibiting break down (Anderson et al. 1984). Feces can smother plants beneath them (Anderson et al. 1984, Heady and Child 1994).

125 USFWS offers no scientific citations (thus no evidence) to support the contention that "Under proper management, forage consumption by cattle has been demonstrated to efficiently reduce annual grass biomass, benefiting grassland plant community dynamics and hydrology" (draft EA p. 40). If this has in fact been demonstrated and has been demonstrated to be beneficial to grassland vegetation/plant community dynamics and hydrology in grassland habitats similar to those at Hopper Mountain NWR, then USFWS should be able to cite the appropriate studies. Without citations, this is only the opinion of the author(s) and should be stated as such.

126 Included with effects of trampling should discussion of microbiotic soil crusts. Belnap et al. (2001) included livestock among the threats to biological soil crusts. Trampling, compaction, and other disturbances caused by hooves of domestic livestock have negative impacts on soil crusts, especially during dry periods (Belnap 1994, Belnap and Gardner 1993, Beymer and Klopatek 1992, St. Clair and

¹¹ see discussion of vegetative and vegetation above

126
cont

Johansen 1993). Both cover and biomass of the biological soil crusts have been found to be reduced on areas grazed by domestic livestock and exposed soil to increase (Beymer and Klopatek 1992, Brotherson et al. 1983). Damage can not only reduce soil stability, but soil fertility and soil moisture retention (Belnap 1994). Impacts need not be direct to be devastating to crusts, and water- or wind-borne sediments from nearby destabilized areas can bury living crusts (Belnap 1994). Significant correlations can exist between biological soil crust cover and the composition of vascular plant communities, so that damage can result in an altered vascular flora (Beymer and Klopatek 1992, Brotherson et al. 1983). Microbiotic crusts stabilize soils, reduce wind and water erosion, hold otherwise loose material on steep slopes, increase water-holding capacity of sandy soils, aid in water infiltration, improve seedling establishment, increase soil organic matter and nutrients, and increase survival of some higher plant taxa (Belnap 1994, Belnap and Gardner 1993, Belnap et al. 1994, 2004, Beymer and Klopatek 1992, Brotherson et al. 1983, Harper and Marble 1988, Harper and Pendleton 1993, St. Clair and Johansen 1993).

127

Also Included with effects of trampling should discussion of terracettes. Terracettes (step-like microforms) develop as a response to livestock trampling fundamentally unstable slopes (Higgins 1982, Klein 1987, Butler 1995, Trimble and Mendel 1995). Terracettes occur commonly on very steep slopes, along side large rotational slips, shallow soil slides, and theater-headed gullies. On very steep slopes, the step-like terracette forms disintegrate into a jumbled lattice network that lacks continuity across contours. Terracettes on steep slopes are likely to fail unless they possess sufficient silt and clay to impact cohesion to the coarse sandy soil.

128

4.1.6.2 Alternative B – Preferred Alternative
Hamilton (1997) in did not discuss targeted grazing or adversely affect ground-nesting birds.

129

4.1.7 Special Status Species – Hopper Mountain NWR
As discussed above, all Special Status plant taxa documented or reported from Hopper Mountain NWR should be included in the discussion here [see Plants, Animals, Vegetation above].

130

4.1.7.3 Alternative B – Preferred Alternative
This section needs to include a detailed discussion of each and every Special Status plant species, with applicable supporting literature, detailing potential impacts (short-term and long-term) of prescribed fire and/or prescribed grazing each individual species. If no supporting literature can be found, USFWS needs to state this and not to make unsupported guesses about possible positive impacts. Likewise, USFWS needs to provide scientific support for the currently unsupported statement that there could be benefits to the red-legged frog or not jump to unsupported conclusions.

131

4.1.12 Cumulative Effects – Hopper Mountain NWR
It is interesting to note that the author(s) suggest that grazing, among several stressors, has "resulted in cumulative adverse effects to vegetation (e.g., 90% loss of riparian forest communities, loss of California black walnut stands, loss of oak woodland habitat, and loss of native grasslands..." (draft EA p. 53).

132

Effects on the Bitter Creek NWR Biological Environment
Table 4.2
Why is livestock grazing not included in the table as a potential negative impact due to soil compaction and potentially increased erosion due to elimination of vegetation (it is included in discussion of potential impacts to Geology and Soils)?

133

4.2.5.2 Alternative A – no action
All of the particular invasive plant species documented or reported that are to be targeted for removal need to be listed by name, not just *Centaurea solstitialis* and unspecified species of Brassicaceae (Cruciferae).

134

Cruciferae [a traditional alternative to the now more commonly used Brassicaceae] is a plant family name for which there are several invasive species [spp.] found on Bitter Creek NWR, not just one species [sp.]. USFWS needs to specify which particular Brassicaceae taxa are to be targeted for removal, since indiscriminate removal would impact both non-native and native taxa. Invasive non-native Brassicaceae

U.S. Fish & Wildlife Service Response

Response 15-127. Same as response 15-118. Adaptive management can be used to monitor and alleviate soil erosion, whether the cause is natural or livestock disturbance.

Response 15-128. A discussion of the potential adverse effects associated with prescribed grazing on ground-nesting birds was added to the EA.

Response 15-129. The analysis and discussion of potential effects to Special Status Species was expanded upon in the Final EA. Furthermore, an assessment of the uncertainty associated with the lack of site- and species-specific research, and the need for adaptive management and monitoring, were added to the Final EA text.

Response 15-130. An assessment of the uncertainty associated with the lack of site- and species-specific research was added to the Final EA and the analysis and discussion of potential effects to Special Status Species was expanded upon in the Final EA. The Grazing Plan was revised to reflect/incorporate the management CCP objectives for sensitive plants.

Response 15-131. The potential adverse effects and uncertainties associated with livestock grazing were expanded upon in the Final CCP/EA.

Response 15-132. Table 4.2 in the Draft EA is a summary of effects and was not intended to include a detailed listing of all contributing effects. The adverse effect associated with livestock grazing was added to the table in response to the comment.

Response 15-133. Comment noted.

Response 15-134. The plant family name of Cruciferae was revised to Brassicaceae and the known invasive species were clarified in the Final CCP/EA.

U.S. Fish & Wildlife Service Response

Response 15-135. The effects being referenced related to native vegetation and native plant communities. The term "vegetative" was revised throughout the Final CCP/EA.

Response 15-136. Given the lack of site-specific research, additional assessment of the uncertainties and need for adaptive management and monitoring were expanded upon in the Final EA.

Response 15-137. Language has been added to the Grazing Plan to address the need to protect special status plant species within the grazing treatment areas, and to monitor the effects of treatments on sensitive native plants. More information is provided in response 3-7.

Response 15-138. The revised Grazing Plan incorporates management objectives for special status plants, and to expand baseline knowledge of special status plant populations.

Response 15-139. Same as response 15-111 regarding terminology added to the Glossary. Language has been added to the adaptive management sections to monitor the effects of management on special status plant and wildlife populations.

Response 15-140. The revised Grazing Plan includes specific goals and objectives for managing weeds, which include the CCP Strategy 2.4.4: "Evaluate the use of prescriptive livestock grazing to reduce invasive plants as part of the IPM Plan." The statement in the Draft EA about removing native grass was in error and was corrected in the Final EA. Response 5-60 provides more information.

134
cont taxa documented or reported on Bitter Creek NWR include *Capsella bursa-pastoris*, *Chorispora tenella*, *Descurainia sophia*, *Hirschfeldia incana*, *Sisymbrium altissimum*, and *Sisymbrium orientale*. In addition to the non-native Brassicaceae taxa documented or reported on Bitter Creek NWR, there are also a number of native taxa documented on Bitter Creek NWR, including two Special Status taxa: *Caulanthus lemmonii* (*Caulanthus coluteri* var. *lemmonii*) and *Caulanthus inflatus*. Also included in this family is *Caulanthus californicus* (Federally Endangered), which has been found nearby and may occur on the Refuge.

135 **4.2.5.2 Alternative B – Preferred Alternative**
When USFWS says that "[i]mplementing Alternative B would have a minor positive effect on native ...vegetative communities", does it mean that there would be no positive effects on reproductive communities [see comments on between 'vegetative' and 'vegetation' under General Comments above] or was what is meant is that there would be effects on native 'vegetation' or 'native plant communities'?

136 When USFWS makes statements like "[i]mplementing Alternative B would have a minor positive effect on native plant species and vegetative communities", it is essential that literature citations be provided that are appropriate for the native plant species and vegetation/plant communities on Bitter Creek NWR and that there is scientific evidence that the benefits would be positive. If there is not evidence that this has been found to be an accurate statement for the local plant species and/or plant communities, this statement is a highly inappropriate guess.

137 USFWS proposes active for a "mosaic would consist of approximately one-third of the acreage as short grass habitat (heights 1 to 3 inches), one-third medium grass habitat (6 to 10 inches), and one-third tall grass habitat (12 to over 30 inches)." What is the scientific basis for selecting this particular mosaic, both proportions of managed area and height of grass? Why are species of plants not included? Does this mean that USFWS intends to graze one-third of all vegetation in a particular habitat to a height of 1 to 3 inches, including both non-native and native taxa (including any and all Special Status plants that might be found there)? If so, how does USFWS justify the possible negative impacts to the native taxa? If not, how does USFWS intend to limit grazing to particular taxa?

138 According to USFWS, the habitat management would be used "[s]pecifically, [to] ...maintain and restore short grass habitat for San Joaquin Valley special status species. It should be remembered that the Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998) included not only San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, and Nelson's antelope squirrel, but also *Eremalche parryi* subsp. *kernensis* [*Eremalche kernensis*], *Caulanthus californicus*, and *Monolopia congdonii* [*Lembertia congdonii*]. A number of non-listed taxa were also included, including *Eriogonum temblorense*, *Eschscholzia lemmonii* subsp. *kernensis*, *Layia munzii*, and *Lepidium jaredii* subsp. *jaredii*. Not all of these taxa would benefit from a livestock-induced short grassland. All San Joaquin Valley Special Status Species taxa that are documented or reported on Bitter Creek NWR or might occur there should receive similar levels of management attention.

139 USFWS should choose 'prescribed' livestock grazing or 'prescriptive' livestock grazing or 'targeted' livestock grazing, and then use the terminology consistently throughout all the documents. How does 'targeted grazing' to 'prescribed grazing' or 'prescriptive grazing'? USFWS did not included 'prescribed', 'prescriptive', nor 'targeted' grazing in Appendix A, the Glossary of Terms. With the definition, USFWS also needs to provide evidence that 'prescribed', 'prescriptive', 'targeted', and/or 'seasonal targeted' grazing has been found to be successful when applied to vegetation, native and non-native plant taxa, habitat, and climatic conditions similar to Bitter Creek NWR using the types of animals proposed here.

140 When arguing that "prescriptive livestock grazing... would also be utilized as one of many techniques to reduce targeted weeds and primary native grass biomass...to achieve mosaic grassland objectives" ((draft EA p. 63), USFWS needs to (1) clearly spell out which specific 'weeds' on the Bitter Creek NWF plant list [Appendix E-1] would be targeted, (2) make very clear that livestock grazing has been found to effectively reduce targeted weeds, providing appropriate scientific literature demonstrating that livestock have been found to reduce these particular taxa (or clearly stating that no literature was found), (3) explain why it is appropriate to reduce native grass biomass (if Goal 2 is to "enhance refuge grasslands").

141 Addressing the third of the above points first, USFWS says that "prescriptive livestock grazing... would also be utilized as one of many techniques to reduce... primary native grass biomass...to achieve mosaic grassland objectives" (draft EA pp. 40, 63). Noss et al. (1995) pointed out 99% of native grasslands in California have been lost and stands of native grasses are uncommon on Bitter Creek NWR (P. De Vries, pers. comm.), so the thought that USFWS has set a goal to diminish further the native grasses on the Refuges is disheartening. Reducing native grass biomass appears to be incompatible with having a positive effect on native plants, unless USFWS believes that native grasses in some way interfere with other unspecified native plants what a preferable in the grasslands that are targeted for restoration. If so, then USFWS needs to spell out which native plants are worth the sacrificing the native grasses.

142 In addressing the first and second of the above points, non-native grasses are common on Bitter NWR (Lawrence 1983, Werner 1997, De Vries 2009b, 2010b) and might be appropriated as targets. To that point, Allen et al. (2004) found that, in a four-year study, the grazing treatment was not effective in controlling targeted non-native grasses in two out of the four years because the livestock did not consume targeted grasses. It was found that timing of grazing was not compatible with timing of precipitation (thus growth and seeding in the grasses). On the other hand, *Centaurea solstitialis* is infrequent on Bitter Creek NWR (P. De Vries, pers. comm.). In a study of that species, Thomsen et al. (1993) found that *C. solstitialis* density was reduced in two of three years, and that grazed plants that were not killed outright were severely stunted.

143 Section 4.2.5.2 includes the following statement:
 "Under Alternative B, a step-down grassland HMP would be implemented that would result in active management and restoration of up to 9,000 acres of grasslands (i.e., increased mowing, vegetation clearing, targeted grazing, herbicides) and expanded grassland management to achieve a mosaic of grassland structure and floristic diversity to support a diversity of special status species."
 USFWS needs to define what is meant by achieving floristic diversity and document how this will support diversity of Special Status plant species. USFWS should also state that, since a number of the Special Status plant taxa are known or reported to be threatened by grazing (e.g., see CNPS 2010), not all Special Status species found in the 'grasslands' will be 'supported' by the planned management.

144 USFWS states that "[c]arefully managed prescriptive grazing programs can provide many benefits to vegetative¹² communities, including: enhanced biodiversity, reduction in dead plant biomass, reduction in non-native invasive weeds, increased genetic variability, increased primary productivity, lessening of wildfire threats, and other direct and indirect benefits (Barry 2003; Griggs 2000; McNaughton 1985; Menke 1992; Muir and Moseley 1994; Marty 2005; Thomsen et al. 1993) (draft EA p. 40). However, most of this literature does not provide scientific support for this statement or is inappropriate for Hopper Mountain NWR [e.g., Barry 2003, Griggs 2000, McNaughton 1985, Menke 1992, Muir and Moseley 1994, Marty 2005, see comments above on Choices of Literature Cited]. That leaves only Thomsen et al. (1993), which deals with a study of livestock grazing to control *Centaurea solstitialis*, and thus does not address most of the issues in this statement. USFWS must find appropriately published experimental science that supports (1) that carefully managed livestock grazing has been demonstrated to 'benefit' vegetation/plant communities similar to those on Bitter Creek NWR, (2) that it has been demonstrated to enhance native biodiversity in natural communities similar to those on Bitter Creek NWR, (3) that the reduction of dead plant biomass is beneficial to native taxa documented or reported on or near Bitter Creek NWR, (4) that it has been demonstrated to reduce the taxa of non-native invasive weeds documented or reported on Bitter Creek NWR, (5) that it has been demonstrated to increase genetic variability in native taxa documented or reported on or near Bitter Creek NWR, (6) that it has been demonstrated to increase primary productivity in native taxa documented or reported on or near Bitter Creek NWR, (7) that it has been demonstrated to lessen wildfire threats. To this last point it should be noted that, in their review, Huntsinger et al. (2007) pointed out that "[t]he effectiveness of grazing on fire behavior has not at this point been quantified...."

145 If livestock preferentially ate the faster-growing non-native species (generally annuals), then grazing might increase light and nutrient availability to slower growing native grassland vegetation (generally

¹² see discussion of vegetative and vegetation above

U.S. Fish & Wildlife Service Response

Response 15-141. Same as response 15-140.

Response 15-142. The revised Grazing Plan included specific goals and strategies for managing weeds, which include the Strategy 2.4.4: "Evaluate the use of prescriptive livestock grazing to reduce invasive plants as part of the IPM Plan."

Response 15-143. The revised Grazing Plan includes management objectives for special status plants.

Response 15-144. Same as response 5-22.

Response 15-145. Adaptive management and monitoring sections have been expanded to address the lack of site-specific information.

U.S. Fish & Wildlife Service Response

Response 15-146. The revised Grazing Plan includes specific goals and strategies for managing weeds which include the Strategy 2.4.4: "Evaluate the use of prescriptive livestock grazing to reduce invasive plants as part of the IPM Plan."

Response 15-147. Same as response 5-22.

Response 15-148. Same as response 5-22.

Response 15-149. The current citations referenced in the comment are adequate. The adaptive management and monitoring revisions in the Grazing Plan address the concern. Response 15-144 provides more information.

Response 15-150. The EA and Grazing Plan were revised to address the comment. Revisions for the Grazing Plan include integrating specific objectives for managing weeds, which include Bitter Creek NWR Strategy 2.4.4: "Evaluate the use of prescribed livestock grazing to reduce invasive plants as part of the IPM Plan."

145
cont perennials). However, Van Dyne and Heady (1965) found that livestock preferentially grazed perennials (primarily natives) over annuals (which included most of the 'weedy' non-native grasses). Neither Jackson and Roy (1986) nor Gordon et al. 1989 are actually studies that directly support USFWS's contention about the role of grazing, although both support the statement that the annuals are fast-growing.

146 Livestock have different feeding preferences (Heady and Child 1994, Heitschmidt and Stuth 1991, Vallentine 2001, Van Dyne and Heady 1965). The particular species of weedy plants that can be targeted can vary depending on those preferences. USFWS needs to examine the literature and select targeted species from among those known to be preferred food items to that there is a high probability of successful reduction with minimal damage to non-target species (particularly native species). USFWS needs to cite all appropriate literature supporting the selection of targeted species and the success in using livestock to control them in similar habitat, climate, etc. Van Dyne and Heady (1965) found that livestock preferentially grazed perennials (primarily natives) over annuals (which included most of the 'weedy' non-native grasses).

147 USFWS states that "eliminating non-native grassland biomass and litter creates soil microenvironments that are more favorable to native species germination (Heady 1956; Evans and Young 1970; Goldberg and Werner 1983; Knapp and Seastedt 1986; Facelli and Pickett 1991; Boser and Reader 1995)." There are problems with most of the references used to support this statement. Evans and Young (1970) did their work in the Great Basin. Goldberg and Werner (1983) worked on Midwestern species of *Solidago*. Knapp and Seastedt (1986) did their work in tallgrass prairie in Kansas. Facelli and Pickett (1991) worked on old fields in New Jersey. Boser and Reader (1995) worked in eastern Canada. Of the papers cited, only Heady (1956) is applicable to conditions on Bitter Creek NWR. Heady's work, like Kimball and Schiffman (2003), was a study of simulated grazing and litter removal, although Kimball and Schiffman worked much closer to Bitter Creek NWR on habitat more similar than did Heady. Kimball and Schiffman did find that some native species responded negatively to reduction in litter, including *Lasthenia gracilis* [*L. californica* s.l.], *Uropappus lindleyi*, *Crassula connata*, *Plantago erecta*, *Vulpia microstachys*. Meyer & Schiffman (1999) reported that *Monolopia lanceolata* and *Phacelia ciliata* were absent from mulch removal plots.

148 According to USFWS, "[p]rescriptive grazing practices have also been recommended as a tool for promoting native grassland biodiversity (Eviner and Chapin 2001). After reading this paper several times, I could not find where they recommended prescriptive grazing practices, nor where they might have said that such practices promoted native grassland biodiversity. They did say that "[p]ractices such as the intensity and timing of grazing...can alter the composition of rangeland vegetation."

149 In addition to the literature cited for "[p]otential adverse effects of grazing on grasslands and riparian areas" (CalPIF 2000, Hamilton 1997, Holland and Keil 1995, Krueper 1993, Taylor and Davilla 1986, USFWS 1998), I strongly recommend adding some of the reviews of impacts of livestock (e.g., Belsky and Blumenthal 1997, Belsky and Gelbard, Belsky et al. 1999, Donahue 1999, Ellison 1960, Fleischner 1994, Painter 1995).

150 Not included in the list of adverse effects but of need of discussion by USFWS is the proliferation of non-native plants. As I pointed out in my comment (Painter 2010) on the Independent Rangeland Review (George and McDougald 2010),
Livestock grazing has been found to be a factor in the proliferation of non-native plants by livestock transporting seeds on their coats, feet, and in their guts into uninfested sites (Lacey 1987, Schiffman 1997, Belsky and Gelbard 2000, Jones 2001), livestock preferentially graze native plant taxa over non-native taxa (Lacey 1987, Fleischner 1994, Belsky and Gelbard 2000, Jones 2001), livestock preferentially grazing perennial plants over annuals (Van Dyne and Heady (1965), livestock can change competitive relationships in ways that favored non-native taxa (Baker 1978, Lacey 1987, Belsky and Gelbard 2000, Jones 2001), livestock create patches of bare, disturbed soils that act as non-native-plant seedbeds (Ellison 1960, Schiffman 1997, Belsky and Gelbard 2000, Jones 2001), livestock destroy biological soil crusts that stabilize soils and inhibit non-native seed germination (Belsky and Gelbard 2000, Belnap et al. 2001), livestock create patches of nitrogen-rich soils, which

- 150 favor nitrogen-loving non-native species (Belsky and Gelbard 2000), livestock reduce concentrations of soil mycorrhizae required by most western native taxa (Belsky and Gelbard 2000), and livestock accelerate soil erosion that buries non-native seeds and facilitates their germination (Belsky and Gelbard 2000).
- 151 Not included in the list of adverse effects but of need of discussion by USFWS is the fact that in California cattle feces are slow to or do not decompose (Anderson et al. 1984). Cattle feces, dropped at the rate of 0.97 m²/animal/day (354 m²/animal/year), are slow to decompose in arid and semi-arid climates (Heady and Child 1994). In much of the West (including California), livestock fecal decomposers are limited or missing (Anderson et al. 1984, Mack and Thompson 1982). Anderson et al. (1984) found that feces can require several years to decompose. Insecticides orally administered to livestock can be excreted in feces, negatively impacting dung insects and further inhibiting break down (Anderson et al. 1984). Feces can smother plants beneath them (Anderson et al. 1984, Heady and Child 1994).
- 152 Included with discussion of effects of trampling should be discussion of impacts to microbiotic soil crusts. Belnap et al. (2001) included livestock among the threats to biological soil crusts. Trampling, compaction, and other disturbances caused by hooves of domestic livestock have negative impacts on soil crusts, especially during dry periods (Belnap 1994, Belnap and Gardner 1993, Beymer and Klopatek 1992, St. Clair and Johansen 1993). Both cover and biomass of the biological soil crusts have been found to be reduced on areas grazed by domestic livestock and exposed soil to increase (Beymer and Klopatek 1992, Brotherson et al. 1983). Damage can not only reduce soil stability, but soil fertility and soil moisture retention (Belnap 1994). Impacts need not be direct to be devastating to crusts, and water- or wind-borne sediments from nearby destabilized areas can bury living crusts (Belnap 1994). Significant correlations can exist between biological soil crust cover and the composition of vascular plant communities, so that damage can result in an altered vascular flora (Beymer and Klopatek 1992, Brotherson et al. 1983). Microbiotic crusts stabilize soils, reduce wind and water erosion, hold otherwise loose material on steep slopes, increase water-holding capacity of sandy soils, aid in water infiltration, improve seedling establishment, increase soil organic matter and nutrients, and increase survival of some higher plant taxa (Belnap 1994, Belnap and Gardner 1993, Belnap et al. 1994, 2004, Beymer and Klopatek 1992, Brotherson et al. 1983, Harper and Marble 1988, Harper and Pendleton 1993, St. Clair and Johansen 1993).
- 153 USFWS might find that they would have to erect numerous temporary electric exclusionary fences to protect sensitive plant species from adverse effects of livestock grazing, as well to prevent riparian and shrub habitat damage). This possibility needs to be considered and discussed.
- 154 4.1.6.2 Alternative B – Preferred Alternative
Hamilton 1997 in no way discusses targeted grazing or adversely effects ground-nesting birds.
- 155 4.2.7 Special Status Species — Bitter Creek NWR
In the introductory paragraph, it should be made clear that there is potential for as many as 53 Special Status taxa of plants to occur at Bitter Creek NWR, in addition to the **nine** taxa documented there. Please note that the number should be changed to **nine**, not eight. Both the draft CCP and the draft EA have missed *Lupinus elatus*, documented on the Refuge in 2010 (De Vries 2010a).
- 156 With plant names, the words subsp. or var. are needed for the name to be correct. Therefore, these names need to be corrected: *Eremalche parryi* subsp. *kernensis*, *Androsace elongata* subsp. *acuta*, *Caulanthus coulteri* var. *lemmonii*, *Delphinium gypsophilum* subsp. *gypsophilum*, and *Gilia latiflora* subsp. *cuyamensis*.
- 157 The introductory paragraphs discussing animals have omitted Kern Sphinx moth, a Federally Endangered species that has a high potential to occur on Bitter Creek NWR (P.M. Jump, pers. comm.).
- 158 4.2.7.3 Alternative B – Preferred Alternative
Along with discussion of impacts specifically to the California condor, there should be an equivalent discussion of impacts to *Eremalche parryi* subsp. *kernensis*. For example, Mazer et al. (1993) found

U.S. Fish & Wildlife Service Response

Response 15-151. It is true that cow pies (cattle feces) are visible for several years in arid environments. However, the main nutrients (Nitrogen and Phosphorus) are very quickly returned to the soil, primarily through the activities of invertebrates. The shell is left, but most of the contents are gone. Livestock fecal decomposers are not limited to the extent reported in the older literature from the 1980s. Although cycling of major nutrients may be slower, it still occurs. Modern parasite control has little effect on insect decomposers. It is true that cattle feces can alter plant species composition, but the density of cattle feces is low on arid range like Bitter Creek NWR (typical stocking rate is about 15 acres per AU/year so it works out to about 3,650 sqft/animal/year divided into about 700,000 sqft or an average of 0.5 percent of area grazed). Fecal deposits can have localized impacts, but they are not very different from that expected by native grazers.

Response 15-152. The revisions to the Grazing Plan address the lack of literature on site-specific effects of management via monitoring and adaptive management. The effects of trampling on plant species and erosion can be addressed through proper assessment of the results of special status plant species monitoring.

Response 15-153. Language has been added to the Grazing Plan to address the need to protect special status plant species within the grazing treatment areas, and to monitor the effect of treatments on special status plants or plant communities of concern.

Response 15-154. Hamilton 1993 is not used in this context in the Grazing Plan.

Response 15-155. Same as response 5-65.

Response 15-156. Same as response 5-65.

Response 15-157. Same as response 5-66.

Response 15-158. The revised Grazing Plan incorporates the management objectives for special status plants from the Final CCP, and expands baseline knowledge of special status plant population through adaptive management plans and their associated monitoring. The Final EA reflects the revisions.

U.S. Fish & Wildlife Service Response

Response 15-159. Same as response 15-158.

Response 15-160. Text and citations in the Grazing Plan have been updated to include the most recent peer-reviewed literature. Some documents were changed to cite general principles rather than specific predictions about vegetation response. Some non-peer reviewed papers (Germano et al. 2005) should be updated with more recent, peer-reviewed literature (Germano 2012).

Response 15-161. Same as response 15-111.

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cont

grazing very detrimental to its reproductive success and reduced plant size, and that livestock grazing was not a benefit to through reduction of competitors. There should also be details on what actions USFWS intends to take to insure its protection. USFWS should also clearly state that all areas that might be open to livestock will be systematically and comprehensively searched for *Eremalche parryi* subsp. *kernensis* before and grazing will be permitted.

USFWS discusses in some detail the possible impacts to a number of Special Status animals, but neglects the possible impacts to Special Status plants. Therefore, USFWS needs to include a list of Special Status plant taxa documented or reported on or near Bitter Creek NWR that are threatened by or potentially threatened by grazing, grazing management, and/or trampling, together with a discussion of the possible impacts and what is proposed to be done to protect these plants. That list should include the following taxa:

- Eremalche parryi* subsp. *kernensis* [*Eremalche kernensis*]
- Caulanthus californicus*
- Caulanthus lemmonii* [*Caulanthus coulteri* var. *lemmonii*]
- Fritillaria agrestis*
- Androsace elongata* subsp. *acuta*
- Delphinium gypsophilum* subsp. *gypsophilum*
- Acanthomintha obovata* subsp. *cordata*
- Eriastrum hooveri*
- Eriogonum temblorense*
- Astragalus hornii* var. *hornii*
- Chaenactis stevioides*
- Allium howellii* var. *clokeyi*
- Eriophyllum lanatum* var. *hallii*
- Layia heterotricha*
- Layia munzii*
- Madia radiata*
- Monolopia congdonii* [*Lembertia congdonii*]
- Lepidium jaredii* subsp. *jaredii*
- California macrophylla* [*Erodium macrophyllum*]
- Calochortus fimbriatus* [*Calochortus weedii* var. *vestus*]
- Calochortus palmeri* var. *palmeri*
- Antirrhinum ovatum*
- Chorizanthe blakleyi*
- Delphinium recurvatum*
- Delphinium umbracolorum*
- Viola purpurea* subsp. *aurea* [*Viola aurea*]

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The statement that "[p]otential adverse effects can be mitigated through avoidance, applying low intensity grazing, and avoiding important time periods through an understanding of the phenology of the species and climatic conditions of the year" needs to be supported by research-based citations that support that such mitigation has been tested and found to work. Barry (1995) is not a peer-reviewed research paper and contains no references of scientific literature related to livestock grazing. Griggs (2000) has anecdotal observations but no references and no scientific documentation to support them. Germano et al. (2005) is an annual report on the Lokern project.

(5) Comments on the BITTER CREEK NWR DRAFT PRESCRIBED GRAZING PLAN

161

USFWS should choose 'prescribed' livestock grazing or 'prescriptive' livestock grazing or 'targeted' livestock grazing, and then use that terminology consistently throughout all the documents. How does 'targeted grazing' to 'prescribed grazing' or 'prescriptive grazing'? How does 'targeted prescriptive

- 161 *cont* grazing' fit into this mix? USFWS did not included 'prescribed', 'prescriptive', nor 'targeted' grazing in Appendix A, the Glossary of Terms. When USFWS settles on which term best describes what is proposed, the term must be added to the Glossary. Given the confusion of terms in the current draft CCP/EA and supporting documents, when a single term is chosen. USFWS needs to provide scientific literature supporting the chosen definition. With the definition, USFWS also needs to provide evidence that 'prescribed', 'prescriptive', 'targeted', and/or 'seasonal targeted' grazing has been found to be successful when applied to vegetation, native and non-native plant taxa, habitat, and climatic conditions similar to Hopper Mountain and Bitter Creek NWRs using the types of animals proposed here.
- 162 Herbivory is a natural part of all terrestrial ecosystems. However, herbivore species differ greatly in behavior and impacts, and there are no simple substitutions (Painter 1995). Terrestrial herbivores can range in size from single cells to elephants (Billings 1970). Grasshoppers have different effects than aphids, sheep differ from cattle, and the impacts of deer and mice are quite different.
- 163 It is important to remember that domestic livestock are an alien [non-native] taxon, an external disturbance imposed on the landscape (Donahue 1999, Painter 1995). They in no way mimic any natural disturbances nor are they surrogates for native herbivores. Ecological costs of livestock in have been clearly elucidated, and there are a number of reviews of the impacts of livestock (e.g., Belsky and Blumenthal 1997, Belsky and Gelbard, Belsky et al. 1999, Donahue 1999, Ellison 1960, Fleischner 1994, 2010, Jones 2001, Painter 1995).
- 164 In a recent legal decision against the BLM's Kingman, Arizona, Field Office (Western Watersheds Project v. Bureau of Land Management, March 6, 2009), the judge pointed out the following:
"Cattle are not ghosts. They are a lot bigger and heavier than any native wildlife. Even one season of grazing would be expected to have some effects on soil resources.... The EA also does not address the potential of livestock facilitating the spread of invasive weeds on these allotments. ...Rather, the apparent good health of the range can be attributed to the lack of grazing on these allotments for decades."
- 165 Inclusion of alien [non-native] taxa (including livestock) on the Refuges must be treated as a significant ecological alteration from the natural state, and negative impacts on native plants and animals, on soils and soil organisms, and on all other aspects of the ecosystems must be anticipated and minimized. This can only be done if management decisions are made based on knowledge of the impacted flora, fauna, and ecosystems, and a management program firmly grounded in the best available science. Unfortunately, I do not think that the Bitter Creek NWR draft Prescribed Grazing Plan meets this standard.
- 166 Alien-annual-dominated grasslands in California (and by extension at the Refuges) are anthropogenic in origin, the result of disturbance related to European-American settlement, frequently related to livestock (Baker 1972, Biswell 1956, Holland and Keil 1995, Jackson 1985, Minnich 1980, Schoenherr 1992, Sims 1988). There is no intrinsic reason why one should expect that continued disturbance by livestock would reduce alien-annual-dominated grasslands or enhance the native vegetation at Bitter Creek NWR. One generally does not prescribe the injury to cure it.
- 167 In Chapter 1 section 1.2 of the draft CCP, USFWS says that Service is preparing this plan for these refuges to "[p]rovide a basis for management that is consistent with the Refuge System mission and refuge purposes and ensure the needs of wildlife and plants come first, before other uses". In order to do this, a complete assessment of the plants (as well as wildlife) is needed, including compiling files on as much information as can be garnered on each plant (and animal) species, its biology and ecology, impacts (if any) of livestock. In order to ensure that the needs of wildlife and plants (as well as wildlife) come first, any and all management decisions, including implementation of livestock grazing, must take these into consideration. Because the Bitter Creek draft Prescribed Grazing Plan does not take in to consideration all native plants and animals collectively and individually (or even all Special Status species/taxa) and the possible impacts of livestock to them, the draft Prescribed Grazing Plan does not meet the standard set in Chapter 1.

Introduction

U.S. Fish & Wildlife Service Response

Response 15-162. Same as responses 5-22, 5-37, and 10-3.

Response 15-163. Additional assessment and analysis of the potential effects of grazing are included in the Final EA.

Response 15-164. Same as response 15-94.

Response 15-165. Same as response 5-2.

Response 15-166. The EA has been revised to address the comment. Response 15-94 provides more information about measures to reduce introduction of invasive plants via livestock.

Response 15-167. Same as responses 5-75 and 5-22.

U.S. Fish & Wildlife Service Response

Response 15-168. It is true that Bitter Creek NWR is mostly located in Kern County and south of Cerro Noroeste Road the refuge extends into a small portion in Ventura County. The refuge's approved acquisition boundary also extends into a small portion of San Luis Obispo County.

Response 15-169. The other conservation lands that the refuge's Service-owned lands abut are: a small portion of Wind Wolves Preserve to the east of the refuge, Los Padres National Forest to the south, and a small portion of Carrizo Plain National Monument to the northwest, along short segments of the refuge's approved acquisition boundary. The approved acquisition boundary abuts longer segments of adjoining conservation lands. A definition of approved acquisition boundary is included in the glossary to the Final CCP Bitter Creek NWR Location map/Figure 3-6 in the Draft CCP shows these adjacent conservation lands.

Response 15-170. The typographic error was corrected in the Grazing Plan.

Response 15-171. Same as response 5-113.

Response 15-172. Same as response 5-45. Responses 5-21 and 5-75 provide more information.

Response 15-173. Healthy rangeland ecosystems supporting native plants and providing habitat for dependent wildlife species are the primary and overarching goals supported by grazing related objectives and strategies. Bitter Creek NWR Objective 2.2, combined with Objective 2.3, is intended to achieve greater heterogeneity (a mosaic of wildlife habitat structure and floristic diversity), to improve biological integrity, diversity, and environmental health.

Response 15-174. The potential adverse and beneficial effects and uncertainties associated with livestock grazing were expanded upon in the Final CCP/EA.

Response 15-175. Grazing cells on the refuge, as presented in the Prescribed Grazing Plan for Bitter Creek NWR (Grazing Plan), were based upon hydro-geomorphology, soils, aspect, slope, etc.

Response 15-176. Bitter Creek NWR Strategy 5.2.4, we plan to replace the non-wildlife-friendly fences with wildlife-friendly fences that allow native ungulates safe passage over and under the fence (no barbs on the top and bottom wires and other modifications).

Response 15-177. Same as response 15-176.

Response 15-178. The revised Grazing Plan includes recommendations for implementing monitoring and required management actions. Prescribed grazing would be adaptively managed, allowing flexibility, as described in the revised Grazing Plan.

Response 15-179. Same as response 15-178.

Response 15-180. A citation has been added to the revised Grazing Plan in response to the comment.

168 | There are a few errors in the Introduction that merit correction. No part of Bitter Creek NWR lies in San
169 | Luis Obispo County. Adjacent means contiguous, adjoining, or abutting. Bitter Creek NWR is not
170 | actually adjacent to most of the other conservation lands listed, although it is quite near them. It is the
California Floristic Province, not the California Florist Province.

171 | The third paragraph refers to management of 'grasslands', a designation that is incomplete. The
designation for these areas, as mapped by USFWS, is California Annual and Perennial Grasslands.
USFWS needs to make absolutely clear whether the plan would be applied equally to non-native-annual-
dominated grasslands with no native plants, non-native-annual-dominated grasslands with limited native
plants, non-native-annual-dominated grasslands with mappable stands of native plants, and native-
perennial-dominated grasslands.

172 | USFWS apparently intends to open more than 60% of Bitter Creek NWR to livestock grazing as a
management tool to meet "meet wildlife habitat objectives", "[s]pecifically, ...for San Joaquin Valley
special status species¹³ and a diversity of grassland birds". Although the most direct impacts would
clearly be to the native plants and native vegetation, these are again treated as less important than the
animals (wildlife). It should be remembered that the Recovery Plan for Upland Species of the San
Joaquin Valley (USFWS 1998) included not only San Joaquin kit fox, giant kangaroo rat, blunt-nosed
leopard lizard, Nelson's antelope squirrel, but also *Eremalche parryi* subsp. *kernensis* [*Eremalche*
kernensis], *Caulanthus californicus*, and *Monolopia congdonii* [*Lembertia congdonii*]. A number of non-
listed taxa were also included, including *Eriogonum temblorense*, *Eschscholzia lemmonii* subsp.
kernensis, *Layia munzii*, and *Lepidium jaredii* subsp. *jaredii*. At least as much attention should be given
to protecting those Special Status taxa that could be negatively impacted by livestock grazing as is
currently given in the draft CCP/EA and appendices to those that purportedly would benefit.

173 | The 'primary purpose' of the 'prescribed grazing program' needs to be much more than improving wildlife
habitat. It should also improve habitat for native plants and native vegetation. In the very least, it must do
no damage to native plants and native vegetation. Before beginning a livestock grazing program,
USFWS needs to demonstrate that the proposed habitat mosaic (Objective 2.3) will support an array of
174 | native plants (including the Special Status plants), as well as grassland birds, and that the creation of the
mosaic will not negatively impact those native plants, e.g., reducing abundance, cover, diversity,
fecundity, etc., of any of the native plant taxa (including the Special Status plants).

175 | The grazing units currently existing on Bitter Creek NWR were not designed for the draft Prescribed
Grazing Plan. What evidence does USFWS have that they are the appropriate size and shape, that they
enclose and exclose all appropriate areas, protecting all areas that should not be grazed? If they do not,
will USFWS redesign them to better fit the Plan, moving fences, etc.? Are current fences appropriate for
176 | both cattle and sheep? Do the current fences inhibit or injure wildlife in any way? Since USFWS's
mission is to put wildlife (and plants) first, any negative aspects of current fences and grazing units need
177 | to be accounted for and rectified.

178 | Germano et al. (2012) pointed out that, with a 'prescription' livestock grazing program there needs to be
considerable flexibility remove grazers from pastures, often at relatively short notice, because the ability
to "remove cattle on demand is critical to achieving management goals without damaging habitats". Will
USFWS monitor frequently enough to know that livestock need to be pulled off immediately? Are they
willing to make the necessary commitment to the native plants and animals that in some years there will
be no grazing and that the determination may not be made until very shortly before turn-out would occur?
179 | If USFWS is unwilling to remove livestock on short notice or to not allow livestock grazing at all if
conditions warrant, then livestock grazing is an inappropriate tool to propose.

180 | USFWS provides no citations of scientific literature to support Objective 2.2, that vegetation height
between approximately 1–4 inches, shrub cover less than 20%, and residual dry matter (RDM) between
300 and 600 pounds/acre for is suitable habitat for the selected four "San Joaquin Valley special status

¹³ listed under Objective 2.2 as San Joaquin kit fox, giant kangaroo rat (not reported on the Refuge), blunt-nosed leopard lizard (not reported on the Refuge), Nelson's antelope squirrel

180 species" (two of which are not reported for Bitter Creek NWR), nor any discussion of what these
 conditions might do to the other San Joaquin Valley Special Status taxa (including several plant taxa)
 181 other the Special Status plants. Frost et al. (1990) recommended a minimum RDM for annual-dominated
 grasslands of approximately 400 lb/acre for lower flat slopes, 600 lb/acre for average gentle slopes, and
 800 lb/acre for steep upper slopes. Annual-dominated grasslands are not the only vegetation type at
 Bitter Creek NWR, and even these levels may be inappropriate when managing for native-perennial-
 182 dominated vegetation or the herbaceous layer of woody vegetation. Since part of the objective appears
 to be to reduce shrub cover (nearly all shrubs on the Refuge are native), it would seem that USFWS is
 not only targeting alien-annual-dominated grasslands, but also native vegetation with this objective.

Background

183 The 'Wildlife and Vegetation' section should be called 'Wildlife and Native Plants' or Wildlife Communities
 and Vegetation'. Vegetation implies plant communities as composites, so the equivalent is the wildlife
 communities as composites. If USFWS is managing wildlife (i.e., native animals) at the taxon/species
 level, then it is appropriate to also manage native plants at the taxa/species level. It is much less
 appropriate to manage for condors and grasslands. Likewise, manipulation of vegetation should benefit
 wildlife and plants at the taxon/species level.

184 USFWS provides no citations to support the contention that "prescribed grazing is often the most
 economical, reliable, and practical method used solely or in conjunction with other methods to achieve
 desired future conditions", let alone any that it has been used successfully in the southern San Joaquin
 Valley in an area dedicated to the protection of native plants and animals, with so many Special Status
 taxa.

185 It is true that "[r]esearchers have amassed a large body of literature on the subject". However, the
 statement that "this plan presents a pertinent range of topics concerning the use of grazing for
 conservation, restoration, and management but does not represent a thorough literature review" is clearly
 not. What criteria were used to determine what represented a "pertinent range of topics"? Why was a
 comprehensive, thorough literature review not included in the Bitter Creek NWR draft Prescribed Grazing
 Plan (or in the draft CCP, or the Compatibility Determination, and/or in the draft EA)? The failure to
 include a comprehensive literature review representing a thorough examination of all aspects of livestock
 grazing, both positive and negative, leaves USFWS open to both criticism and failure. Failing to review
 the available literature is a breach of the USFWS (2001, Refuge Management, Biological Integrity,
 Diversity, and Environmental Health), which mandates that sound professional judgment be exercised in
 the comprehensive conservation planning process. One principle of sound professional judgment is the
 appropriate application of the best available science, which was not done in the draft Prescribed Grazing
 Plan.

186 It is a stretch to say that Buchsbaum et al. (1986), Colwell and Dodd (1995), Germano et al. (2001),
 Knopf and Rupert (1995) were appropriate studies to cite to support the potential of wildlife habitat
 benefits from livestock grazing at Bitter Creek NWR. Buchsbaum et al. (1986) is a discussion of the
 digestive traits (not benefits of livestock grazing) of Canada geese and Atlantic brant, neither of which
 have been reported on the Refuge. Colwell and Dodd (1995) studied water bird communities and habitat
 relationships, but not effects of livestock in coastal pastures of northern California, habitat not similar to
 any at the Refuge (although they did suggest that grazing might be used to change vegetation structure).
 Knopf and Rubert (1995) was a study of mountain plovers (are not reported for Bitter Creek NWR) that
 found that the plovers most favored alkali flats where they were available, and used heavily grazed
 rangelands when alkali flats were not available. Germano et al. (2001) included no methods and few data
 in a paper published in mid-study. The most recent publication from the same study (Germano et al.
 2012) "found no fixed effects" from grazing, although Heermann's kangaroo rats were more abundant on
 non-grazed sites.

187 While USFWS states that "[g]razing has been a successful conservation management tool for specific
 plant taxa, the literature cited cannot be applied to individual Specific Plant taxa at Bitter Creek NWR.
 Carvell (2001) was a study of bumblebees in Great Britain. Bakker (1985) studied salt marshes. Marty

U.S. Fish & Wildlife Service Response

Response 15-181. The Grazing Plan has been revised to include more information on RDM.

Response 15-182. Comment noted.

Response 15-183. Comment noted.

Response 15-184. The language in the Grazing Plan has been modified and an additional citation added.

Response 15-185. The language and citations in the Grazing Plan have been revised.

Response 15-186. The Grazing Plan has been extensively revised using only relevant citations. Response 5-22 provides more information.

Response 15-187. Same as response 15-186.

U.S. Fish & Wildlife Service Response

Response 15-188. Same as response 5-22. Response 3-48 provides more information.

Response 15-189. Same as response 15-186.

Response 15-190. Same as response 15-120.

Response 15-191. Same as response 15-186.

Response 15-192. Comment noted.

Response 15-193. Comment noted.

Response 15-194. Same as response 15-186.

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cont

(2005) and Pyke and Marty (2005) looked at vernal pools, and did not provide information on specific plant taxa. [see my discussion of Marty and Pyke and Marty under Choices of Literature Cited.]

As USFWS points out, "grazing" is commonly poorly characterized in the above studies, which can make the results difficult to interpret. This should make USFWS cautious in citing them, and should lead USFWS to only select studies to cite where the methods and results are unequivocal and the study location and/or studied plants readily applicable to Bitter Creek NWR (e.g., Kimball and Schiffman 2003, Mazer et al. 1993).

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While "the role of grazers in influencing grassland ecology is certain (McNaughton 1985)", Bitter Creek NWR is not similar to the Serengeti savannas (not grasslands) studied by McNaughton, and the native herbivores on the Refuge are very different from those on African savannas. As I have pointed out more than once in these comments, Barry (2003), Bullock et al. (2001), Germano et al. (2001), Griggs (2000) are not appropriate literature to use to support USFWS's contention that "domestic livestock are appropriate for vegetation management in weedy plant and animal communities" at Bitter Creek NWR. Barry (2003) was not a research study and did not provide data, discussion, or analyses and had only four references, three that are sources for the 'forms' used in the publication and the fourth a range textbook. Germano et al. (2001) included no methods and few data in a paper published in mid-study. The most recent publication from the same study (Germano et al. 2012) "found no fixed effects" from grazing, although Heermann's kangaroo rats were more abundant on non-grazed sites. Griggs (2000) provided only anecdotal observations but no references and no scientific documentation to support them. Thomsen et al. (1993) did study a single weedy alien [non-native] plant species, *Centaurea solstitialis* (infrequent on Bitter Creek NWR, P. De Vries, pers. comm.). It should be remembered that this study applies only to that taxon, not to 'weedy plant and animal communities' in general, or even to other individual weedy plant taxa. While livestock grazing might sometimes under some conditions in some habitats be "a tool for ecosystem restoration even in lands previously degraded by livestock grazing" (Papanastasis 2009), USFWS has failed to provide evidence that it would be at Bitter Creek NWR, nor that it would not be detrimental to the native plants and native vegetation.

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USFWS provides no scientific citations and no scientific evidence that "[c]attle are the livestock of choice for managing non-native annual grasses" at Bitter Creek NWR. They also provide no scientific citations and no scientific evidence that "[c]attle primarily graze grasses that dominate the California annual-type grassland, including those at Bitter Creek NWR". Van Dyne and Heady (1965) found that livestock preferentially grazed perennials over annuals. At both Hopland Field Station¹⁴ and Bitter Creek NWR the perennials are primarily native (including native grasses) while the annuals include most of the 'weedy' non-native grasses.

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According to USFWS, "[a]s a result [of cattle grazing], 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)." However, the results reported by Huenneke et al. (1990) are not applicable to Bitter Creek NWR. Huenneke et al. (1990) is a study of community structure changes and nutrient availability conducted in a more mesic serpentine grassland in the Bay Area. Concerning serpentine-habitat grazing research, it should be noted that Harrison et al. (2003) found that "[g]razing increased native species richness on serpentine soils but not on nonserpentine soils." Thus, even if grazing were effective for very specific management on serpentine areas, it can be inappropriate to extrapolate from these studies to non-serpentine areas. Kimball and Schiffman did find that some native species responded negatively to reduction in litter, including

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Lasthenia gracilis [*L. californica* s.l.], *Uropappus lindleyi*, *Crassula connata*, *Plantago erecta*, *Vulpia microstachys*, all documented on Bitter Creek NWR. Meyer & Schiffman (1999) reported that *Monolopia lanceolata* and *Phacelia ciliata* were absent from mulch removal plots. Reduction in non-native plant biomass may have no effect (and the livestock themselves might be detrimental). Mazer et al. (1993) reported that they "found no effects of competition from other plants on *Eremalche* [*parryi* subsp. *kernensis*] reproductive success, therefore, grazing is not a benefit to *Eremalche* through reduction of competitors" but that grazing was "very detrimental to the reproductive success" of this Federally

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¹⁴ http://ucanr.org/sites/hopland/Natural_Resources/Plants/

194 *cont'd* Endangered taxon documented on Bitter Creek NWR.

195 USFWS offers no citations supporting the statement that “[c]attle also graze some non-native forbs, such as prickly lettuce (*Lactuca serriola*), black mustard (*Brassica nigra*), filarees (*Erodium* spp.), and Russian thistle (*Salsola tragus*) prior to developing spines”. *Brassica nigra* has not been documented or reported on Bitter Creek NWR. *Lactuca serriola* has been reported to poisoning by ingestion (DiTomaso Poisonous Plants), and can accumulate free nitrates in quantities capable of causing death or distress in cattle (Fuller and McClintock 1986); young plants can cause pulmonary emphysema in cattle (Cal-IPC). *Salsola tragus* has been reported to accumulate oxalates and nitrates that can poison livestock (Stubbendieck et al. 1992, DiTomaso Poisonous Plants, CA DFA, Cal-IPC).

196 As USFWS points out, “[c]attle can crush and trample stands of small shrubs and sub-shrubs”. Livestock damage has been reported for a number of shrub and subshrub taxa documented or reported on Bitter Creek NWR. For example, *Atriplex canescens* has been reported to be eaten so extensively by livestock as to be detrimental to the continued reproduction [USDA Fact Sheet]; *Ephedra viridis* has been reported to be heavily browsed by livestock [USFS Fire Effects]. Therefore USFWS needs to provide, in detail, what measures the Service intends to put in place to protect native shrubs and subshrubs from livestock damage.

197 As USFWS points out, “cattle will also graze selected native wildflowers, such as coyote-thistle (*Eryngium vaseyi*)”. Although *Eryngium vaseyi* has not been documented or reported on Bitter Creek NWR, other native non-grass annual and perennial plants [“wildflowers”] that have been documented or reported on the Refuge are reported to be grazed by livestock¹⁵ (e.g., see Twisselmann 1967, USFS Fire Effects), including *Achillea millefolium*, *Artemisia dracunculul*, *Packera breweri* [*Senecio breweri*], *Plagiobothrys canescens*, *Acmispon americanus* [*Lotus purshianus*], *Acmispon wrangelianus* [*Lotus wrangelianus*], *Astragalus didymocarpus*, *Astragalus lentiginosus*, *Trifolium albopurpureum*, *Trifolium willdenovii*, *Claytonia parviflora*, *Plantago erecta*, *Eriogonum angulosum*, *Eriogonum baileyi*, *Eriogonum clavatum*, *Eriogonum gossypinum* [Special Status species], *Eriogonum gracile*, *Eriogonum ordii*, *Eriogonum roseum*, *Eriogonum temblorense* [Special Status species], *Eriogonum viridescens*, *Galium aparine*. Therefore USFWS needs to provide, in detail, what measures the Service intends to put in place to protect native non-grass annual and perennial plants from livestock damage.

198 A number of the native grasses are also reported to be grazed by livestock (e.g., see Twisselmann 1967, Crampton 1974, Gould & Shaw 1968, Bolander 1873, Flora of North America, USDA Fact Sheets, USDA Plant Guides), including *Achnatherum speciosum* [*Stipa speciosa*], *Bromus carinatus*, *Distichlis spicata*, *Elymus elymoides*, *Elymus glaucus*, *Elymus multisetus*, *Koeleria macrantha*, *Leymus condensatus*, *Leymus triticoides*, *Melica imperfecta*, *Muhlenbergia asperifolia*, *Muhlenbergia rigens*, *Nassella cernua*, *Nassella pulchra*, *Poa fendleriana*, *Poa secunda*, *Vulpia microstachys*. Therefore USFWS needs to provide, in detail, what measures the Service intends to put in place to protect native grasses from livestock damage.

Grazing for Vegetation and Wildlife Management

199 I did not find the George and McDougald (2010) report was “well done from the perspective of range conservation”, as is apparent from my comments (Painter 2010). I had hoped objective, impartial, strongly science-based report. Instead, the George and McDougald report was generally one-sided, weakly documented, and often opinion-based. The authors chose to expansively discuss possible benefits of livestock grazing on Bitter Creek NWR, while choosing largely to ignore or minimize potential negative impacts, despite available literature that could have been cited. I would appreciate if USFWS would consider my comments on the Independent Rangeland Review (including the references submitted with them) as part of my comments on the Bitter Creek NWR draft Prescribed Grazing Plan (as well as on the draft CCP/EA and appendices. While USFWS acknowledged that I made “sharp criticism for interpretation of literature reviewed to support the use of cattle grazing to enhance wildlife and plant

¹⁵ As part of my contributions as an advisor for the Refuge, I sent USFWS personnel an Excel worksheet with preliminary information on which native plants documented or reported on Bitter Creek NWR were reported to be palatable or grazed by livestock 18 May 2010.

U.S. Fish & Wildlife Service Response

Response 15-195. Same as response 15-186.

Response 15-196. The revised Grazing Plan and Final EA address grazing effects on non-target species.

Response 15-197. Same as response 15-196.

Response 15-198. Same as response 15-196.

Response 15-199. Comments on the Independent Rangeland Review are considered to be included with those comments submitted on the Bitter Creek NWR Draft Prescribed Grazing Plan. The Grazing Plan has been revised to address the issues raised in the comment.

U.S. Fish & Wildlife Service Response

Response 15-200. Same as response 15-186.

Response 15-201. Same as response 15-186.

Response 15-202. The Grazing Plan has been revised to include adaptive management and an appropriate monitoring approach. Responses 3-4 and 3-18 provide additional information about monitoring to inform adaptive management.

Response 15-203. Monitoring for special status plants has been added to the revised Grazing Plan and is included in the Bitter Creek NWR strategies in the Draft CCP/EA. Response 5-12 provides more information about the strategies.

Response 15-204. Cultural resource surveys and other inventory and conservation measures are included in CCP Chapter 4, Bitter Creek NWR Strategies 6.4.1 through 6.4.6 (rather than in the Grazing Plan). Reference to the discussion of cultural resources and other refuge resources in the CCP/EA was added to the revised Grazing Plan. Response 5-8 provides more information about historic properties.

Response 15-205. Same as response 15-204.

Response 15-206. The soils information provided in the CCP and Grazing Plan is adequate for grazing planning and management.

Response 15-207. The vegetation maps provided in the CCP are adequate for grazing management.

Response 15-208. The Service regrets the oversight of not posting on-line the reference list that was submitted by the commenter during the 2010 review of the range review. Many new citations were added to the revised Grazing Plan, some of which were submitted by the commenter.

200 habitats", the Service chose not to use most of the literature I provided¹⁶ and to continue to depend on much of the literature that I pointed out was inappropriate or inadequate. USFWS agrees that I made raised "valid points". However, the Service says that "research investigations and continuous monitoring surveys would be necessary to address the many uncertainties". It is unfortunate that USFWS failed to integrate the already published information concerning these uncertainties contained in the literature I referenced and apparently has decided to implement a largely untested management program that has significant potential to damage the natural resources (particularly native plants and native vegetation/plant communities) on Bitter Creek NWR without first resolving these uncertainties.

201
202 If USFWS does not have needed funding and personnel to adequately and appropriately monitor the proposed livestock grazing program, then USFWS should not be implementing (or even proposing to implement) such a program. The proposed livestock grazing program has the potential to exacerbate the damage in an already compromised system, destroying native plants and native vegetation/plant communities that may now be recovering from years of overgrazing. Not having the funds or personnel available to conduct the appropriate surveys, to conduct needed research investigations, or to conduct appropriate monitoring is not a valid reason to proceed with potentially destructive plan. Implementation of the proposed livestock grazing plan without a clear understanding of the composition and dynamics within the habitats of Bitter Creek NWR could cause continued and irreparable damage to these public lands. Monitoring RDM will not provide any information about species composition or the abundance of native plants, nor will it provide information about damage to or changes in numbers of Special Status plants.

Site Description and Resource Inventory Land Use History

204 This section fails completely to discuss the archaeological and pre-Settlement resources that have been recorded on Bitter Creek NWR, including several prehistoric resources. According to the draft CCP (p. 77), there are seven recorded prehistoric sites on Bitter Creek NWR. It is unclear if this includes the ethnohistoric Chumash rancheria site (Malpwan) reported to be in the Refuge vicinity (J.R. Johnson, pers. comm.). Artifacts that may be of prehistoric significance were observed, photo-documented, and reported to USFWS, including one that was found in an area that is proposed to be included in a grazing unit (P. De Vries, pers. comm.). USFWS fails to acknowledge and discuss potential impacts of livestock to these sites and artifacts (e.g., see Van Vuren 1982, Osborn et al. 1987, Nickens 1990, Horn and McFarland 1993, J. Timbrook, pers. comm. to P. De Vries). USFWS needs to commit to comprehensive archeological surveys to be conducted before implementation of any livestock grazing plan. USFWS also needs to provide a discussion, in detail, of what measures the Service intends to put in place to protect any and all archeological sites and artifacts from livestock damage.

Soils, Vegetation

206 Table 1 (associated with soils and vegetation) lists the difference soil types and vegetation types associated with each. However, as I pointed out in my comments above on Plants, Animals, Vegetation, the vegetation types are poorly defined and unclear. It would also appear that the scale at which vegetation mapping was done is not adequate to display many native-plant-dominated areas with the Annual and Perennial Grassland type and that shrub-dominated vegetation types are not adequately differentiated.

In her comments on the Bitter Creek draft Prescribed Grazing Plan, Pam De Vries points out the following:

207 ...because the vegetation mapping for Bitter Creek was done at a fairly broad scale, many smaller areas (e.g., less than approximately 5 acres) of native herb lands or areas dominated by perennial grasslands were included within the Annual and Perennial Grassland vegetation type. Additionally, no differentiation was made between several different shrub-dominated vegetation types. Areas dominated by goldenbush (*Eriocameria linerifolia*) were lumped together with areas dominated by California buckwheat (*Eriogonum fasciculatum* var. *polifolium*). These two shrub communities are distinctly different.

208 ¹⁶ USFWS chose not to post on-line the reference list that was submitted with my commits, which were posted, thus only making George and McDougald's references publicly available.

209 In order to adequately protect native vegetation/plant communities and native plants, vegetation needs to be mapped a much much finer scale. USFWS needs to incorporate into the vegetation maps data from the CNPS grassland survey on Bitter Creek NWR (Buck-Diaz et al. 2011), transect data in Lawrence (1983) plant association information provided by Werner (1997), maps, locations, and other vegetation-related information provided by Pam De Vries, in addition to vegetation information in her reports (De Vries 2009b, 2010a,b).

210 The information on Soils Map (Figure 2) and the information on Table 1 are not well correlated. Soil types, acres, and associated vegetation are not accurately correlated and land-cover information is missing from the table. For example, only 'annual grassland' is listed as the vegetation type for Soil Map Unit ID Symbol 930, but shrublands are shown on the vegetation map (Figure 5) in this area, and these shrub-covered lands are clearly visible on aerial photographs as seen on Google Earth (see P. De Vries comments on this document).

211 USFWS failed to include in Tables 1 and 2 all of the Special Status plants documented or reported on Bitter Creek NWR [see my comments on Plants, Animals, Vegetation above]. All Special Status plants documented or reported as occurring on the Refuge must be included on these tables. Also, if USFWS is going to list animal taxa on Table 2 that may occur on Bitter Creek NWR but are not yet documented or reported, it must also list plants that may also occur but have not yet been documented or report.

213 Before any management programs are implemented that might negatively impact any of them (e.g., livestock grazing), USFWS must have a more complete understanding of the distribution of the Special Status plants (and animals). Focused surveys targeting possible habitat for all documented and reported Special Status plant (and animal) taxa from on and near Bitter Creek NWR are needed. Therefore, field, herbarium, and museum surveys should (and must) be done before any sort of livestock grazing program is implemented, not as a part of monitoring for the program, although monitoring of plants at least to the species level may reveal additional taxa to the total plant and Special Status plant lists, which may then add to the individual taxa needing monitoring.

214 In footnote 2 Table 2, USFWS describes a "sizeable patch of perennial grassland" that has been mapped in Unit 3 East, south of the Headwall Oaks, with other patches are observed throughout the Refuge, including areas dominated by *Leymus triticoides* and a fairly dense stand of *Elymus elymoides*. Why haven't these and all other stands of native perennial grasses been individually mapped, so that they can be managed in a way that will protect and perpetuate them?

215 In footnote 2 Table 2, USFWS says that *Elymus glaucus* is present in Unit 3. The last time this species was reported on Bitter Creek NWR was by Werner (1997). It was not documented by De Vries (2009a,b, 2010b). If USFWS has found a stand, it would be helpful if they would voucher it. D'Antonio et al. (2007) pointed out that *Elymus glaucus* can be locally extirpated by livestock grazing, so its documentation and protection could be important.

216 It is evident from Table 2 (including footnotes) and the Vegetation map that USFWS has not integrated all vegetation data sources. I would like to point out that the CNPS data collected on Bitter Creek NWR in 2011 (Buck-Diaz 2012) clearly showed an abundance of native species throughout the "annual grassland" type. For example, CNPS plot Nos. 6 and 7 were both situated in the south part of Unit 6 in an area mapped by the Service as "annual and perennial grassland". In Plot 7, native perennial grasses were well represented with 11% cover (including *Elymus multisetus* 10%, *Poa secunda* 1%), as well as nine native forbs. Plot 6 had a 20% cover of native perennial grasses (*Poa secunda* 20%, *Elymus elymoides* 3%), as well as no less than twelve additional native forbs and grasses, but only 13% cover of the non-native annual grass *Bromus diandrus*. Without incorporating all available data (and collecting data in areas not already appropriately mapped), USFWS runs the risk of seriously damaging stands of native vegetation through implementation of a potentially destructive management program.

Resource Targets, Target Conditions

219 The Bitter Creek NWR draft Prescribed Grazing Plan displays a noticeable zoocentric bias. The Resource Targets center around a small group of vertebrates (not all known from the Refuge) included in

U.S. Fish & Wildlife Service Response

Response 15-209. Same as response 15-207. Much invaluable information from De Vries' and others' plant surveys have been cited in the CCP and plant lists in Appendix E.

Response 15-210. The soils map, soils table, and vegetation map have been revised in the Grazing Plan and Final CCP. The accuracy and scale of the soils and vegetation maps are adequate for grazing management and the purposes of the CCP.

Response 15-211. The Grazing Plan has been revised to include recommendations for listed plants known to occur on site.

Response 15-212. Same as response 15-211.

Response 15-213. Recommendations for rare plant monitoring were added to the revised Grazing Plan.

Response 15-214. Same as response 15-207. Response 3-18 provides more information about surveying at the refuges.

Response 15-215. Same as responses 15-202 and 15-203.

Response 15-216. Same as response 15-210. Comment and information noted.

Response 15-217. Same as response 15-207 and 15-210.

Response 15-218. Same as response 15-203.

Response 15-219. The Grazing Plan has been revised to address more plant-based goals and objectives.

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Response 15-220. Same as response 15-203.

Response 15-221. An assessment of known effects of grazing on listed plants has been added to the revised Grazing Plan. Additional information has been added to the Final EA (CCP Appendix B).

Response 15-222. Comment noted. Response 5-66 provides more information about strategies in the CCP that address pollinators.

Response 15-223. Same as response 15-219.

Response 15-224. Same as response 15-219.

Response 15-225. Suggested inventory and monitoring surveys for prescribed grazing and other habitat management activities for listed invertebrates are included in the revised Grazing Plan and the Final CCP Chapter 4, Bitter Creek NWR Strategy 2.1.5.

Response 15-226. Objectives for native and non-native plants were added to the revised Grazing Plan. Responses 3-8, 3-13, and 6-3 provide more information about management of invasive plants.

Response 15-227. Same as response 15-226.

219
cont the San Joaquin Valley Special Status recovery taxa, while ignoring the needs of and impacts to plants also included among the San Joaquin Special Status taxa, including *Eremalche parryi* subsp. *kernensis* [*Eremalche kernensis*], *Caulanthus californicus*, and *Monolopia congdonii* [*Lembertia congdonii*], *Eriogonum temblorense*, *Eschscholzia lemmonii* subsp. *kernensis*, *Layia munzii*, and *Lepidium jaredii* subsp. *jaredii*. Many of these Special Status plant taxa have been found to be negatively impacted by livestock grazing (e.g., see CNPS 2012, Mazer et al. 1993). If the livestock grazing prescriptions are to be implemented primarily to improve conditions for the San Joaquin Valley Special Status recovery taxa, the USFWS cannot continue to ignore a large portion of the taxa included in the Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998). When all of the Special Status taxa in the Recovery Plan that occur or might occur on the Refuge are taken into consideration, USFWS may find that the majority of taxa are best served with a 'prescription' of not allowing livestock in their known or possible habitats.

220 USFWS makes statements like "Bare ground (i.e., free of annual grass thatch) is required for San Joaquin special status recovery species" when what is meant is that bare ground may benefit the small group of vertebrates that USFWS has chosen to focus on (not all are known from the Refuge), at the expense of other San Joaquin Valley Special Status taxa that are known from the Refuge, including *Eremalche parryi* subsp. *kernensis*. Why does USFWS feel that these four vertebrate species deserve more attention than all other Special Status taxa?

221 USFWS should put the needs and protection of *Eremalche parryi* subsp. *kernensis* (documented from the Refuge) before those of giant kangaroo rats (not known from the Refuge) or blunt-nosed leopard lizard (not known from the Refuge). Mazer et al. (1993) reported that grazing was "very detrimental to the reproductive success" and reduced plant size. They pointed out that "because *Eremalche* plants are present for most of the growing season of desired forage (from January through May) any grazing may place the endangered species at risk." They reported that they "found no effects of competition from other plants on *Eremalche* reproductive success, therefore, grazing is not a benefit to *Eremalche* through reduction of competitors." In addition to possible direct and indirect physical damage to *Eremalche parryi* subsp. *kernensis* plants, livestock can also impact needed resources, including pollinators. Potential pollinators include mallow-specialist bees (e.g., *Diadasia*, which are ground-nesting bees. According to the National Research Council (2007), grazing can disrupt ground-nesting bees.

222 The protection of other Special Status plants documented or reported on the Refuge, particularly those reported as threatened by grazing or trampling, must be given greater standing with the needs of agile kangaroo rats, mountain plovers, or horned larks, which are not known from the Refuge.

223 Plants (particularly native plants) must be treated as more than habitat for animals, forage for livestock, or loosely defined 'vegetation'. There must be a change in the significant lack of attention paid to the native plants and clearly defined native vegetation/plant communities.

224 USFWS also needs to include invertebrate animals among the 'target resources'. One 'target' invertebrate should be the Kern primrose sphinx moth, which is very likely to be found on Bitter Creek NWR, and has been found nearby on Carrizo Plain National Monument and in Barringer Canyon (Los Padres National Forest). In a personal communication, Peter M. Jump (entomological consultant), referring to livestock grazing, said that reintroducing livestock would not be a good idea, but would be less harmful if done after the food plant has died off in late spring or early summer and the larvae have pupated under ground. "The moth flies in late winter or early spring, lays eggs on the ground near the developing seedlings. The larvae feed on the *Camissonia* and later instars rest on the ground at the base of the plant. The *Camissonia* are delicate plants and subject to damage from cattle etc., along with the developing larvae. The lower drainages to the north should be protected from grazing until there is a good flight year that we could prove the presence or absence of the sphinx."

225 Target conditions should include much more than RDM levels and grass/plant height. There should also be a list of all targeted alien (non-native) plant taxa whose reduction would be considered beneficial and that have been demonstrated to be preferentially eaten by livestock (thus would be eaten before plants

226 USFWS would not want damaged). For example, on p. 20, *Salsola tragus* ('Russian thistle') is mentioned

227 *cont* as a possible target. According to Stubbendieck et al. (1992), *Salsola tragus* is only fair forage for cattle and sheep, becoming worthless with maturity, so it is not a plant that livestock would seek out preferentially. *Salsola tragus* has been reported to accumulate oxalates and nitrates that can poison livestock (Stubbendieck et al. 1992, DiTomaso Poisonous Plants, CA DFA, Cal-IPC). In other parts of these documents, it is implied that alien [non-native] grasses¹⁷ could be targeted. Allen et al. (2004) found that, in a four-year study, the grazing treatment was not effective in controlling targeted non-native grasses in two out of the four years because the livestock did not consume the targeted grasses. It was found that timing of grazing was not compatible with timing of precipitation (thus growth and seeding in the grasses). USFWS needs to be certain that livestock would effectively accomplish removal of specific undesirable alien (non-native) plants while preserving native plants, and that timing of livestock grazing were very specific to each season and very precise. In some years, there might not be enough biomass of the targeted taxa, opening taxa in need of protection to potential damage. Germano et al. (2012) pointed out that, with a 'prescription' livestock grazing program there needs to be considerable flexibility remove grazers from pastures, often at relatively short notice, because the ability to "remove cattle on demand is critical to achieving management goals without damaging habitats".

228

229 All measurements (including RDM and plant height) should include species identification of the plants included in the RDM and in the 'grasses'. There need to be specific standards for what USFWS considers 'allowable' damage to native plants, including the specific native grass and forb taxa found in the areas open to livestock and to any and all Special Status plants that might be impacted, even inadvertently. There must also be measures that would capture damage to soils and microbiotic soil crusts, including lichens and mosses.

230

Management Units and Cells (Grazing Pastures)
There is no reason to accept that the current Refuge livestock management units, even with subdivision are adequate and appropriate to true prescription/targeted livestock grazing, aimed a specific set of alien [non-native] plants, applied to benefit specific native taxa, with all vulnerable areas of native plants and vulnerable native vegetation/plant communities (as well as vulnerable soils and animals) appropriated protected. Since current maps are not sufficient to judge whether this is possible, USFWS needs to provide better and more specific maps and data.

231

Facilities
If USFWS can afford to pay for some or all materials and facilities needed to implement the livestock grazing program, then the Service can also afford to pay for needed surveys and other data gathering needed to safeguard resources before any livestock grazing plan is implemented.

232

Monitoring and Evaluation
The proposed monitoring is completely inadequate.

233 Livestock use monitoring needs to be done by a neutral party, not the livestock owner. Livestock utilization monitoring must occur frequently enough to rapidly determine when livestock need moving or removing to protect native plants or soils from damage. Intensive monitoring of target and protected plants needs to be done before livestock are permitted to be turned out. Timing is extremely important (e.g., see Allen et al. 2004). In some years, there might not be enough biomass of the targeted taxa, opening taxa in need of protection to potential damage. Germano et al. (2012) pointed out that, with a 'prescription' livestock grazing program there needs to be considerable flexibility remove grazers from pastures, often at relatively short notice, because the ability to "remove cattle on demand is critical to

¹⁷ USFWS needs to ascertain that alien (non-native) grasses are palatable enough to be selected before native grasses and other native plants.

Examples of palatability and selectivity information available: *Avena barbata* is reported to be selectively rejected (Van Dyne & Heady 1965); *Bromus diandrus* is reported as worthless at maturity (Stubbendieck et al. 1992); *Bromus madritensis* subsp. *rubens* is sometimes grazed by livestock, it is not considered a good forage plant (Cal-IPC); *Bromus tectorum* is reported to be practically worthless after inflorescence emerges (Stubbendieck et al. 1992); *Hordeum murinum* is reported to be of little value except when young (Crampton 1974).

U.S. Fish & Wildlife Service Response

Response 15-228. Same as response 15-202.

Response 15-229. Same as response 15-202.

Response 15-230. Same as response 15-202.

Response 15-231. Where appropriate to reach resource objectives, the Service plans to implement prescribed grazing incrementally over time, adaptively managed, and using as much existing infrastructure as practical given the objectives. The adaptive management approach is clarified in the revised Grazing Plan.

Response 15-232. Comment noted.

Response 15-233. The Grazing Plan was revised to clarify the approach to monitoring and evaluation. Some data such as number, class and distribution of cattle can be documented in required reports prepared by the grazing cooperators and verified by the refuge manager. Refuge site inspections and verification of livestock use, through measurement of RDM or other means would be done by refuge staff or a neutral party. Responses 3-4 and 3-18 provide additional information about monitoring to inform adaptive management.

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233 *cont* achieving management goals without damaging habitats”.

Vegetation and native plant monitoring needs to be designed specifically for each vegetation type and for each Special Status taxon, needs to include both grazed and non-grazed sites for comparisons, needs to include intra-pasture exclosures or cages, and needs to have sufficient replicates to be statistically valid.

234 If any Special Status native plant populations occur within areas open to livestock, monitoring is needed as frequently as weekly, not just annually. If Special Status plants show damage during monitoring, livestock must be removed immediately. If Special Status plant monitoring cannot be done frequently

235 enough to rapidly assess damage, livestock should not be allowed into areas with populations of these plants.

236 Trade-offs among species must not include sacrificing native taxa as forage for livestock, nor Special Status plant taxa documented or reported on the Refuge susceptible to livestock grazing to potential benefits for animals not known to occur on the Refuge.

Cultural Resources

237 The Bitter Creek NWR draft Prescribed Grazing Plan does not address the potential impacts to archeological resources on the Refuge. Few archaeological surveys have been completed on Bitter Creek NWR, only 7.5% of the Refuge has been surveyed. Seven prehistoric sites have been recorded on the Refuge, and artifacts that may be of prehistoric significance have been observed on the ground

238 surface, photo-documented, and reported (P. De Vries pers. comm.) during the plant surveys (De Vries 2009a,b, 2010b). Livestock can damage and/or disrupt archaeological resources (Van Vuren 1982,

239 Horne and McFarland 1993, Nickens 1990, Horn and McFarland 1993 J. Timbrook, pers. comm. to P. De Vries). Grazing cannot be determined to be a compatible use based on the draft Prescribed Grazing Plan

240 as no surveys or other protection for cultural resources is included in that document.

Response 15-234. Same as response 15-202.

Response 15-235. Same as response 15-202.

Response 15-236. Same as response 15-219.

Response 15-237. Same as response 15-204.

Response 15-238. Same as response 15-204.

Response 15-239. Same as response 15-204.

Response 15-240. Same as response 15-204.

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Jump, P.M. 11 May 2012. Peter M. Jump, personal communication to E.L. Painter.

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Timbrook, J. 1 June 2012. Jan Timbrook, personal communications to P. De Vries and to E.L. Painter.



"Ralph Phillips"
 <RPHILLIPS3@bak.rr.com>

To: <fw8plancomments@fws.gov>
 cc: <vince.fong@mail.house.gov>, <kyle.lombardi@mail.house.gov>
 Subject: Hopper CCP

06/07/2012 01:59 PM

To Whom It May Concern:

- 1 I have physically participated in 2, 12 year CCP for Hopper/Bitter Creek. This year the 3rd plan, I did not go to the meeting, but again, they have another plan. I have asked why they didn't put the previous plan(s) in place, and the answer was they are obsolete. The plans are made, but never expedited.
 Why can't they be held accountable?
- 2 Why do they include budget items for buildings that already exist? Buildings cost money, which in the state budgets, my personal budget there is a lack of money. I recommend no building until employment, and school and state and federal budgets are much better.
- 3 Burning vegetation has been a recommended method of controlling and managing the Bitter Creek Refuge. Burning can not be precisely controlled so that it doesn't harm private land, thereby harming another person(s) livelihood.
- 4 Already elk from the south east are damaging fences, eating feed on private land. They increase in numbers causing private landowners to replace fences, build larger watering areas, and causing decreased vegetation of feed and having to decrease the numbers of their livestock causing a reduction of income.

Thank you.

Enid R. Phillips

U.S. Fish & Wildlife Service Response

16. Philips, E.R.

Response 16-1. The March 2012 Draft CCP/EA is the first CCP prepared for Bitter Creek NWR. As stated in Appendix B, pages 3 and 93, of the Draft EA, the March 2008 EA for Bitter Creek NWR Proposed Habitat Management and Restoration Plan is now obsolete because the Service decided to integrate that planning effort for Bitter Creek NWR into the CCP process for Bitter Creek and the other 2 refuges. Comments on the 2008 Bitter Creek EA and compatibility determination were incorporated into the CCP scoping process, are included in the August 2010 Scoping Summary Report (appendix to the CCP), and the Service has responded to these comments in the Draft CCP. This approach was also outlined at the 2010 scoping meetings and the 2012 public open houses on the Draft CCP/EA.

Response 16-2. The existing pole barn and house at Hopper Mountain NWR provide storage areas and temporary quarters to support the California Condor Recovery Program, as described in the rationale for Objective 1.5, in Chapter 4 of the Draft CCP. The existing barn is not earthquake resistant and the existing trailers no longer meet safety requirements. The budget in Table 5-1, Chapter 5 includes costs for a new barn that is earthquake resistant and housing to replace the existing unusable trailers. Table 5-2 includes budget items to cover the estimated, annual recurring costs to maintain structures that already exist, among other items. Employment, schools, and state budgets are unrelated to the Federal National Wildlife Refuge System budget. Response 2-4 provides more information.

Response 16-3. Prescribed fire for wildlife habitat /vegetation management (burning vegetation) is not being proposed at Bitter Creek NWR and is not a part of the CCP actions at Bitter Creek NWR. Responses 2-3 and 6-9 provide more information.

Response 16-4. Comment noted. Response 7-9 provides more information.



Cecelia Shanyfelt
 <cshanyfelt@gmail.com>
 m>

To: fw8plancomments@fws.gov
 cc: vince.fong@mail.house.gov, kyle.lombardi@mail.house.gov
 Subject: Hopper CCP

06/11/2012 11:11 AM

Mrs. Osborn ,

This note is in regard to the Bitter Creek NWR and its final management plan. While I applaud the Refuge for taking time to talk with neighbors and community members concerning to the plan, it is disturbing to see that the end plan has not addressed the concerns and needs of those that have such a vested interest in its success.

First and foremost is the plan to use controlled burns to manage grasses and reduce the likelihood of large grass fires. I was in attendance at the initial public meeting at the Fort in Taft when promises were made about the removal of prescribed burning. This came after hours of public comments, including statements from local, state, and national legislators condemning burning in the valley due to extreme health and safety concerns.

With the air in the Central Valley already so polluted, it is the right of all valley residents to demand that burning be removed from the plan. The Refuge should follow the rules and laws of the community it inhabits. Effective June 1, 2010, the Valley Unified Air Pollution Control District has listed "weed abatement - berms, fence rows, pasture, grass, and bermuda grass " as a category where " burn permits would no longer be issued". Only weed abatement activities affecting ponding and levee banks would be allowed permits, which is not the case on the Refuge. Other viable alternatives exist - they must be considered and used.

As I am sure you are aware, there are more reasonable alternatives for handling the invasive brush that the Refuge is trying to eliminate. Grazing had succeeded for years and should be reintroduced, not only for the purposes of reducing fire hazards, but as a food source for the condors - which were the original purpose of the Refuge, along with the general health of the land and animals the Refuge is attempting to protect. This is also a tax reducing measure as there could be capital raised from the lease rather than money spent grading fire breaks regularly and paying fire officials to watch precious resources burn.

According to a California Country Magazine (California Bountiful Foundation) article, "California' s native landscape is being overrun with invasive plants and pests. Experts say it costs the state upwards of \$85 million a year to control and eradicate plant invaders". (<http://californiacountry.org/features/article.aspx?arID=561>)

This is just one such article laying out the importance and success of collaborative grazing efforts for the improvement of both native plant and wildlife, as well as being a significant force against wildfires. "One of the things I'd like to stress is that we need the ranchers in order to have effective rangeland conservation...we need each other to restore and protect our native grassland...", said the program manager for Defenders of Wildlife.

It is the right of the tax payer, bearing the burden of decision making by Refuge management, to demand that grazing not be dismissed by Refuge management based on their assessment that grazing would be "unattractive" and cuts up the landscape with cow trails, as was stated at the meeting I attended.

U.S. Fish & Wildlife Service Response

17. Shanyfelt, C.

Response 17-1. Prescribed fire for habitat management is not being proposed at Bitter Creek NWR. We have not changed our fire suppression activities at Bitter Creek NWR. On other refuges, such as on Blue Ridge NWR, where prescribed fire may be used, the Service completes all prescribed burns in compliance with the Clean Air Act and obtains burn permits from regional air quality districts for all prescribed burns. Responses 2-1 and 2-3 provide more information.

Response 17-2. Regarding invasive brush, Bitter Creek strategies 2.4.1, 4.3.5, and 4.5.1 (in CCP Chapter 4) develop and/or implement an Integrated Pest Management Plan, which will include a variety of methods (mechanical [mowing, digging], biological, and chemical) to manage tamarisk and other invasive species on the refuge. However, the Service does not plan to use grazing to manage tamarisk in the steep riparian areas of Bitter Creek canyon. Regarding cattle as a food source for condors, please see response 8-3. The Service is not proposing cattle grazing to benefit condors; response 21-1 provides more information. Regarding the use of grazing to reduce fire hazard, see response 2-2.

Response 17-3. Comment noted. Response 19-1 provides more information.

Response 17-4. Comment noted.

Response 17-5. Comment noted. Response 18-3 describes how the Service intends to use cattle grazing to improve conditions for native plants and wildlife at Bitter Creek NWR.

Response 17-6. Comment noted. The Service will consider grazing based on its potential to achieve refuge resource objectives (not aesthetics). Response 3-11 provides more information about resource objectives.

- 7 Lastly, and most disturbing, during our time of economic crisis and accumulating debt, are the proposed budget items including a \$4.5 million administrative office at the Cliff Hudson home site. This is not only unnecessary as they already have a headquarters, but completely offensive to me as a taxpayer. Period.
- 8 This in addition to \$500,000 for a condor treatment facility and more than that to repair fencing that has been left unmaintained is exactly what taxpayers cannot afford at this time. They are unnecessary and overpriced. As servants of the U.S. Citizenry, the Refuge staff must understand that they are not spending the "government's" money, but taxpayer money. They do not operate outside of present conditions and are not unlimited in resources.
- 9 The economic and environmental needs of the Refuge, Refuge neighbors, valley residents, and national taxpayers are not so divergent. We would all like to see native plants and animals multiply and coexist in the valley. This is happening in other areas and we can do the same here. It is our responsibility to the environment and future generations that we be able to truly collaborate to achieve this goal in a manner that considers the whole greater than the sum of its parts. The Bitter Creek Refuge is not an island and cannot be treated as such.
- 10 It is time that key players be brought back to the table to revise the document in such a way that benefits the Citizenry as a whole.

--

Cece Shanyfelt
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U.S. Fish & Wildlife Service Response

Response 17-7. Same as response 2-4 regarding the cost and purpose of the administrative office.

Response 17-8. Same as responses 2-4 and 2-5.

Response 17-9. Bitter Creek NWR Strategy 5.2.5 calls for the Service to coordinate with neighboring land management agencies and organizations on management actions to benefit native plants and wildlife. The other refuges have similar strategies.

Response 17-10. The Service agrees that Bitter Creek NWR is not an island. Therefore, the purpose of Goal 5 in the Draft CCP is to benefit ecosystem function and landscape connectivity to benefit native plants and wildlife within the Transverse Ranges. The purpose of the National Wildlife Refuge System, as stated in the Refuge Improvement Act, is "To administer a national network of lands... for the conservation...of...wildlife and plant resources and their habitats...for the benefit of present and future generations of Americans" (16 USC 668dd et seq.). Given our Refuge System mission, changing the document to benefit only the local citizenry would be in conflict with our mission. Bitter Creek NWR is one of over 550 refuges in this network. The range review that was conducted in 2010 by George and McDougald and other information from public and internal scoping was considering during the development of the Draft CCP. The Service's responses to comments received on the March 2012 Draft CCP/EA are herein and the Final CCP has been revised, as appropriate.

U.S. Fish & Wildlife Service Response



Alison Sheehey
<natureali@gmail.com
>
05/16/2012 11:13 AM

To: fw8plancomments@fws.gov
cc:
Subject: Hopper Mountain

Dear Planners,

1 | My tax dollars have been used in a manner quite acceptable to me for the management of Bitter Creek National Wildlife Refuge.

2 | Protecting wildlife and allowing for the gradual return to a natural pregrazing ecosystem on this condor refuge has been amazing to watch. In the last month I visited the refuge driving slowly along Cerro Noroeste Road and was thrilled to see so many grassland obligate species reoccupying their niche on the west side of Kern County.

3 | I understand the rancher who originally attempted to block the purchase of this ranch has now acquired enough political clout to effectively bring back the ruinous practices of unnatural grazing to this amazing ecosystem.

I strongly object to having my tax dollars fund a single rancher at the expense of the habitat and the wildlife and plants that depend on an undisturbed ecosystem.

Thank you.

Alison Sheehey
PO Box 153
Weldon, CA 93283



18. Sheehey, A.

Response 18-1. Comment noted.

Response 18-2. Comment noted.

Response 18-3. Comment noted. Livestock grazing will be used only as necessary to achieve refuge resource objectives. Bitter Creek NWR Strategy 2.2.3 (in CCP Chapter 4) implements prescriptive grazing if appropriate to meet resource objectives (for example, to improve habitat for a target wildlife species). When found appropriate to meet resource objectives, livestock grazing can be a cost-effective tool. Bitter Creek NWR Strategy 4.3.3 calls for exclusionary fencing to protect riparian and wetland areas from potential contamination and damage from livestock grazing. Grazing Compatibility Determinations and agreements/permits also include measures to protect water quality and refuge resources.

1 The Bitter Creek national Wildlife Refuge is a neighbor to my business and my home. And my greatest concern is insufficient management of the refuge resulting in an increased fire risk. In order to alleviate these concerns the USFWS must come up with a feasible grazing plan that addresses the fuel load. A feasible plan can only be created by consulting with livestock operators, not just academic types. Only grazing certain portions every 2-6 years will not adequately address the fire hazard

2 In the introduction to the grazing plan Objective 2.3 of the draft states, "Within 10 years, manage up to 7,000 acres of the refuge's grasslands to achieve a mosaic of habitat structure and floristic diversity,". 7,000 acres is less than half of the refuge. Throughout the CCP I did not find scientific documentation that would justify leaving more than half of the refuge unmanaged. In addition grazing is excluded from the entire Bitter Creek canyon. With the prevailing wind, and up-slope grade you have all the ingredients for a fire funnel.

3 An astonishing comment on page 115 of the draft CCP states that, "The service considered strategies to protect the headwall oaks from wildfire, such as creating firebreaks around the headwall area. Even if wildfire burns through the headwall area, trees and snags would likely remain as roosting structure for condors. Additionally if sufficient roosting is not available at headwall oaks, condors will simply roost elsewhere on the refuge or in the area. The service decided aggressive fire suppression and fuels management would not add value to the condor roost area."

4 My families property is directly adjacent to the Bitter Creek Headwall, and my families home is directly down wind of the Bitter creek headwall. A wildfire in the Oaks, Pinyons, and Juniper of the headwall would result in a total loss of the woodland there and create a significant risk to all neighboring property, not to mention an unabated path of fire directly into Los Padres National Forest. A comment like this is at best naive, and at worst negligent.

5 Section 2 central (Bitter Creek) should be grazed in order to reduce the fuel load and to combat the robust Tamarisk growth. Strips of land across Bitter Creek section 2 central of the grazing plan should be grazed, if not the whole section, as well as the roads maintained, in order to prevent a fire from proceeding unabated up Bitter Creek
6 into the headwall. My families property to the north provides an adequate buffer from

U.S. Fish & Wildlife Service Response

19. Snedden, A.

Response 19-1. The Service is considering livestock grazing to reach objectives included in the Prescribed Grazing Plan for Bitter Creek NWR (Grazing Plan) although grazing may reduce the amount of vegetation available to burn, grazing is not being used primarily to reduce fuels. Response 4-2 provides information about wildfire suppression at Bitter Creek NWR. Response 2-2 provides information about how grazing cannot completely eliminate the risk of fire. Response 19-6 provides information about how the Service addresses the fire risk at Bitter Creek NWR.

Response 19-2. Bitter Creek NWR Objective 2.3 addresses 7,000 acres, which is over 71% of the areas covered by the California naturalized annual and perennial grassland plant community on Bitter Creek NWR. Grassland is found on approximately 67% of the 14,097-acre refuge. The other 33% of the refuge is covered by other plant communities, for which management is described under Bitter Creek Goals 3-5 in Chapter 3 of the Draft CCP. The Service is not leaving more than half of the refuge unmanaged. The other grassland may not be subject to grazing, but would be subject to other management actions described under Goal 2 for the refuge.

Response 19-3. Same as response 4-2.

Response 19-4. The quotation in the comment was excerpted from the rationale for Bitter Creek Objective 1.4 to provide roost areas for the condor; the associated Rationale 1.4 was not intended to address wildfire suppression at the refuge. The text in the rationale for Objective 1.4 was revised in the Final CCP to clarify that keeping the public and firefighters safe is always the first concern and wildfires will continue to be suppressed at Bitter Creek NWR. Response 4-2 provides more information about fire suppression and the headwall area.

Response 19-5. The Service does not intend to use livestock grazing to manage tamarisk growth in Bitter Creek because it grows in riparian areas that would be excluded from grazing. The areas where tamarisk has been removed from this canyon in the past are extremely steep and have easily erodible soils. The Service intends to continue using integrated pest management techniques (including both chemical and mechanical methods [using herbicide and digging and physical removal of plant roots]) to remove tamarisk on refuge lands.

Response 19-6. The Service will continue to implement wildfire prevention measures including establishment and maintenance of fuel breaks that prevent wildfire spread onto and off of refuge lands. The Service's policy at Bitter Creek NWR is wildfire suppression; all wildfires will continue to be suppressed. Bitter Creek NWR has an approved fire management plan that calls for aggressive suppression of all wildfires as required by Department of the Interior and Fish and Wildlife Service policy. The Service has entered into mutual aid agreements with the State, County, and Federal wildland firefighting agencies to provide for an aggressive, coordinated local response to wildfires. Response 4-2 provides more information about fire suppression and the headwall area.

U.S. Fish & Wildlife Service Response

Comments on the Draft CCP 5/17/12

Austin Snedden

6 the valley due to proper fuel management, but it is not neighborly to place all the burden on surrounding property owners for fire prevention.

7 As a businessman and a land manager, I do my due diligence to manage the fuel load and prevent wildfires on my property, that activity inadvertently protects and benefits my neighbors. Currently my life and property are at a greater risk because of USFWS lack of management. I should be at no greater risk by being neighbors with the USFWS than I would be if Bitter Creek was owned by a private citizen. A Fire Management Plan must be included in this CCP, and it must outline aggressive fire prevention and preparedness, as well as aggressive fire suppression in the event of any fire.

Response 19-7. Same as response 19-6.

REC'D JUN 7 2012

Richard and Susie Snedden
P.O. Box 129
Maricopa, CA 93252

Pacific Southwest Region, Sandy Osborn
U.S. Fish & Wildlife Service
2800 Cottage Way, W-1832 Refuge Planning
Sacramento, CA 95825

May 31, 2012

Re: Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges Draft Comprehensive Conservation Plan and Environmental Assessment, March 2012

Dear Ms. Osborn:

We submit these comments to you in regard to the USFWS "Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges Draft Comprehensive Conservation Plan and Environmental Assessment, March 2012."

1. Federal land management designations

We respectfully request that you remove the reference in the Introduction, Chapter 4, p.95, "pursue . . . cooperative management agreement on Bureau of Land Management (BLM) Bitter Creek Area of Critical Environmental Concern (ACEC)." The BLM's proposed land designation "Bitter Creek ACEC" is still in draft stage and therefore, referencing it in this document is premature. We have formally registered our objection to the BLM's proposal for the ACEC which would include over 5,000 acres of our private property.

In regard to the CCP Goal 5.2.5 (p. 127) for Bitter Creek NWR – "Coordinate with neighboring land management agencies and organizations to establish a commonly recognized landscape management area with partnerships or agreements to reach common management goals." We object to any proposals by the federal government that include private property within such land designations or management areas as they restrict use, restrict sale options and subject the private property owners to targeting by environmental groups and/ or government oversight. At least 75% of the Bitter Creek NWR is surrounded by private land. The continual mention in the CCP of partnerships with adjacent land management agencies and organizations only applies to roughly one-fourth of the land that is adjacent to the refuge. Landscape-type management plans, without all property owners within that landscape agreeing, are insupportable.

2. Remove references to the "Approved Update to the Fire Management Plan for the Bitter Creek NWR"

We request that the Service remove every reference to the "approved update to the Bitter Creek NWR Fire Management Plan" and like references to a BCNWR FMP from the CCP/EA document. As we learned at the meeting with the Service on May 17, in Taft, the BCNWR Fire Management Plan that was approved under a Categorical Exclusion in 2001 is not in compliance with current federal law. We urge the Service to prepare a draft BCNWR Fire Management Plan with a NEPA review, as soon as possible, so that the refuge neighbors can be assured that the Service has a current and clear fire response plan in place.

U.S. Fish & Wildlife Service Response

20. Snedden, R. and S.

Response 20-1. The term ACEC was deleted from CCP Chapter 4, page 95, describing future cooperative management between the Service and BLM and the text was revised.

Response 20-2. Under Goal 5 to benefit ecosystem function and landscape connectivity, the purpose of Bitter Creek NWR Strategy 5.2.5 was to help neighboring land management agencies such as the Service, BLM, and U.S. Forest Service, and Wildlands Conservancy to coordinate efforts to learn more about the existing movement corridors used by wildlife and coordinate our management practices across our common, existing boundaries adjacent to Bitter Creek NWR. This Strategy 5.2.5 does not apply to privately owned lands. These management practices are addressed in the Draft CCP/EA.

Response 20-3. The Service has a current Fire Management Plan (FMP) in place and we have completed the appropriate level of NEPA compliance (categorical exclusion) for the fire suppression activities that are covered by the FMP. We are periodically required to update the FMP to accommodate minor language changes required by policy. The amended FMP for Bitter Creek NWR was an administrative update to address new fire suppression agreements and new policy. We have not changed our fire suppression activities as a result of the FMP update and have therefore concluded that a categorical exclusion is the appropriate level of NEPA compliance.

When we update the FMP, we will provide for public review and complete the appropriate level of NEPA. Until that time, all wildfires will continue to be suppressed.

U.S. Fish & Wildlife Service Response

3. Remove the use of fire from the Bitter Creek NWR Management Plan

In 2008 significant controversy was generated from the Service's inclusion of fire as a management plan for the BCNWR. The Kern County Planning Department Division Chief Lorelei Oviatt's letter to USFWS 7/30/08 reads,

"Since 2002, the Kern County Board of Supervisors has been on record with the U.S. Fish and Wildlife Service as requesting cooperating and participating agency status on all matters that affect lands within Kern County and businesses that rely on public lands with the Kern County Planning Department as the reviewing department. The three proposed alternatives include prescribed burning as a management tool, an action that has adverse human safety, air quality and related health effects on Kern County citizens. The CEQ NEPA regulations clearly define the human environment to include both the natural and physical environment including human health. Such impacts to human health include the risk of damage from wildfires and exposure to air pollutants. The use of an EA is inadequate and if prescribed burning continues to be included as a management tool, than a full Environmental Impact Report should be prepared to fully inform the public of the impacts."

Letter to the USFWS from the Kern County Board of Supervisors 7/29/08:

"The Environmental Assessment is significantly deficient in providing any analysis or quantification of the significant air impacts of controlled burns. The severe non-attainment status of this air basin and recent determinations on standards for PM 2.5 appear to demand that controlled burning be eliminated from your plan."

The Service made a public promise in its Spring 2009 Planning Update, "We listened carefully to those concerns and have removed prescribed fire from the revised EA."

Despite the public outcry and Service promises concerning the use of fire in managing the refuge, the Draft CCP/EA still provides for the use of fire in all three of the management alternatives presented for the BCNWR.

We request that the use of fire and burning be removed completely from the Service's management plan for the Bitter Creek National Wildlife Refuge. The Bitter Creek Refuge topography, wind patterns and neighboring vicinity are too vulnerable to the possibility of an escaped fire which could destroy humans, animals, property and air quality. A fire-friendly refuge manager with the authority to use fire presents a frightening prospect to residents and businesses in the vicinity of the BCNWR. The Service should utilize an effective livestock grazing plan to mitigate the fire hazard.

We respectfully request that the Service remove the following references to fire use and to the Bitter Creek Fire Management Plan (FMP) that we found in the CCP/EA, and remove any other references that we may have missed:

Intro to CCP

p. 13- "The approved update to the Fire Management Plan for Bitter Creek NWR allows prescribed burning in the form of pile burning. (USFWS 2001)"

p. 22 - "The approved update to the fire Management Plan (FMP) for Bitter Creek NWR allows prescribed burning in the form of pile burning (USFWS 2001). No changes are proposed to the existing approved FMPs for Hopper Mountain, Bitter Creek, and Blue Ridge NWRs in association with this CCP."

Appendix B (EA) p. 5 - "The approved update to the Fire Management Plan (FMP) for BCNWR allows prescribed burning in the form of pile burning (USFWS 2009) In this CCP, prescribed burning will

Response 20-4. Prescribed fire for habitat management is not being proposed at Bitter Creek NWR. In the Draft EA, Bitter Creek NWR Alternative A reflects current management of the refuge and current management does not include prescribed fire for wildlife habitat/vegetation management. Bitter Creek Alternative B includes an error; prescribed fire for wildlife habitat/vegetation management is not being proposed. Response to 2-1 provides more information. Because Alternative C includes some of the same actions as in Alternative B, that same error is referenced. These are corrected in the Final EA.

Response 20-5. Same as response 20-4.

Response 20-6. Prescribed fire for habitat management is not being proposed at Bitter Creek NWR and it is not included in the approved FMP for Bitter Creek NWR; pile burning is included in the approved FMP. The CCP refers the current FMP for which the Service has completed the appropriate level of NEPA compliance. Pile burning is a reasonable, economical limited use of fire to reduce hazardous fuels. When conducted in winter or spring months with low fire danger it presents minimal to no risk to adjoining landowners. Risks will be mitigated through an approved prescribed burn plan (for pile burning) as required by DOI and Service policy.

6 cont' continue to be limited to pile burning until the appropriate role and feasibility of using fire on the refuge are determined and the CCP and FMP are amended. Prescribed fire for habitat management purposes at Bitter Creek NWR is not a part of the alternative CCP actions and is not carried forward for detailed analysis"

7 **Appendix B (EA) p. 17 "Grassland Invasive Species" (Alternatives B & C) – "Evaluate use of prescriptive livestock grazing and prescriptive burning to reduce invasive plants as part of IPM Plan."**

8 **Appendix 1 (Best Management Practices) – p. 116 "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."**

9 **Appendix B EA – "Environmental Effects" 4.2**

p. 53 – "Air Quality" – Alt. A, B, C, – "minor negative impact due to increased particulate emissions from pile burning for vegetation management" (Alt C= "additional pile burning")

p. 58 – (Alt. A) – "Limited pile burning would continue to reduce fuel loads and burn vegetation cleared for fire break and trail maintenance, opportunistic removal and disposal of dilapidated fencing and to protect facilities from burning in the form of pile burning. (USFWS 2009)"

[However, p. 16 (Alt A) says, "No treatments (e.g. no grazing, no prescriptive burning)"]

6 cont' **p. 59 – (Alt. A, B, C) – " . . . would generate additional pile burning activities relative to Alt A. Approximately 250 additional piles (each pile being 2 to 3 feet high and about 16 square feet at the base) of oak tree branch and chaparral trimmings would be burned on the refuge for fuels reduction and to clear roads over the next 15 years."**

Intro to CCP, Chapter 4, p. 115 HEADWALL AREA (UNIT 3 EAST)

10 "The Service considered strategies to protect the Headwall oaks roosting area from wildfire, such as creating firebreaks around the Headwall area. Even if wildfire burns through the Headwall area, trees and snags would likely remain as roosting structure for condors. Additionally, if sufficient roosting is not available at Headwall oaks, condors will simply roost elsewhere on the refuge or in the area. The Service decided that aggressive fire suppression and fuels management would not add value to the condor roost area."

4. Eliminate Tule elk and/or Pronghorn antelope introduction proposals for Bitter Creek NWR from the CCP/EA. Seriously address the proliferation of mountain lions, coyotes, ravens and other predators.

11 We respectfully request that the Service refrain from inflicting harm to the public and also respect the private rights of its neighbors by eliminating any and all proposals for human-manipulated introduction of Tule elk and Pronghorn antelope onto the Bitter Creek NWR. California condors, black-tailed deer and other animals and plants have been residents of the hills of Bitter Creek and the surrounding ranchlands for years. Plants, wildlife and domestic livestock have lived there in harmony for well over a century. But fire, elk and antelope (none of which are endangered) are not good neighbors and they are not historical residents of significance of the Bitter Creek. Fire, elk and antelope are not necessary components for the recovery of the condor or for the biodiversity of the Bitter Creek. Elk and antelope do not respect fences (whether privately or taxpayer-financed fences); they are migrating animals and will not only destroy neighboring ranchers' feed and fences, but they can cause injury or death to motorists on local state and county highways in a collision. The serious problem of predators, particularly, mountain lions on the Refuge, is glossed over with the summary statement, "seek alternatives to reduce potential conflicts between mountain lions and condors." In our history on the ranch, we've never had so many mountain lion sightings. We know that the condor feeding program is a draw for lions – and contributed to the death of three condors – we have been missing steers as well

12

U.S. Fish & Wildlife Service Response

Response 20-7. Same as response 20-4.

Response 20-8. Appendix 1 to the EA, Best Management Practices (BMPs) apply to all 3 refuges; prescribed fire for wildlife habitat/vegetation management is included for Hopper Mountain NWR and Blue Ridge NWR. While the BMPs are general and apply to all 3 refuges, separate FMPs are prepared for each refuge. The approved FMP for Bitter Creek NWR allows for pile burning.

Response 20-9. The Service has a current FMP in place and has completed the appropriate level of NEPA (categorical exclusion) for the fire suppression activities that are covered by the FMP. We are periodically required to update the FMP to accommodate minor language changes required by policy. We have not changed our fire suppression activities as a result of the FMP update and have therefore concluded that a categorical exclusion is the appropriate level of NEPA compliance.

Response 20-10. Same as response 19-4.

Response 20-11. The potential effects on the human environment from CCP actions are described and disclosed to the public in the Draft EA and Final EA in compliance with the National Environmental Policy Act. Elk and antelope occurred in the Bitter Creek area prior to European settlement. Today, tule elk and pronghorn antelope populations are managed by the state (California Department of Fish and Game). The Service has no plans to introduce elk or antelope onto the refuge and none are proposed in the Draft CCP. Wildfire has occurred in California since before it was inhabited. A summary of the historic role of fire in California was added to the Final CCP, Chapter 3. The refuge will be managed for biological integrity, diversity and environmental health. Elk and antelope may be a part of that diversity of wildlife. Fire, elk, and antelope are not being proposed as a component of the recovery of the condor.

Response 20-12. Predator management and a depredation program will be evaluated and addressed as part of the Integrated Pest Management (IPM) Plan as described in Bitter Creek Strategy 1.4.4: Develop predator management measures for the refuge (as part of the IPM Plan). In addition to examining mountain lion predation on condors, the IPM Plan may also address coyotes and ravens, as needed. The Service is not aware of a decline in prey animals on the refuge, as mentioned in the comment.

U.S. Fish & Wildlife Service Response


Response 20-13. The Service acknowledges the fact that federal planning processes can take multiple years and has kept the public updated on the process in the multiple Planning Updates (newsletters) that have been distributed over the years. The Service also appreciates when the public and neighboring landowners respectfully share their perspectives and experience as the commenter and others have over recent years.

12 and suspect lion kills. U.S. taxpayers can't afford to feed million dollar condors to mountain lions for lunch – the Service should pursue a depredation program, which will help protect neighbors as well. Without a plan for controlling coyote and raven populations, the Refuge will continue to experience a decline in the prey animals.

5. Practice what you preach.

13 Many of us with lifetime histories of managing land either on or adjacent to the Bitter Creek Refuge have submitted formal comments several times in the past five years – specific and constructive comments - that have been ignored in spite of the Service's policy 601FW3, "that requires sound professional judgment, incorporates field experience, knowledge of refuge resources . . . including consultation with others both inside and outside the Service." (CCP Chap. 2, p. 25) One of the Service's guiding principles states, "we respect the rights, beliefs, and opinions of our neighbors." (CCP Chap. 1, p.5) We submit these comments with little reason to believe that they will be given serious consideration; but our primary request is that the Service DO NO HARM TO THEIR NEIGHBORS.

Sincerely,


Richard and Susie Snedden



Denise Stockton
<dstockton@taft.k12.ca.us>

To: "fw8plancomments@fws.gov" <fw8plancomments@fws.gov>
cc:
Subject: Hopper CCP

06/11/2012 03:01 PM

Comments regarding CCP for Hopper Mtn NWR, Blue Ridge NWR and Bitter Creek NWR.

Hopper Mtn NWR: Alternative A –No Action

1 This is a very small refuge with extensive condor crew activity and adding a grazer to the mix
2 should not be considered. I agree that the archaic crew quarters should be removed. Surveys
3 need to be done and species should be mapped to protect them from aggressive condor crew
activity. The condor biologists from supervisors on down should be educated about potential
harm to the refuge by unauthorized ATV trails, carcass dumps and a multitude of vehicles
(carbon footprint...). There should be more balance between the objectives of restoring the CA
condor and protecting the refuges.

Blue Ridge NWR: Alternative A- No Action

4 No grazing, spraying or mowing plans should be developed without extensive, comprehensive
surveys for both botanical and biological species.

Bitter Creek NWR: Alternative A- No Action

5 No grazing, spraying or mowing plans should be developed without extensive, comprehensive
6 surveys for both botanical and biological species. A professional botanist has volunteered for the
last few years and has developed the first formal species list, without volunteers there would be
7 no surveys. Traditionally this refuge has a staff of one, with no support. Without funding and
8 support it is ridiculous, naïve and disingenuous to consider Alternative B. The Fish & Wildlife
Service Region 8 has bowed to political pressure in the past to implement grazing without going
through the proper and legally required steps. The previous grazer was allowed to graze over 20
9 years with very little control or oversight, I do not believe without a substantial change in
staffing/funding that grazing can be used without going down that same road. Without extensive
fencing out of cattle (which also requires funding) for sensitive areas these areas (watershed and
forested, etc.) will be at considerable risk. The current project leader has decided that a
permanent corral built by the previous grazer and poised over a sensitive riparian area should be
kept as a valuable asset. Fencing off the riparian area will not protect it from the runoff. Region 8
must not be allowed to cut corners to satisfy the few loud voices over the benefit for the many.

U.S. Fish & Wildlife Service Response

21. Stockton, D.

Response 21-1. Comment noted. Prescriptive grazing will only be considered to achieve refuge resource objectives.

Response 21-2. Comment noted.

Response 21-3. Comment noted. CCP Chapter 4 includes strategies for surveying and protecting plants and wildlife on Bitter Creek NWR: Strategies 2.1.1 through 2.1.5 benefit grassland resources, strategies 3.1.1 through 3.1.5 benefit oak and other woodlands, and strategies 4.1.1, 4.1.2, 4.2.1, and 4.1.1 benefit riparian and wetland resources. Condor biologists are required to stay on designated road and trails and Bitter Creek strategy 5.1.2 calls for evaluating and closing unneeded roads. Response 8-2 provides more information about balancing management objectives.

Response 21-4. While we would like to conduct comprehensive surveys of plants and wildlife for each refuge unit prior to conducting any management activity, such surveys are extremely costly and time consuming and we often lack the resources to conduct them. Acquiring baseline scientific information that helps inform management decisions about key refuge resources is a priority for the Service. Chapter 4, section 4.7, page 134 of the Draft CCP, Blue Ridge Objective 2.1 includes collection of baseline information (data) about the presence and distribution of special status species on the refuge. Additionally, monitoring of refuge resources is included in the strategies and will be an important component of future Habitat Management Plans (HMPs).

The Environmental Assessment (Appendix B) describes the management actions proposed for Blue Ridge and evaluates the environmental impacts of these actions. Where needed, we prescribe measures such as targeted surveys for sensitive species that would be completed prior to implementing management actions with reasonable potential to adversely affect these species.

When conducting management actions in areas that have not been specifically inventoried we rely on the best available data to inform our management decisions and ensure we conduct appropriate actions. In the absence of site-specific data, there are often inventories of similar habitats nearby that can help to inform refuge staff of likely sensitive or special status species that could occur on refuge lands. In addition, managers rely on published scientific literature about management actions, such as grazing or mowing, that can provide guidance on how to implement actions and identify anticipated impacts. Evaluating appropriate available information is important prior to completing management actions. In addition, completing monitoring to evaluate and determine if management objectives have been achieved is equally important so that future actions can be adapted as needed to achieve the future desired conditions. These standard measures to evaluate existing and historic data regarding refuge resources, clearly articulating management objectives, and monitoring results are fundamental to refuge management operations and help to ensure that we are conducting effective management actions.

Response 21-5. Comment noted.

Response 21-6. Managing Bitter Creek NWR is a partnership between Service staff and volunteers. For fiscal year 2012, intern volunteer work on the refuge contributed over 4,000 hours and other Service staff contributed approximately 4,000 hours toward refuge management activities. CCP implementation includes filling existing position vacancies.

Response 21-7. The Draft and Final CCP/EA and appendices analyze the potential effects of implementing the CCP actions (including prescriptive grazing) in accordance with the National Wildlife Refuge System Improvement Act of 1997, the National Environmental Policy Act, and all other applicable policies and guidance (see Table 1-1 of the Draft CCP for a list of policies).

[Responses 21-8 and 21-9 are provided on the following page]

U.S. Fish & Wildlife Service Response

10

What's missing in this plan is that native resident tule elk need to be enthusiastically encouraged. The water troughs/ponds that keep the elk on the refuge need to be maintained and should not be diverted at least not until the elk move in towards other springs. There are from 30-40 head and many calves born on the refuge over the last few years. This population growth only occurred since the cattle were moved off the refuge and keeping cattle off will only encourage the tule elk population to grow. It has been documented that the condors in Arizona prefer native ungulates to still borne calves. Cattle ranchers do everything in their power to prevent deaths of their cattle

11

so banking on them to feed the condors is unrealistic. Cattle do not have to be located on the refuge for a condor to feed on, condors can fly many miles a day in search of food. They currently are encouraged to stay put with an abundant feeding program. In short, using the condors to justify cattle grazing is wrong.

Denise L Stockton
301 Chevron Place
Taft, CA 93268

Response 21-8. The Service would utilize exclusion fences to mitigate potentially adverse effects near Tricolored blackbird habitat and other sensitive areas on the refuge. In the Draft CCP, Bitter Creek NWR Strategy 4.3.3 requires exclusionary fencing to protect riparian areas and wetlands from grazing. Additionally, the Grazing Plan (Appendix H) excludes grazing from riparian areas. Further, the agreement/permit between the grazing cooperator and the Service includes additional protections for refuge resources.

Response 21-9. Same as response 21-8.

Response 21-10. Comment noted. The refuge staff will continue to work in coordination with Wind Wolves Preserve to the benefit of the resident tule elk that use both the Preserve and the refuge (see Bitter Creek NWR Strategy 1.5.2 regarding the Preserve's annual ungulate survey). Bitter Creek Strategies 4.3.1 and 4.3.2 support Goal 4 to restore and maintain the integrity and environmental health of Bitter Creek NWR's riparian areas and wetlands and improve water quality and quantity for plant communities and all native wildlife (not only ungulates). To implement these strategies, managers will modify water control structures to reduce the number of diversions of natural flows, while retaining diversions for fire suppression, bunkhouse use, and prescribed livestock grazing needs. The water control infrastructure will be left in place while the water control system is adaptively managed to achieve Objective 4.3 to restore natural flows of 3 select springs.

Response 21-11. The Service is not proposing cattle grazing to benefit condors. Same as responses 21-1 and 8-3.



Arthur Unger
<artunger@att.net>
04/09/2012 11:25 PM

To: fw8plancomments@fws.gov
cc:
Subject: "Hopper CCP"

Dear Sandy Osborn,

I comment only as an individual and not on behalf of any organization.

1 Ideally, I think, all wildlife refuges should be open to the public at all times. However, the
2 refuges should first be obligated to increase the quantity and quality of habitat for
sensitive species and secondly to restore the ecosystem within their boundaries. The
public should be allowed only when there is enough money to hire enough staff to
monitor the public so that sensitive species and the ecosystem can be completely
safe-guarded.

3 Wheeled vehicles should be used for maintenance only when absolutely necessary.
4 Vehicle impacts may well prohibit people like me, who can not walk far due to old age,
from ever getting far from the edge of the refuge. Young disabled people might
occasionally be allowed in multi passenger vehicles and in wheel chairs. Limited water
supply prevents overnight public occupancy.

5 If there are places where vehicles can safely pull off the road near the Refuge in hopes
of seeing a condor or other wildlife, those places should be signed.

Thank you for the opportunity to comment,

Arthur Unger

2815 La Cresta Drive

Bakersfield, CA 93305-1719

(661) 323 5569

artunger@att.net preferred

U.S. Fish & Wildlife Service Response

22. Unger, A.

Response 22-1. Unlike many other public lands, national wildlife refuges are for "wildlife first" and refuges are closed to public use until opened; see Draft CCP page 144, sec 5.9 and 5.10. The common purpose for acquiring lands for Hopper Mountain, Bitter Creek, and Blue Ridge NWRs is: to conserve fish or wildlife, which are listed as endangered species or threatened species...or plants...16 U.S.C. Sec 1534 (Endangered Species Act of 1973, as amended). Therefore, wildlife and plants are our first priority in the refuge system; secondly, the Refuge Improvement Act of 1997, charges the Service with facilitating wildlife-dependent public uses, defined as hunting, fishing, wildlife observation and photography, and environmental education and interpretation, when compatible with the purposes for which the refuge was established. Chapter 5 of the CCP provides more information on how the Service determines if a use is compatible with refuge purposes and Appendix C provides the Compatibility Determinations for each of the 3 refuges.

Response 22-2. Staffing and sensitive resources were taken into consideration in developing the CCP actions and will be with future management decisions implementing the CCP.

Response 22-3. Comment noted. The Service keeps maintenance vehicles on existing roads and maintained trails; maintenance, research, and public vehicles would be restricted to public roads. In the Final CCP for Bitter Creek NWR Strategy 6.2.3 (in CCP Chapter 4), "tours" will be added to "offer joint walks, talks, tours, and volunteer opportunities." Our intent is to make outdoor areas accessible to the maximum extent feasible, understanding that there are limitations and other constraints posed by the existing outdoor environment.

Response 22-4. Camping is not permitted on these refuges; no overnight facilities are planned. Camping opportunities are provided on other Federal lands near the refuge.

Response 22-5. In Chapter 4 of the CCP, the Bitter Creek NWR Strategy 6.3.4 includes an auto pull-off and signage at a condor observation point on the refuge along Cerro Noroeste Road (south of its intersection with Klipstein Canyon Road).

U.S. Fish & Wildlife Service Response



Michelle Wotherspoon
-zldarra@yahoo.com-
06/11/2012 04:17 PM

To: fw8plancomments@fws.gov
cc:
Subject: Comments regarding CCP for Hopper Mtn NWR, Blue Ridge NWR and Bitter Creek NWR.

- 1 Hopper Mtn NWR: Alternative A –No Action
Blue Ridge NWR: Alternative A- No Action
Bitter Creek NWR: Alternative A- No Action
- 2 No grazing, spraying or mowing plans should be developed without extensive, comprehensive surveys for both botanical and biological species.
- 3 Tule Elk has seen leaps in growth since the removal of cattle grazing. Bitter creek is teeming with life from all species once the cattle had been removed from the refuge. The damage to the earth, drainage and riparian areas were almost completely devastated.

23. Wotherspoon, M.

Response 23-1. Comment noted.

Response 23-2. Comment noted. Same as response 21-4. Chapter 4, section 4.7, page 134 of the Draft CCP; Bitter Creek NWR Objective 2.1 includes collection of baseline information (data) about the presence and distribution of special status plants and wildlife on the refuge.

Response 23-3. Comment noted. Where grazing is deemed appropriate to achieve refuge resource objectives, the Service will protect the drainages and riparian areas, typically by excluding livestock from riparian areas and wetlands (see Bitter Creek NWR Strategy 4.3.3). Response 18-3 provides more information.



charles wright
<wright.native@ebcplb
bal.net>

06/08/2012 11:29 AM

To: fw8plancomments@fws.gov
cc:
Subject: bittercreek refuge

- 1 | dear wildlife leaders and experts. please do not allow cattle back on bittercreek. i must write because the vested interests of the cattle industry are great. the interests of wildlife are not financially backed and must be heard. Please let the native browsers return as they have at windwolves. there are so few few places left for wildness. please keep this one wild. nature will love you for it. sincerely,
- 2 | chuck wright, p.o. box 5384, pine mountain club, ca. 93222.

U.S. Fish & Wildlife Service Response

24. Wright, C.

Response 24-1. Same as response 18-3. Also, to clarify, the Service currently has a special use permit for grazing (a private neighboring landowner continues to be authorized to use a small noncontiguous portion of the refuge for grazing under an annual permit), in the southern part of Bitter Creek NWR.

Response 24-2. Comment noted. Objectives under Bitter Creek NWR Goal 5 are intended to enhance movement of native browsers (ungulates such as elk and antelope) across the landscape. Bitter Creek NWR Strategy 5.2.6 (in CCP Chapter 4) is meant to foster coordination among neighboring agencies to improve wildlife movement between refuge lands and other willing agencies' lands. Strategy 1.5.2 is intended to foster coordination with the neighboring Wind Wolves Preserve to determine population and trends of ungulates such as elk.



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Working to protect and restore Western Watersheds

June 11, 2012

VIA EMAIL - Hopper CCP

Pacific Southwest Region
U.S. Fish and Wildlife Service
2800 Cottage Way, W-1832 (Refuge Planning)
Sacramento, CA 95825-1846

< fw8plancomments@fws.gov >
< Marc_Weitzel@fws.gov >

Re: Draft Comprehensive Conservation Plan and Environmental Assessment (CCP/EA) for the Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges

Dear Refuge Planners:

Western Watersheds Project is pleased to assist the United States Fish and Wildlife Service ("Service") by providing these comments on the Draft Comprehensive Conservation Plan ("CCP/EA") for the Hopper Mountain, Bitter Creek and Blue Ridge National Wildlife Refuges.

Western Watersheds Project is a regional conservation organization with offices in California, Arizona, Idaho, Montana, Utah, and Wyoming. Western Watersheds Project works to protect and conserve the public lands, wildlife and natural resources of the American West through education, scientific study, public policy initiatives, and litigation. Western Watersheds Project and its staff and members use and value the nation's public lands, including the National Wildlife Refuge lands at issue here, and its wildlife, cultural and natural resources for health, recreational, scientific, spiritual, educational, aesthetic, and other purposes.

Because the CCP will affect resources on these public lands that are important to Western Watersheds Project and its staff and members, Western Watersheds Project has an active interest in the management of these Refuges. On September 19, 2008 we submitted comments on the Service's Environmental Assessment for Grassland Habitat Management and Restoration Plan for the Bitter Creek National Wildlife Refuge. Western Watersheds Project submitted scoping comments for the CCP/EA planning process on May 20, 2010.

Please consider the following comments on the EA, the draft CCP, the grazing plan, and the grazing compatibility determination as you work to revise and re-develop the CCP. In

U.S. Fish & Wildlife Service Response

25. Western Watershed Project

[responses to comments begin on the next page]

addition to the comments submitted herein, we incorporate by reference the following comments submitted by experts in their respective fields as follows:

- The comments of Dr. Elizabeth Painter, PhD, a botanist, identifying deficiencies and inadequacies in protection of biological resources and management of grazing, inadequacies in the Compatibility Determination for grazing on Bitter Creek, inadequacies in the draft Prescribed Grazing Plan for Bitter Creek, inadequacies in the CCP, and inadequacies in the EA.
- The comments of Pam De Vries, a botanist and restoration ecologist, identifying inadequacies in the Compatibility Determination for grazing on Bitter Creek and Hopper Mountain, the draft Prescribed Grazing Plan for Bitter Creek, the CCP, and the EA.

The comments of these experts identify important deficiencies in the Draft CCP/EA that are similar to points we raise below and that must be addressed in order to provide the USFWS with an adequate and legal basis for its decisions and actions.

1

For convenience and to minimize duplication, we have divided our comments into sections covering the EA, the draft CCP, the grazing plan, and the grazing compatibility determination. Because these are all interconnected parts of the same planning effort please consider that concerns raised in one section of our comments are applicable to the other sections too.

1. PUBLIC INVOLVEMENT

Federal policy is to “Encourage and facilitate public involvement in decisions which affect the quality of the human environment.” 40 C.F.R. 1500.2(d). The response to comments section (Appendix K Scoping Summary Report) was omitted from the Appendices file that was made available to the public. This both limits the public’s ability to review issues and concerns that have been raised during the scoping process and also makes it difficult to ascertain how the Service has addressed specific concerns raised by the public and other entities. The NWR planning staff should rectify this by making Appendix K available and reopening the comment period.

2. COMMENTS ON THE ENVIRONMENTAL ASSESSMENT

The *National Environmental Policy Act* (“NEPA”) requires the Service to succinctly describe the affected environment, to consider and analyze a range of reasonable alternatives, and to take a “hard look” at the direct, indirect and cumulative effects of each of those alternatives on the human environment which includes listed species, wildlife and wildlife habitats, plants and their habitats, soils, riparian areas, archeological and cultural values, air and water quality. The Service must also review impacts to these resources in the context of global climate change.

U.S. Fish & Wildlife Service Response

Response 25-1. Comments are noted about comments by E.L. Painter and P. De Vries being incorporated by reference and comments herein being applicable to other sections. Regarding public involvement, Chapter 2 of the CCP contains a summary of scoping and issue identification sufficient for public review of the Draft CCP/EA. Appendix K includes information received during the public comment period on the Draft CCP/EA and is included in the Final CCP/EA.

U.S. Fish & Wildlife Service Response

Alternatives:

The NEPA implementing regulations refers to the selection and review of alternatives as “the heart” of the environmental review 40 C.F.R. § 1502.14. Comparison of the alternatives will help in “sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public.”

During scoping, the Service was asked to consider a number of alternatives for management of the refuges in addition to “current management”. Alternatives proposed include:

- “No Intervention” alternative that would use only natural, passive restoration processes for habitats (i.e. no use of livestock, prescribed burns, mowing or herbicides).
- “Active Restoration” alternative that would eliminate all further unnatural disturbances from habitat (i.e. no use of livestock, prescribed burns, mowing or wide-scale use of herbicides) and utilize active seeding of native plants on the Refuges as the primary restoration tool to create and maintain habitats capable of sustaining wildlife populations. One limiting factor in reestablishment of native vegetation in California grasslands is lack of an available seed bank (Seabloom *et al.*, 2003).
- Enhancement and restoration of habitat for native ungulates (such as mule deer, pronghorn antelope, and tule elk) and other prey items that have served as a food source for condors long before livestock was introduced to this area, reducing the need for supplemental feeding of condors over the long-term instead of stocking the refuge year round with cattle.

Managing the three Refuges as self-sustaining, healthy ecosystems that provide for the conservation of all their listed plant and animal species and provide optimal feeding habitat for the California condor by supporting vigorous deer, tule elk, pronghorn, and black-tailed hare populations would ensure that the Service’s mandate to conserve all the endangered, threatened, and at risk species that are found on these Refuges is met, and would ensure that the biological integrity, diversity, and environmental health of the three refuges are maintained for the benefit of present and future generations of Americans in the most cost-effective manner. Managing Bitter Creek Refuge as a self-sustaining, healthy ecosystem that provides for the conservation of all listed and sensitive plant and animal species and provides optimal feeding habitat for the California condor by supporting vigorous deer, tule elk, pronghorn, and hare populations would also implement the Condor Recovery Plan objective 3.327 “As a refuge, its primary management emphasis should be to support native ungulates as a food source for condors.” (USFWS, 1986 at 29)

The Service has ignored these suggested alternatives. Instead, it has considered three alternatives - current management, and two action alternatives that are very similar to each other and that both include the highly controversial introduction of livestock grazing. This does not

Response 25-2. All input received during scoping was considered by the Service. As summarized on page 5 of the Draft EA, during the public scoping period, some alternative actions for managing the refuge were suggested. Some of these suggestions were consistent with refuge purposes and the mission of the Refuge System and influenced the action alternatives. Others actions were found to be inappropriate given the refuge purposes or infeasible. Based on the input received during scoping, alternatives were formulated to represent the reasonable range of possible management tools and actions to achieve refuge purposes. Based on this analysis in the EA, Alternative B was identified as the preferred alternative and proposed action because it best achieves the Hopper Mountain, Bitter Creek, and Blue Ridge NWR’s goals and purposes, and missions of the Refuge System and the Service.

2 (cont) | meet the requirement for agencies to consider a range of reasonable alternatives mandated by
3 | NEPA. Nor does this meet the obligations of the agency to meaningfully consider public input.

Goals:

4 | The EA at 4 lists a series of “Refuge Goals” including six for Hopper Mountains, six for
5 | Bitter Creek, and three for Blue Ridge. There is no analysis in the EA of consistency of these
6 | goals with the mandates of the Refuge System, with the purposes of the individual Refuges, or
7 | with the actual resource issues faced on each of the Refuges. For example, none of the goals for
8 | Bitter Creek directly addresses the endangered Kern mallow that occurs on the Refuge. The
9 | CCP fails to provide biological goals for most special status species including the listed Kern
10 | mallow.

“Hard Look” Requirement:

An environmental assessment (“EA”) is used to determine whether or not preparation of an environmental impact statement (“EIS”) is necessary. 40 C.F.R. § 1508.9. To support a decision in reliance on an EA alone and the issuance of a Finding of No Significant Impact (“FONSI”), “an EA must take a hard look at the environmental consequences of a proposed action, identify the relevant areas of environmental concern, and make a convincing case that the environmental impacts are insignificant.” Wilderness Watch, 168 IBLA 16, 35 (2006).

In this case, the Service has failed to take the requisite “hard look” in the EA in a number of areas including impacts to listed and special status species, wildlife, rare plants, and cultural resources:

The EA has failed to Consider Impacts of the Proposed Livestock Grazing at Bitter Creek and Hopper Mountain National Wildlife Refuges on the California Condor.

Cattle have not grazed in Bitter Creek National Wildlife Refuge since condor releases started in 2006. Draft CCP at 66. According to the Recovery Plan “[Bitter Creek’s] primary management emphasis should be to support native ungulates as a food source for condors” (USFWS, 1996). There is no consideration of this objective in the EA. Nor is there meaningful consideration that the presence of cattle will negatively affect the native ungulates, or other potential food sources for condors found on the Refuges. There is an extensive literature showing that the presence of cattle alters the behavior of large ungulates including mule deer and elk (Gogan and Barrett, 1987; Kie *et al.*, 1991; Loft *et al.*, 1991; Stewart *et al.*, 2002). Moreover, the EA fails to consider the impact of domestic livestock in the context of Bitter Creek National Wildlife Refuge GOAL 5 - Landscape-level connectivity: Promote ecosystem function by enhancing landscape-level connectivity within the Transverse Ranges through coordinated management.

Grazing of cattle on Bitter Creek will require use of a number of permanent and temporary stock tanks and other developed waters. There is no analysis of the effects of these developed waters on condors, and significantly no consideration of the risk of a West Nile Virus outbreak. The Service is spending considerable resources to regularly capture condors and

U.S. Fish & Wildlife Service Response

Response 25-3. Same as response 25-2. The Service has completed the appropriate level of NEPA and other environmental compliance.

Response 25-4. The purpose of the EA is to disclose the potential effects of the proposed action on the human environment, not to analyze the consistency of the proposed refuge goals with the mandates of the Refuge System or refuge purposes as the comment suggests. Nevertheless, CCP Chapter 1 presents the refuges’ purposes and authorities. CCP Chapter 4 explains that the goals for each refuge are based upon that refuge’s purposes. The objectives and strategies are developed to help the refuges achieve these goals. For each refuge, its goals, objectives, and strategies align directly with the refuge’s purpose.

Response 25-5. The first step the Service plans to take to protect the Kern mallow is to determine where it grows on Bitter Creek NWR and protect those areas from disturbance. Bitter Creek Strategy 3.1.4 calls for surveying for Kern mallow and other special status plants. Biological goals for the Kern mallow can be included in the Habitat Management Plans for the various plant communities on the refuge.

Response 25-6. The potential effects of livestock grazing on the California condor were considered in the analysis of effects. Additional information regarding this assessment is included in the Final CCP/EA.

Response 25-7. In the Final EA, we revised the discussions to include potential adverse effects of the presence of cattle on ungulates, as noted by the commenter, and included the references that follow. Kie *et al.* (1991) and Loft *et al.* (1991) show that the spatial proximity of livestock can affect activity patterns of female mule deer, which tend to feed longer and rest less when in the presence of cattle. This is particularly true during the early and late summer. Stewart *et al.* (2002) found strong partitioning of habitat by elk, mule deer, and cattle. Elk and deer both avoided foraging in areas where cattle were present.

Response 25-8. To ensure that fencing required by the Bitter Creek NWR Prescribed Grazing Plan would not prevent the movement of mammals through this corridor on the refuge, pass structures or other mitigations will be used. For example, where barbed wire fencing is used, a row of non-barbed wire at the ground-level will allow smaller mammals to pass through unimpeded. See Gross *et al.* 1983 and Gates *et al.* 2011. This information has been added to the Final EA.

Response 25-9. Analysis of the potential effects of stock tanks and other developed waters on condors was added to the Final EA.

Response 25-10. Condors at these refuges are vaccinated against West Nile Virus. Responses 25-8 and 25-11 provide more information.

U.S. Fish & Wildlife Service Response

Response 25-11. The potential threat associated with West Nile Virus was added to the CCP/EA. Reference to the potential increase in tricolor food sources was removed from the CCP/EA. The Service would utilize exclusion fences to mitigate potentially adverse effects near tricolored blackbird habitat.

Response 25-12. Reference to the potential increase in tricolored blackbird food sources was removed from the Final EA.

Response 25-13. The list 1B plant species Kern mallow, *Eremalche kernensis* (*E. parryi* subsp. *kernensis*), has been included in the revised Bitter Creek NWR Prescribed Grazing Plan within a list of special status species that will be considered within an adaptive management monitoring plan should livestock grazing be re-introduced to the refuge. There is some evidence that *E. parryi* subsp. *kernensis* possibly benefits yet is also negatively affected by livestock grazing (Mazer et al. 1993, SJVRP 1998) although the results from these two reports are most likely site-specific and both references are not published in peer-reviewed journals and therefore cannot be considered conclusive. There is also evidence that California rangelands are valuable habitat for pollinators (Chaplin-Kramer et al. 2011), which is an important consideration for the population dynamics of *E. parryi* subsp. *kernensis*. Clearly more information is needed both on the location and effect of livestock grazing on the species *E. parryi* subsp. *kernensis* within the Bitter Creek NWR. Once a comprehensive survey for this special status plant species has been considered completed, mitigation measures within livestock grazed areas can include the exclusion of livestock grazing or timed livestock grazing based on the phenology of the plant. Further investigation into the potential benefits or costs of livestock grazing for this plant species is needed. The Service will consider research proposals that support refuge goals.

Response 25-14. The Final EA has been revised as described in response 25-13. Subsequent to a inventory of target plant species, an ecological site description for the grazing units will be conducted to determine whether special status plants could potentially be affected by grazing activities.

10
cont

vaccinate them against West Nile Virus. Artificial stock tanks, water developments, and water-filled hoof prints provide breeding habitat for mosquitoes that carry West Nile Virus and the presence of livestock near these water developments provides a ready-food source for the mosquitoes (Walker and Naugle, 2012). Cattle will also be allowed to graze in and around vernal pools where manure deposition may improve the habitat for mosquitoes.

The EA has failed to Consider Impacts of the Proposed Livestock Grazing at Bitter Creek and Hopper Mountain National Wildlife Refuges on the Tricolored Blackbird.

11

Tricolored blackbirds, *Agelaius tricolor*, are susceptible to West Nile Virus (MMWR, 2010). Grazing of cattle on Bitter Creek will require use of a number of temporary and permanent stock tanks and other developed waters. There is no consideration of the risk to Tricolored blackbirds of a West Nile Virus outbreak associated with these waters. Artificial stock tanks, water developments, and water-filled hoof prints provide breeding habitat for mosquitoes that carry West Nile Virus and the presence of livestock near these water developments provides a ready-food source for the mosquitoes (Walker and Naugle, 2012). Cattle will also be allowed to graze in and around vernal pools where manure deposition may improve the habitat for mosquitoes. The EA ignores this threat and claims without any supportive site-specific data, "Consider livestock grazing near tricolors' breeding colonies to increase tricolors' food sources". EA at 20. This would place cattle close to riparian areas and increase risks for West Nile Virus in the colony. The EA provides no evidence that available food sources are limiting for tricolored blackbirds on Bitter Creek.

12

The EA has failed to Consider Impacts of the Proposed Livestock Grazing on Bitter Creek on the Kern Mallow.

13

The Kern mallow, *Eremalche parryi* subsp. *kernensis*, was listed as endangered in 1990. There are CNDDDB records for the Kern mallow in units 2 and 11. Habitat for this species is present within all units of the refuge; therefore Kern mallow has the potential to occur elsewhere on the refuge. Draft CCP at 63. Livestock grazing is a threat to this plant (Draft CCP at 63; CNPS, 2012; BLM at 3-148). Astoundingly, despite the significance of the known occurrences, the high likelihood of other occurrences on the Refuge, the CCP's supposed emphasis on protecting San Joaquin Valley species, and the Service's obligation to conserve and recover listed species; the EA does not even have any entry for this endangered species in the issues list.

14

According to the 1989 Recovery Plan for Upland Species of the San Joaquin Valley ("SJVRP") pollinator availability should be considered a limiting factor for Kern mallow (SJVRP, 1998 at 40). "If pollinator numbers were reduced, the Kern mallow metapopulation likely would experience reduced seed-set (Mazer et al. 1993)." *Ibid*. The SJVRP describes the pollinators thus:

Preliminary studies showed that insects facilitated pollination of Kern mallow. However, small numbers of seeds were produced when pollinators were excluded, even in pistillate plants which did not produce pollen. Possible explanations for this phenomenon were apomixis (i.e., seed set without fertilization), contamination of the test plants by researchers, or wind pollination. However, a higher frequency of seed set would have

U.S. Fish & Wildlife Service Response

Response 25-15. Same as responses 25-13 and 25-14.

Response 25-16. Same as response 25-7.

Response 25-17. Same as response 25-7.

Response 25-18. Same as responses 25-7 and 25-8.

14
cont

been expected if pollen was carried by the wind (Mazer et al. 1993). The native solitary bee species *Diadasia laticauda* is one potential pollinator of Kern mallow. This bee species occurs in Kern County and is known to visit mallows of the genus *Eremalche*. Furthermore, many bees of the genus *Diadasia* restrict their pollen collection to members of the mallow family (Thorpe in litt. 1998).

SJVRP, 1998 at 39

It is well established that pollinator populations are susceptible to habitat alteration from livestock grazing. Solitary bees are ground nesters. Grazing can disrupt ground-nesting bees, affect availability of water (for nest construction) and nectar, and decrease the diversity and abundance of floral resources (National Research Council, 2007 at 93).

The EA needs to be revised to take a “hard look” at the effects of the proposed grazing and infrastructure on this endangered species including consumption of individual plants and occurrences, trampling, soil compression, localized changes in hydrology, disruption of pollinators, and loss of habitat.

The EA has failed to Consider Impacts of the Proposed Livestock Grazing on Rare Plants.

15

As explained in the comment letters from experts Painter and De Vries, there are a number of rare and special status plants that occur or are highly likely to occur on Bitter Creek and Hopper Mountain National Wildlife Refuges. This includes *Caulanthus californicus*, another endangered plant. These plants may be impacted by livestock through being consumed, trampled, through soil compression, through localized changes in hydrology, and from disruption of pollinators. Because only limited rare plant surveys have been conducted, the EA can only reasonably conclude that rare plants will be impacted.

The EA has failed to Consider Impacts of the Proposed Livestock Grazing at Bitter Creek on Tule Elk and Large Herbivores.

16

Cattle have not grazed in Bitter Creek National Wildlife Refuge since condor releases started in 2006. Draft CCP at 66. According to the California Condor Recovery Plan “[Bitter Creek’s] primary management emphasis should be to support native ungulates as a food source for condors” (USFWS, 1996). There is no consideration of this objective in the EA. Nor is there serious consideration that the presence of cattle will affect the native ungulates, or other potential food sources for condors found on the Refuges. There is an extensive pertinent literature showing that the presence of cattle alters the behavior of large ungulates including deer and elk, and that cattle compete with them for various resources (Kie *et al.*, 1991; Loft *et al.*, 1991; Stewart *et al.*, 2002).

17

The EA also specifically claims that cattle will benefit the tule elk (EA at 67). However, this contradicts existing literature. For example, the Point Reyes tule elk herd did not grow following translocation until after the removal of cattle in 1980, whence the tule elk population began to dramatically increase (Gogan and Barrett, 1987).

18

U.S. Fish & Wildlife Service Response

Response 25-19. The Final EA was revised to address the potential effects on the Kern primrose sphinx moth. Responses 25-20 and 5-66 provide more information.

Response 25-20. Same as response 25-19. Also, the Service addressed this scoping comment by including the Kern primrose sphinx moth (*Euproserpinus euterpe*) in Rationale 2.1 (on page 117 of the Draft CCP) and a strategy to survey for its presence is included in Bitter Creek NWR Strategy 2.1.5 in the Final CCP.

Response 25-21. The 2010 Prugh and Brashares report states that “Results from 2010 mark a major step towards teasing out relationships among cattle, Giant kangaroo rat (GKR), plants, and other wildlife in the grasslands of the Carrizo Plain.” This means that the 2009 report, which is possibly referred to by the commenter, did not have the explanatory power to make conclusive remarks on the effect of grazing on native plants. The research done at the Carrizo Plains by Christian and colleagues, and widely cited as disproving the hypothesis that grazing favors GKR, is not published. We understand the research as inconclusive rather than showing that grazing does not benefit the GKR. Conflicting conclusions from various research studies highlight the problem of extrapolating results that are site and time specific. The approach of monitoring and adaptive management planning is one solution that could add to information relative to GKR.

18
cont

The EA does not consider the effects of cattle and grazing infrastructure such as fences on the movement of native ungulates that is the rationale for Bitter Creek National Wildlife Refuge GOAL 5 - Landscape-level connectivity: Promote ecosystem function by enhancing landscape-level connectivity within the Transverse Ranges through coordinated management.

The EA has failed to Consider Impacts of the Proposed Livestock Grazing at Bitter Creek and Hopper Mountain National Wildlife Refuges on the Kern Primrose Sphinx Moth.

19

The EA fails to consider the effects of the proposed livestock grazing on the threatened Kern primrose sphinx moth, *Euproserpinus euterpe*, but simply states that surveys should be conducted. Jump *et al.*, 2006 have established that populations of the Kern primrose sphinx moth occur in the area. The entire west half of Bitter Creek National Wildlife Refuge falls within the CNDDDB’s Ballinger Canyon polygon for the species. Peter Jump believes that the Kern primrose sphinx moth probably occurs on Bitter Creek on the lower drainages flowing north toward the Central Valley (Personal communication from Peter Jump to Elizabeth Painter, 2012). Unlike the giant kangaroo rat and the blunt nosed leopard lizard, the sphinx moth can fly and so could self-relocate to suitable habitat. Cattle can trample and consume the host plants, spread nonnative species that could compete with the host plant, trample and consume sphinx moth larvae, and could compact the soils. If the soil is compacted the larvae may not be able to burrow to pupate (Jump *et al.*, 2006). The BLM has stopped grazing in Kern sphinx moth habitat on Carrizo Plain. The Service considers cattle grazing to be a primary threat to the species (USFWS, 2007)

20

It is unclear why the Draft CCP and EA have ignored this species but have focused on creating habitat conditions claimed favorable for other species such as the blunt nosed leopard lizard and giant kangaroo rat that are not known from the Refuge and for which there are no introductions planned. We and others clearly asked in our scoping comments for the Service to consider this species. The most reasonable explanation for this lack of consideration seems to be that since cattle grazing is incompatible with the Kern primrose sphinx moth conservation the Service has chosen to ignore it.

The EA has failed to Consider Impacts of the Proposed Livestock Grazing at Bitter Creek on the Giant Kangaroo Rat.

21

The Service wants to graze cattle on large areas of Bitter Creek in part to provide better habitat for the endangered giant kangaroo rat, *Dipodomys ingens*. However, research on the nearby Carrizo Plain indicates that “prescriptive grazing” has negative not beneficial impacts on the giant kangaroo rat. As was pointed out by the BLM in its Management Plan for the Carrizo Plain National Monument, “Monitoring data on giant kangaroo rats in the Monument have reported lower numbers of burrow systems in grazed relative to ungrazed pastures (Christian *et al.*, in prep.). RMP/FEIS 4-19. We have attached Dr. Christian’s 2008 summary of the results of that study. This is an important finding given that one of the hypotheses being tested in that study was that grazing would have beneficial effects on the giant kangaroo rat.

The EA has failed to Consider Impacts of the Proposed Livestock Grazing at Bitter Creek and Hopper Mountain National Wildlife Refuges on the San Joaquin Kit Fox.

22 The endangered San Joaquin kit fox is known to occur on Bitter Creek evidenced by informal surveys and CNDDDB records. The documents provide no information on the kit fox population or population trends so it is unclear if the population is stable, increasing or decreasing. The EA at 71 states, "San Joaquin kit fox would not be adversely affected by grazing, as enclosures would be used to prevent grazing and destruction of important shrub habitat important to prey species (USFWS 1998). Although livestock may crush rodent burrows and disturb nocturnal prey species, the net effect of habitat restoration would more likely provide a net positive benefit to prey populations important to the San Joaquin kit fox." There is no explanation of these enclosures elsewhere in the documents, so it unclear how effective they would be at protecting prey habitat. There is no discussion at all of the problems of subsidized predators such as coyotes which will take advantage of the numerous livestock waters. Coyotes 23 both prey on San Joaquin kit fox and compete for food items (Cypher and Spencer, 1998).

The EA has failed to Consider Impacts of the Proposed Livestock Grazing at Bitter Creek and Hopper Mountain National Wildlife Refuges on Cultural Resources.

24 The EA fails to consider the effects of the proposed livestock grazing on cultural resources. Livestock grazing may have profound harmful impacts to archeological resources and cultural sites (Broadhead, 1999; Osborn *et al.*, 1987). Livestock, especially cattle, are known to impact archeological and cultural sites through a number of mechanisms including mechanical or physical impacts such as trampling, wallowing, and rubbing, dislodging and crushing artifacts; chemical impacts resulting from urine and feces; and, erosion impacts (Foster-Curley, 2003).

The EA has failed to Consider Impacts of the Proposed Livestock Grazing at Bitter Creek and Hopper Mountain National Wildlife Refuges on Soils.

25 The EA minimizes the effects of the proposed livestock grazing on soils. Cattle have major impacts on soils including compression, erosion and increased sediment flows. The ground pressure exerted by a cow is about 23.9 pounds/sq. inch and trampling by livestock exerts pressures equivalent to those of heavy tractors (Lull, 1959). The EA states that for Bitter Creek, "Prescriptive grazing can result in compaction of soils resulting in increased surface water runoff and erosion, as well as exposing soils from trampling and vegetation removal (Blackburn 1975; Gifford and Hawkins 1978; Roberson 1996). Collectively, these management activities would increase the potential for short-term, localized exposure of bare soils resulting in increased water and wind erosion." EA at 57. It makes no attempt to quantify these impacts or provide mitigation. There is no discussion and analysis of the impacts of grazing on soils at Hopper 26 Mountain National Wildlife Refuge at all.

The EA has failed to Consider Impacts of the Proposed Livestock Grazing at Bitter Creek and Hopper Mountain National Wildlife Refuges on Fire Risk.

27 Throughout the EA, the Service asserts that livestock grazing will decrease fuel loads. Livestock grazing is only likely to reduce the probability of fire where the bulk of the vegetation

U.S. Fish & Wildlife Service Response

Response 25-22. Additional information on the use of livestock grazing exclosures and potential effects of livestock grazing were added to the Final EA.

Response 25-23. Information on the potential effects of livestock grazing, and predators such as coyotes, was added to the Final EA.

Response 25-24. Same as response 5-8.

Response 25-25. Same as response 15-127.

Response 25-26. The potential effects to soils from grazing at Hopper Mountain NWR were added to the Final EA.

Response 25-27. The Final EA includes a revised discussion of the potential effects of grazing on fire risk at Hopper Mountain and Bitter Creek NWRs. The literature cited in the comment refers to forest ecology and is inapplicable to Bitter Creek, however the Bitter Creek Prescribed Grazing Plan has been revised to state that fire suppression will only be a potential benefit in those areas where grazing reduces RDM to 600 lbs/acre.

U.S. Fish & Wildlife Service Response

Response 25-28. The Grazing Plan has been revised to state that fire suppression will only be a potential benefit in those areas where grazing reduces RDM to 600 lbs/acre.

Response 25-29. Additional information about the effects of cattle on refuge resources has been added to the environmental consequences section of the Environmental Assessment (EA) to address this and other comments on the Draft EA.

27 consists of potential food for livestock (see, for example, Leonard *et al.*, 2010). That is simply
not the case on these Refuges. There is an extensive literature showing that livestock may
increase the risks of high intensity fires in various ecosystems by promoting invasive species, by
altering the dominance of shrub and forb species, by compacting soil, and by reducing moisture
content and infiltration (Zimmerman and Neuenchwander, 1984; Belsky and Blumenthal, 1996;
Madany and West, 1983). Please provide supporting data showing that the risk of risk of broad-
scale, high intensity, wildfire is lower in cattle grazed areas in the region.

Need for an EIS:

29 The purpose of conducting an Environmental Assessment is to determine if an
Environmental Impact Statement (“EIS”) is required. In the NEPA analysis for the CCP, the
Service must take a “hard look” at the impacts of the management actions being proposed and
identify areas of environmental concern so that it can make an informed decision as to whether
the environmental impact is insignificant or that any impacts can be reduced to insignificance
with mitigation measures. If the plans impacts are unknown, significant, or cannot be reduced to
insignificance by mitigation then the Service must undertake a full-blown EIS process.

As we have described above, the impacts of the proposed grazing program are either
unknown (because the Service wants to introduce cattle before it has even conducted the surveys
that will enable it document the biological and cultural resources that are present), are negative,
have not been analyzed in the EA, or cannot be mitigated. Therefore, if the Service wishes to
continue to advocate the use of livestock grazing on these Refuges it cannot issue a FONSI for
the proposed CCP but must initiate a full EIS process.

3. COMMENTS ON THE DRAFT CCP

The expressed intent of the *National Wildlife Refuge System Improvement Act of 1997* is
to “ensure that the biological integrity, diversity, and environmental health of the System are
maintained for the benefit of present and future generations of Americans.” The Act directs the
Service to prepare Comprehensive Conservation Plans for National Wildlife Refuges.
Comprehensive Conservation Plans describe the desired future conditions of a refuge and
provide long-range guidance and management direction to achieve refuge purposes; help fulfill
the National Wildlife Refuge System mission; maintain and, where appropriate, restore the
ecological integrity of each refuge and the Refuge System; help achieve the goals of the National
Wilderness Preservation System; and meet other mandates. 602 FW 3. In developing a CCP,
Congress directed the Service to identify and describe:

- (A) the purposes of each refuge comprising the planning unit;
- (B) the distribution, migration patterns, and abundance of fish, wildlife, and plant
populations and related habitats within the planning unit;
- (C) the archaeological and cultural values of the planning unit;
- (D) such areas within the planning unit that are suitable for use as administrative sites or
visitor facilities;

- (E) significant problems that may adversely affect the populations and habitats of fish, wildlife, and plants within the planning unit and the actions necessary to correct or mitigate such problems; and
- (F) opportunities for compatible wildlife-dependent recreational uses.

Paramount in refuge planning efforts is the setting down of appropriate biological goals (USFWS 2004). This requires that the Service fully document “the distribution, migration patterns, and abundance of fish, wildlife, and plant populations and related habitats” within the planning units.

30 While it contains many positive elements including facilitating controlled public access on to the currently closed-to-the-public Refuges which will help engender public support for species conservation, the CCP falls short of the mandates laid down by Congress in the National Wildlife Refuge System Improvement Act. The draft CCP is clouded by ill-conceived proposals to introduce livestock grazing on two of the Refuges - proposals that will do more harm than good and that will require extensive and costly supervision and monitoring - before the Service has determined either “the distribution, migration patterns, and abundance of fish, wildlife, and plant populations and related habitats within the planning unit” or “the archaeological and cultural values of the planning unit”.

31 We appreciate that Service lacks the resources to conduct a full inventory of Refuge biological and cultural resources at this time. The draft CCP outlines a number of survey efforts that will be required to fill that gap. Likewise, we support the Service’s goal that Refuge management protect and conserve all special status species. However, the Service cannot plan to introduce livestock grazing until it has completed those surveys and has established sound biological goals for each of those species.

32 The entire grazing proposal seems to be politically motivated rather than science-driven. Apparently, grazing is necessary because the Service has decided that all the “grasslands” on Bitter Creek can be grazed by cattle and this will convert them into habitat for a select group of San Joaquin Valley Special Status Species (San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, Nelson’s antelope squirrel). These species do not currently occur on the refuge, or occur only on the periphery. However, species that do occur on the Refuges such as the listed Kern Mallow that will be impacted by livestock grazing get no special management and do not even merit biological goals. The Service has no basis for even considering allowing this incompatible use on the Refuges.

34 There is no evidence presented in the planning documents that Bitter Creek National Wildlife Refuge was ever occupied by San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, and Nelson’s antelope squirrel to any extent greater than is found today. Nor is there evidence presented that this select group of San Joaquin Valley Special Status Species will actually thrive in this livestock-grazing-generated system. There are no proposals in the CCP to introduce the giant kangaroo rat or blunt-nosed leopard lizard onto the Refuge so it is unclear how these species could possibly benefit. The CCP provides no specific biological goals for these species. This must be remedied.

35

U.S. Fish & Wildlife Service Response

Response 25-30. Same as response 3-5.

Response 25-31. Same as responses 3-5 and 3-18.

Response 25-32. Livestock grazing is being considered as a means to reach multiple CCP objectives and strategies at Bitter Creek NWR. Response 3-11 provides more information.

Response 25-33. Same as response 25-5. Response 25-13 provides more information about the Kern mallow.

Response 25-34. Bitter Creek NWR Goal 2 is intended to benefit special status species and migratory birds including San Joaquin Valley species (as listed in Objective 2.2) by improving biological diversity, integrity and environmental health at the refuge.

Response 25-35. The biological goals to recover species listed as endangered or threatened can be found in their respective recovery plans; separate documents developed by the US Fish and Wildlife Service pursuant to section 4(f) of the Endangered Species Act of 1973, as amended.

U.S. Fish & Wildlife Service Response

Response 25-36. The analysis of the effects of prescribed grazing is provided in the Environmental Assessment, Appendix B of the CCP rather than in the CCP itself. Response 25-29 provides more information.

Response 25-37. Same as response 25-21.

Response 25-38. Same as responses 25-21 and 3-4, and 3-48.

Response 25-39. Comment noted.

Response 25-40. Same as responses 25-21 and 3-4, and 3-48. Response 3-18 provides more information about acquiring scientific data about refuge resources through monitoring.

Response 25-41. Same as response 25-40.

Response 25-42. The Service will also complete compliance with the Federal Endangered Species Act, as amended, on the implementation of CCP activities and comply with any resulting terms to protect listed species.

Response 25-43. Bitter Creek NWR objectives and strategies were modified to specifically include special status plants (as well as animals). Language has been added to the Grazing Plan to address the need to protect special status plant species within the grazing treatment areas, and to monitor the effects of treatments on sensitive native plants. Bitter Creek NWR Strategy 2.2.6 was added to the Final CCP to conduct surveys for special status plants. Response 3-7 provides more information about increasing the heterogeneity (floristic diversity) of the vegetation at Bitter Creek NWR.

Response 25-44. The error was corrected in the Final EA to indicate that the Service is targeting select non-native grasses for removal. Response 5-60 provides more information about conserving native grasses.

Response 25-45. Same as response 5-35 regarding biological goals for Federally-listed species. (*Caulanthus coulteri* var. *lemmonii*) is a CNPS List 1B.2 species and in the CCP is included as a "special status species". Measures that benefit this and other rare (special status) plants are included in strategies under Bitter Creek NWR Objectives 2.1, 2.2, 2.4, 3.1, 4.1, and 4.3.

Response 25-46. All CCP goals, objectives and strategies that indicate "special status species" include giant kangaroo rat, Kern primrose sphinx moth and other special status animals and plants within the definition of special status species included in the Glossary of Terms in the appendices to the CCP.

Response 25-47. The management actions planned at the refuges are organized in the CCP generally by habitat type: CCP goals for Bitter Creek NWR primarily focus on vegetation types, such as grassland (Goal 2), oak and other woodlands (goal 3), riparian and wetland communities (Goal 4), rather than a discussion of what is planned for each taxon. The exception is Goal 1, which supports the existing strategies in the Recovery Plan for the California Condor. The objectives described under the CCP goals support the existing Recovery Plans for the upland species of San Joaquin Valley and other species. Response 3-6 lists goals, objectives, and strategies that relate to special status species.

36 The analysis of "prescribed grazing" simply ignores or downplays the negative impacts
37 of herds of 1,000-pound, nonnative herbivores trampling the landscape, and alternative
38 management treatments are likewise ignored or downplayed. And, as we have explained above
in our comments on the EA; contrary to the Service's claims in the draft CCP cattle grazing will
not benefit the giant kangaroo rat. Despite all this, the Service's plan seems to be to allow local
ranchers to turn out cattle on the Refuges and eventually, if funding allows, do some surveys to
see what is being impacted. This is absolutely untenable.

39 At a time when government expenditures are being cut back, the proposed expansions in
40 manpower envisioned in the draft CCP verge on being pipedreams. The proposed management
41 of the three Refuges needs to be realistic, needs to consist of minimal interventions, and must be
firmly based on sound science with the primary input being from wildlife biologists, botanists,
ecologists, and archaeologists. It must include a firm commitment for realistic monitoring of all
interventions. The statement that "the Refuge will implement various levels of monitoring based
on staff and partnership resources" while realistic does not assure that the proposed interventions
such as cattle grazing will receive the intense monitoring that will be required.

42 Comprehensive Conservation Plans are important tools that provide direction for Refuge
management. Comprehensive Conservation Plans describe the desired future conditions of a
refuge and provide long-range guidance and management direction to achieve refuge purposes;
help fulfill the National Wildlife Refuge System mission; maintain and, where appropriate,
restore the ecological integrity of each refuge and the Refuge System; help achieve the goals of
the National Wilderness Preservation System; and meet other mandates. (602 FW 3). The CCP
must ensure that all special status species benefit from and are not adversely affected by the
proposed management actions and are substantial part of the refuge vision.

43 In Chapter 1 section 1.2 of the draft CCP, USFWS says that Service is preparing this plan
for these refuges to "[p]rovide a basis for management that is consistent with the Refuge System
mission and refuge purposes and ensure the needs of wildlife and plants come first, before other
uses". Therefore, USFWS must clearly and conclusively demonstrate that the proposed grazing
program ensures the needs of wildlife and plants, before all else. Unfortunately the draft
CCP/EA has a deficiency of information concerning the native plants documented and reported
as occurring on Bitter Creek NWR, including insufficient information provided about special
status plants, their biology and ecology, their distribution, their protection, and their management
and lacks specific goals for their management. Where goals are set with respect to native plants,
these are unclear. One of the goals of using livestock on the Refuges appears to be to reduce the
44 native grasses. Why?

45 The CCP must be revised to provide clear biological goals for all special status species.
The CCP must explain how endangered plants such as *Eremalche parryi* subsp. *Kernensis*
46 *Caulanthus lemmonii* will be protected and conserved. It must explain how giant kangaroo rats
47 and the Kern primrose sphinx moth will be protected and conserved. There should also be a
discussion of what is planned (no grazing, monitoring, comprehensive surveys, etc.) for each
taxon with relation to any grazing plan.

4. COMMENTS ON THE DRAFT GRAZING PLAN

The “Prescribed Grazing Plan for Bitter Creek NWR” a poorly worded document that lacks scientific credibility and that reads like it was written by livestock grazing advocates. The goals of this grazing plan are ostensibly to achieve Objective 2.2 and 2.3:

Objective 2.2: Within 10 years, provide suitable short-grass habitat with vegetation height between approximately 1-4 inches, shrub cover less than 20%, and residual dry matter (RDM) between 300 and 600 pounds/acre for San Joaquin Valley special status species (such as San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, Nelson’s antelope squirrel) on approximately 1,300 acres in the northwestern portion of the refuge. RDM is old plant material left standing or on the ground at the beginning of a new growing season (Bartolome et al. 2002); it is measured in pounds/acre.

Objective 2.3: Within 10 years, manage up to 7,000 acres of the refuge’s grasslands to achieve a mosaic of habitat structure and floristic diversity, including scattered shrubs, to support a diversity of grassland birds. Manage approximately one-third as short grassland (height 3-8 in), another third as medium grassland (height 6-12 in), and another third as tall grasslands (height 12-25 in), and monitor for native plants.

Objective 2.2 of the CCP bases the grazing targets on grazing guidelines (Bartholome 2002), not imperiled species requirements. All of the San Joaquin special status species require a mosaic in their habitat, including widely spaced shrubs not a uniform short-grass habitat (USFWS, 2008).

The grazing plan does not describe the current conditions or how these deviate from the conditions described in the two objectives. It does not provide estimates for annual productivity. It is thus impossible for the public or the decisionmaker to determine what the proposed stocking rates are, information that is vital to understanding the impacts. This is not so much a plan for habitat management as it is the provision of a *Smorgasbord* for the benefit of local ranchers.

The plan baldly states, “This plan presents a pertinent range of topics concerning the use of grazing for conservation, restoration, and management but does not represent a thorough literature review.” Grazing Plan at 3, our emphasis added. Please explain how the failure to undertake a thorough literature review complies with the requirement to use best available science. Please explain the selection criteria for literature used by the authors of the study. Merriam-Webster’s Dictionary describes pertinent as “having a clear decisive relevance to the matter in hand”. As De Vries and Painter have pointed out in their letters, many of the cited studies are of little direct relevance and/or are mischaracterized. The authors of the Grazing Plan have utterly failed to consider decisively relevant research conducted on the adjacent Carrizo Plain that shows that cattle grazing there does not benefit native plant communities at the expense of non-natives, and does not benefit the giant kangaroo rat. Please see the Carrizo Plains National Monument Grazing Study 2008 summary prepared by Dr. Caroline Christian that we have attached to this letter.

U.S. Fish & Wildlife Service Response

Response 25-48. The Prescribed Grazing Plan for Bitter Creek NWR has been revised.

Response 25-49. Same as response 3-35.

Response 25-50. Current conditions are described in the section of the Grazing Plan titled “Site Description and Resource Inventory”. Resource conditions are described in more detail in the CCP, Chapter 3. An estimate of annual productivity is not available at press time.

Response 25-51. Same as response 3-52. Response 15-47 provides more information about adaptive management.

Response 25-52. Same as response 25-51.

Response 25-53. The language and citations in the Grazing Plan have been revised.

Response 25-54. Comment noted.

Response 25-55. Same as response 3-35.

Response 25-56. Same as response 3-35. Response 15-90 provides information about the Prugh and Brashares study (2007, 2008, 2009) noted in the comment letter from Elizabeth L. Painter, Ph.D. Response 15-88 provides information about the Christian et al. (2008) study.

U.S. Fish & Wildlife Service Response

Response 25-57. Same as response 25-50. The potential effects of CCP actions on refuge resources are described in the Final EA, in the environmental consequences section.

Response 25-58. As explained in the revised Grazing Plan, the Grazing Plan includes Objective 2.4 and other goals, objectives and strategies from the Final CCP because they include a grazing element and form the basis for grazing prescriptions and recommendations. (They are slightly changed from the goals, objectives, and strategies in the Draft CCP) These goals, objectives and strategies provide criteria for assessing success in achieving said goals and objectives, primarily on grasslands, but also on associated key rangeland types within the complex.

Response 25-59. Same as response to 6-6. Response 3-8 provides information about management of star thistle and other invasives.

Response 25-60. Response 15-231 provides information about infrastructure related to potential livestock grazing. The Proposed Implementation table in the revised Grazing Plan includes the management units/cells that are being considered for potential grazing. Chapter 5 of the CCP provides a table of estimated initial capital (one-time) costs to implement CCP actions, such as livestock exclusion fencing.

Response 25-61. The Final CCP/EA, and CD and Grazing Plan for Bitter Creek NWR have been revised. Grazing was determined to be compatible with the purposes for which the refuge was established.

Response 25-62. Comment noted.

57 The Grazing Plan entirely avoids any specific description of the history of prior grazing on the Reserve or prior habitat conditions. It draws extraordinary conclusions that leave the reader with a picture that all was perfect on the Reserve prior to the cessation of livestock grazing in 2005. For example, "Since grazing in the area was prevalent until 2005, we speculated that the time period to convert from a healthy stand of annual grasses and forbs to heavy thatch can be fairly short, depending on soil and terrain of each pasture." Grazing Plan at 24. But there is no data in the documents supporting the claim that prior to cessation of grazing the area supported healthy stands of anything. On the contrary, "An internal habitat review in 1996 found that the refuge habitats were degraded and recommended that the existing grazing program needed to be re-evaluated; therefore, the Service decided not to issue additional grazing permits." Draft CCP at 12.

58 The grazing plan is equally nonspecific about invasive species. The maps showing the grazing "units" (which appear to be based on pre-existing pasture boundaries not vegetation communities and thus are pastures) do not show the noxious weed infestations; nor are these infestations accounted for in the tables. The grazing plan does not explain how Objective 2.4 "Prevent the infestation of new invasive plant species and reduce the range and coverage of existing invasive species by 25%, including yellow starthistle (*Centaurea solstitialis* L.), and non-native mustards (Cruciferae) will be met." The grazing plan does not consider the role of cattle in perpetuating, dispersing, establishing and promoting invasive species infestations. Nor does the plan describe the role that prior livestock grazing had in the establishment of noxious weed infestations on the Refuge in the first place. Yellow starthistle infestation is associated with livestock grazing. The seeds have no wind-dispersal mechanisms and animals (including livestock) are key to the dispersal of its seeds.

60 The grazing plan is vague on the infrastructure and developments that will be needed including new fences and developed waters. Sites around waters frequently show heavy grazing impacts and tend to be dominated by alien plant species (for example, see Brooks, *et al.*, 2006). Please list all the developments and the associated mitigations that will be made to eliminate the impacts. Please specify how much of the Refuge will be sacrificed under this grazing plan.

61 In all, the proposed grazing plan is far from adequate for all of the reasons addressed above, and provides an insufficient basis for any compatibility determination.

5. COMMENTS ON THE GRAZING COMPATABILITY DETERMINATION

62 The Bitter Creek NWR Compatibility Determination for Grazing ("Compatibility Determination") simply fails to provide a compelling justification for why livestock grazing is a compatible use.

The Service is preparing this CCP to 'Provide a basis for management that is consistent with the Refuge System mission and refuge purposes and ensure the needs of wildlife and plants come first, before other uses.' Draft CCP at 4. Therefore, the Service must clearly and conclusively demonstrate that the proposed grazing program ensures the needs of wildlife and

62 cont | plants, before all else. The Service must base compatibility determinations on a refuge-specific analysis of reasonably anticipated impacts. 603 FW 2.11E.

63 | Service policy recognizes that, “the take of even one individual of a threatened or
64 | endangered species could significantly impact the refuge’s ability to manage for and perpetuate
65 | that species.” 603 FW 2.11B2. Unfortunately the draft CCP/EA and accompanying documents
66 | lack information concerning the native plants documented and reported as occurring on Bitter
67 | Creek NWR, including insufficient information provided about special status plants, their
68 | biology and ecology, their distribution, their protection, and their management. Further, the
69 | Compatibility Determination either summarily dismisses or ignores impacts from livestock
70 | grazing to the very special status animals and wildlife that the CCP seeks to conserve. Until this
71 | is rectified it cannot be said that Service has demonstrated a commitment to ensuring that the
72 | needs of wildlife and plants come before other uses.

65 | There are CNDDDB records for *Eremalche parryi* subsp. *Kernensis* in units 2 and 11.
66 | Habitat for this species is present within all units of the refuge; therefore Kern mallow has the
67 | potential to occur elsewhere on the refuge. Draft CCP at 63. The plant was listed as endangered
68 | in 1990. Grazing is considered a threat to this plant. Draft CCP at 63. Despite the significance
69 | of the known occurrences, high likelihood of other occurrences on the Reserve, the Service’s
70 | obligation to conserve and recover listed species, the compatibility determination does not even
71 | mention the plant. Likewise, the compatibility determination fails to mention *Caulanthus*
72 | *californicus*, another endangered plant that may occur on the Reserve. Draft CCP at 63.

65 | Based on readily available literature providing information on negative impacts of
66 | livestock grazing to native plant taxa documented or reported to occur on or near Bitter Creek
67 | Refuge (especially, but not limited to *Eremalche parryi* subsp. *kernensis* and possibly
68 | *Caulanthus californicus*), it is apparent that livestock grazing as proposed in the Bitter Creek
69 | Draft Prescribed Grazing Plan is not a compatible use, as it will materially interfere with the
70 | Refuge mission to ensure that the needs of plants (and wildlife) come first come first, before
71 | other uses (contrary to 603 FW 2.6.B).

66 | Further, the draft CCP, EA, draft Prescribed Grazing Plan and the Compatibility
67 | Determination for Grazing do not establish that more natural methods, such as grazing by native
68 | herbivores (including tule elk, mule deer, pronghorn, and black-tailed hares), cannot meet
69 | Refuge goals and objectives. The expressed intent of the *National Wildlife Refuge System*
70 | *Improvement Act* is to “ensure that the biological integrity, diversity, and environmental health of
71 | the System are maintained for the benefit of present and future generations of Americans.” To
72 | ensure compliance with this intent and to conserve the listed species found on the refuges, it
73 | would thus seem highly appropriate for the Service to adopt this approach as recommended by
74 | departmental policy. 602 FW 3. Further, there are other advantages to using native species. For
75 | example, cattle are effective agents in dispersing seeds of exotic species and may disperse more
76 | than an order of magnitude more seeds than elk and deer per animal; cattle fecal pats have a
77 | higher species richness and density of exotic grasses germinating compared to elk and deer.
78 | (Bartuszevige and Endress, 2008).

U.S. Fish & Wildlife Service Response

Response 25-63. The Compatibility Determination (CD) for Grazing and Prescribed Grazing Plan for Bitter Creek NWR (Grazing Plan) were revised and additional supporting references were added.

Response 25-64. Same as response 25-63.

Response 25-65. The CD and Grazing Plan have been revised to discuss the Kern mallow and the discussion in the Final CCP/EA was revised. Grazing was determined to be compatible with the purposes for which the refuge was established.

Response 25-66. Same as response 3-13.

Response 25-67. The portion of the comment about the Improvement Act is noted. Response 15-94 provides response regarding cattle dispersing seeds of exotic pest plants. Response 15-151 provides information about the potential effects of cattle feces. This information was added to the Final EA.

U.S. Fish & Wildlife Service Response

Response 25-68. Comment noted.

Response 25-69. The Final CCP/EA discusses the potential beneficial and adverse effects of the management actions proposed. Grazing was determined to be compatible with the purposes for which Bitter Creek NWR was established.

Response 25-70. Same as response 3-36. Grazing was determined to be compatible with the purposes for which Hopper Mountain NWR established.

Response 25-71. Biological goals for management of refuge resources over the 15-year period are included in Chapter 4 of the Final CCP. Special status species are included in many of the CCP objectives and strategies included under each goal in Chapter 4. Responses 25-35, 25-43, and 25-47 provide more information about biological goals for special status species.

Response 25-72. Same as response 3-18.

Response 25-73. The CCP/EA was revised to demonstrate that the proposed action, including the possible use of livestock grazing and the adaptive management structure of the grazing plan, will minimize adverse effects to trust resources.

68 The determination states that, “To fully implement all monitoring objectives identified in the Prescribed Grazing Plan and CCP will require an additional full-time on-site biologist position.” (Appendix C). Based on current and projected future federal budgets, the refuge cannot guarantee that a permanent new biologist position will be available during the plan duration (nor can the Service assure that adequate funding would be available to implement the rigorous monitoring that would be required if grazing was implemented). However, the Service must “consider the extent to which available resources (funding, personnel, and facilities) are adequate to develop, manage, and maintain the proposed use so as to ensure compatibility” 603 FW 2.11A2.

69 Because the draft CCP, EA, and draft Prescribed Grazing Plan do not assure that the proposed grazing management actions would sustain, restore, and enhance, healthy populations of plants fish, and wildlife on the Refuges and may in fact harm these resources, the compatibility determination cannot conclude that grazing is compatible with the goals of Bitter Creek National Wildlife Refuge.

70 Because there is no grazing plan provided for the Hopper Mountain Refuge we cannot comment on the compatibility determination for grazing that Refuge. The Service must provide this grazing plan for public review to establish that any livestock grazing there is a compatible use.

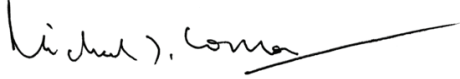
6. CONCLUSIONS

71 Western Watersheds Project strongly supports managing the three Refuges as self-sustaining, healthy ecosystems that provide for the conservation of all their listed plant and animal species, and that provide optimal feeding habitat for the California condor by supporting vigorous deer, pronghorn, tule elk, and hare populations. In these difficult economic times, this will best ensure that the Service’s mandate to conserve all the endangered, threatened, and at risk species that are found on these Refuges is met, and ensure that the biological integrity, diversity, and environmental health of the three refuges are maintained for the benefit of present and future generations of Americans in the most cost-effective manner. The CCP should lay down clear goals for the management of all the Refuges’ resources, including biological goals for each special status species. The Service should not propose incompatible actions such as cattle grazing that may impact and degrade wildlife and plant resources, without first conducting the extensive surveys that are required to establish what resources are actually present, and without which it cannot take a serious, “hard look” at the environmental effects.

73 Because of the uncertain environmental impacts and scientific controversy, if the Service really wants to introduce cattle on the Refuges before it has even conducted the surveys that will enable it document the biological and cultural resources that will be impacted it must undertake a full EIS process.

Western Watersheds Project thanks you for the opportunity to be involved in this important planning process. Please add Western Watersheds Project to the list of interested public at the address listed below and continue to keep us informed as this process develops. If you have any questions please feel free to contact me by telephone at (818) 345-0425 or by e-mail at <mjconnor@westernwatersheds.org>.

Sincerely,



Michael J. Connor, Ph.D.
California Director
Western Watersheds Project
P.O. Box 2364
Reseda, CA 91337

Attachment: Caroline Christian. Carrizo Plains National Monument Grazing Study. Summary Dated 02-15-08.

cc. Laurie Rule, Advocates for the West

U.S. Fish & Wildlife Service Response

References.

Copies of all references are available on request.

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Caroline Christian
2-15-08

Carrizo Plains National Monument Grazing Study

Variables in grazing study

Predictor variables:

| Code | Data type, level | Variable description |
|--------|----------------------------|---|
| Past | Categorical, pasture-wide | Pasture identification |
| Year | Categorical, study-wide | Year of study, 1997-2003 |
| Rain | Continuous, pasture-wide | Rainfall (several ways to represent data) |
| Dens | Continuous, pasture-wide | Stocking density (AUM/ha) |
| Graze | Categorical, pasture wide | Grazing (Y/N) |
| Veg | Categorical, quadrat level | Vegetation (11 types) |
| Soil | Categorical, quadrat level | Soil type |
| Slope | Either, quadrat level | Slope |
| Aspect | Either, quadrat level | Aspect |
| Dist | Continuous, quadrat level | Distance to nearest water source |
| Loc | Continuous, quadrat level | Distance along valley NW-SE gradient |

Additional information:

Quad: 35cm x 70cm vegetation plots; randomly located in each year of the study except for 2002 and 2003 (non-repeated measures design)

Year: 1997-2003

Rain: Annual rainfall (July-June) from New Cuyama station

Dens: Total AUM (animal unit month)/ha/pasture. Only 1997-2001 data available (no grazing in 2002-2003).

Graze: Categorical treatment of grazing; yes (pastures available for grazing, including original rest-rotation and annual grazing treatments) vs. no (pastures unavailable for grazing).

Veg: BLM map

Soil: NRCS soil maps

RDM: Measured in last May early June each year of the study; values represent average of three estimates per transect interval (see figure 3)

Slope: From GIS

Aspect: From GIS

Dist: Distance of quadrat to nearest livestock trough

Loc: Location along NW-SE valley gradient (calculated by determining the distance between south-eastern most point (baseline) and all other sampling points).

Response variables:

Biomass (grams/m²; as measured in May/June)

Giant kangaroo rat precinct density (precincts/ha) – log-transformed (non-zero data; no 2003)

Native plant species richness

Relative % cover of native plant species (RCNS) – arc-sine square-root transformed

Relative % cover of exotic annual grasses (EAG) – arc-sine square-root transformed

Relative % cover of exotic annual forbs (EAF) – arc-sine square-root transformed

Frequency of *Poa secunda*

Frequency of *Nassella* ssp.

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2-15-08

Figure 1.

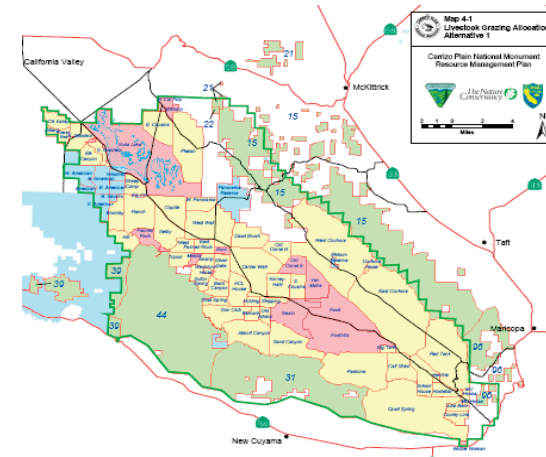
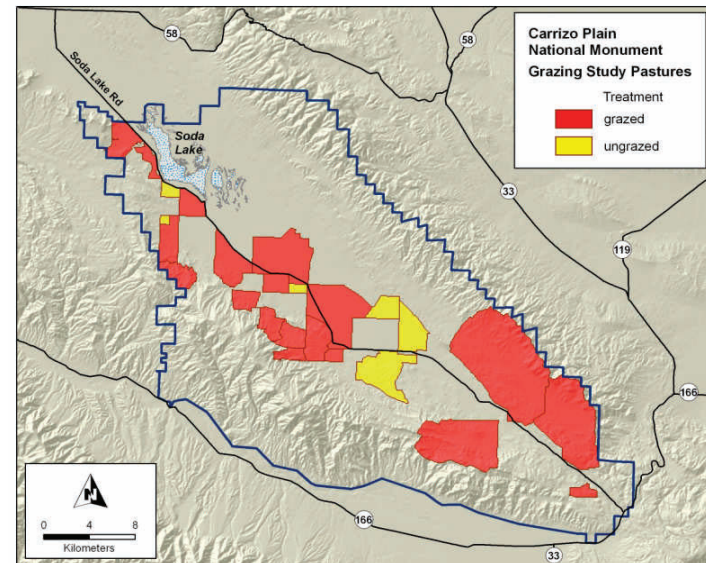


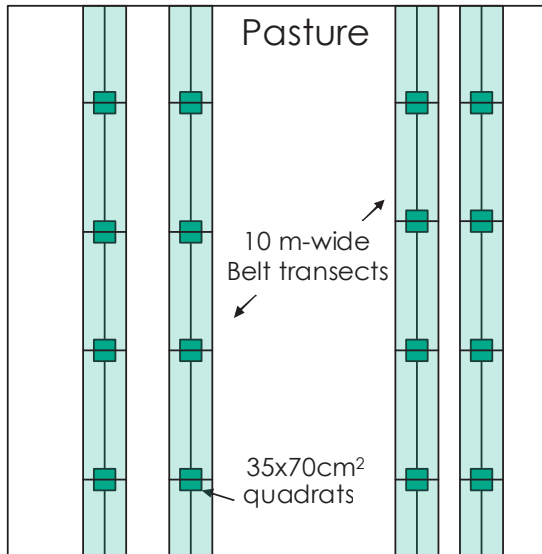
Figure 2.



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Figure 3.



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Figure 4. Average annual biomass (g/m^2) during the study period. Data are least square means ± 1 S.E.

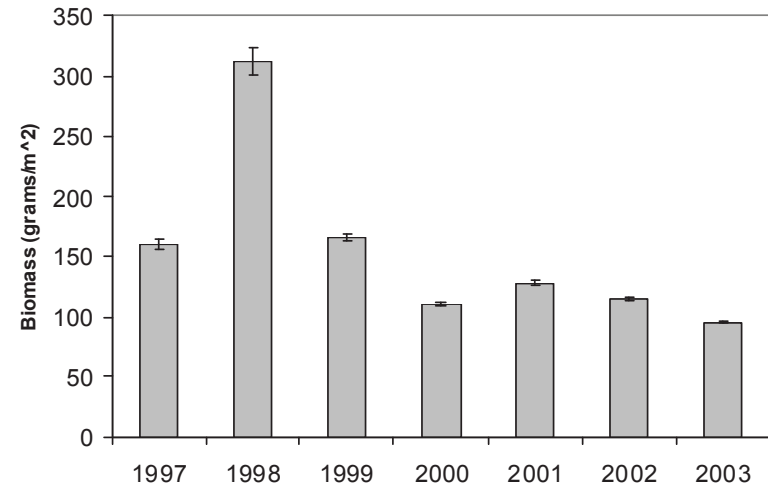
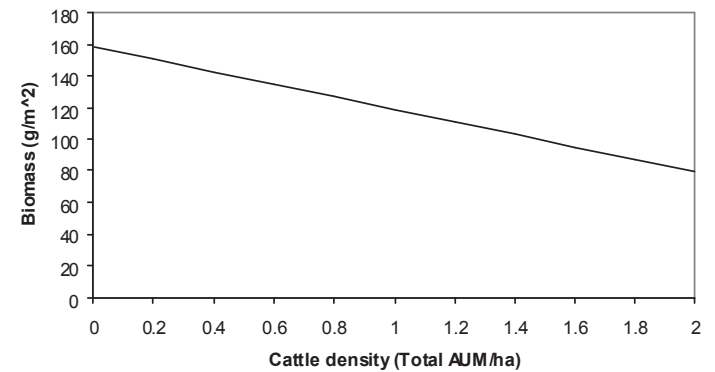


Figure 5. The relationship between cattle density (total annual AUM/ha) and biomass (g/m^2).



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Figure 6. The interactive effects of year and grazing (grazed/ungrazed) on giant kangaroo rat precinct density (precincts/ha). Data are log-transformed least squares means \pm 1 S.E.

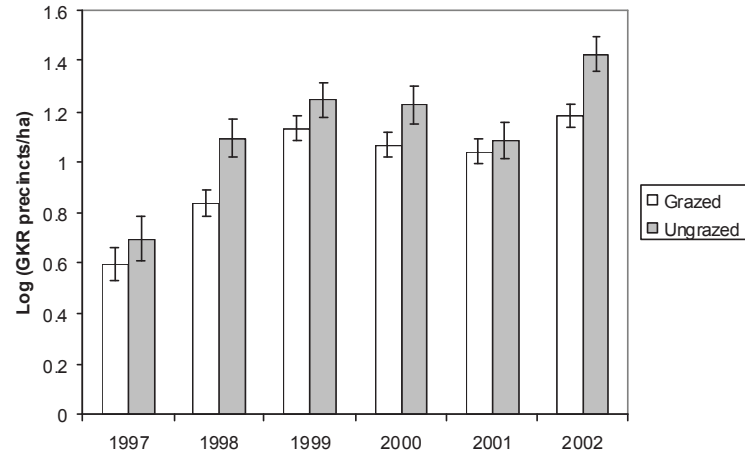
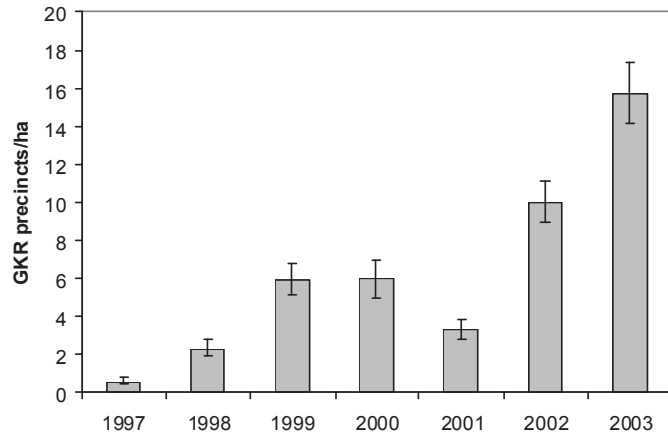


Figure 7. Annual giant kangaroo rat precinct densities throughout the study period. Data are raw means \pm 1 S.E.



5

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2-15-08

Figure 8. The interactive effects of grazing (grazed = light bars; ungrazed = shaded bars) and soil type (soil 3 = valley soil; soils 7 and 8 = foothill soils) on native plant richness (per m²)

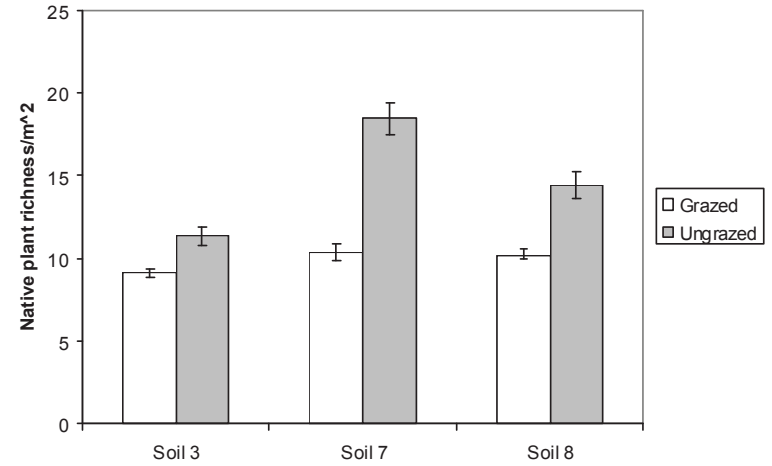
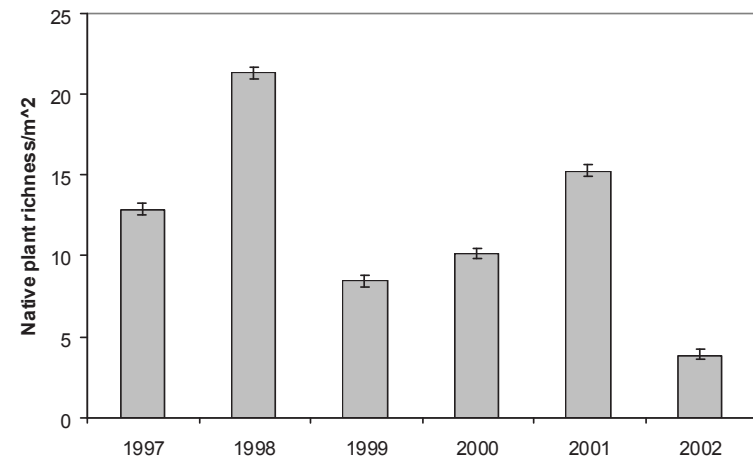


Figure 9. Average native plant species richness throughout the study period (data are raw means \pm 1 S.E.).



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Figure 10. The interactive effects of grazing (grazed = white bars; ungrazed = shaded bars) and soil type (soil = valley soil; soil 7 and soil 8 = foothills soil types) on native plant richness (number of plants/m²).

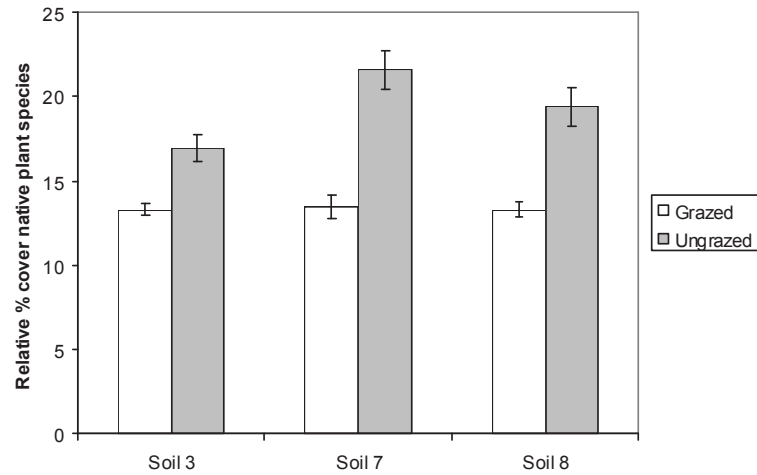
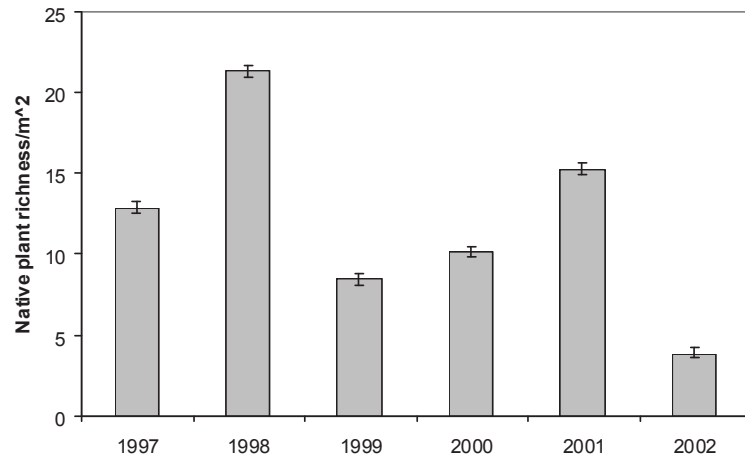


Figure 11. Native plant richness through time.



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Figure 12. The relationship between cattle density and relative cover of exotic annual grasses (EAG) in three soil types.

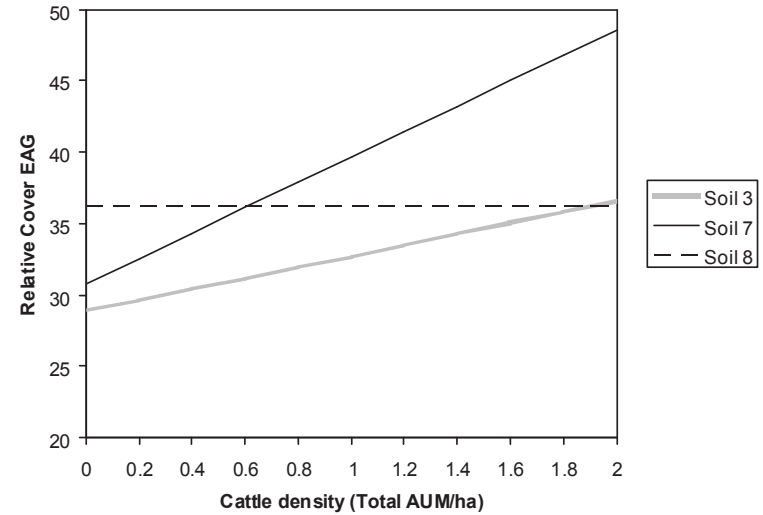
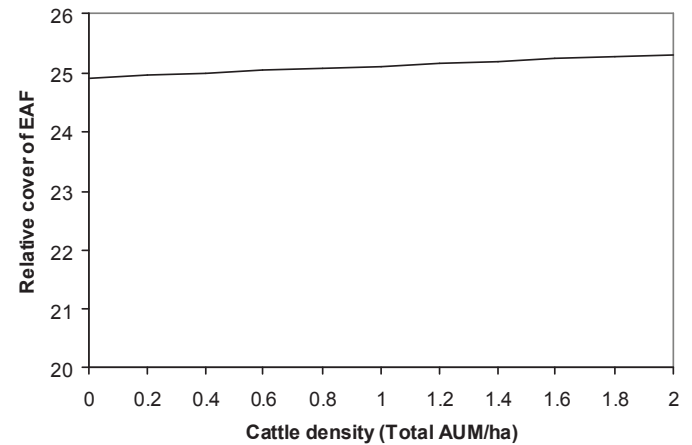
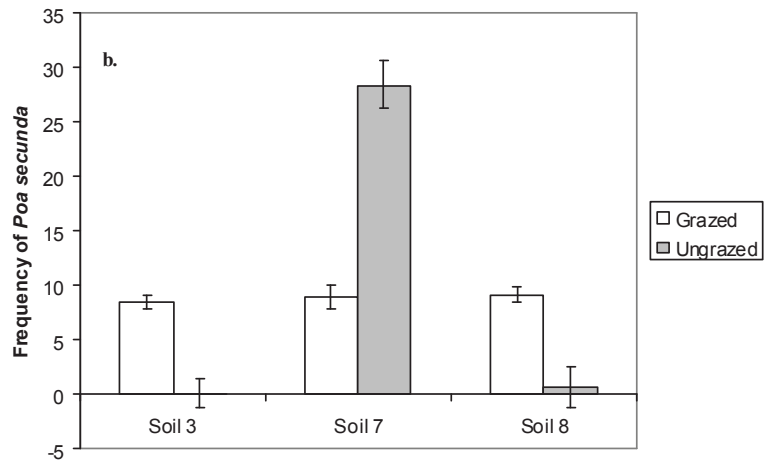
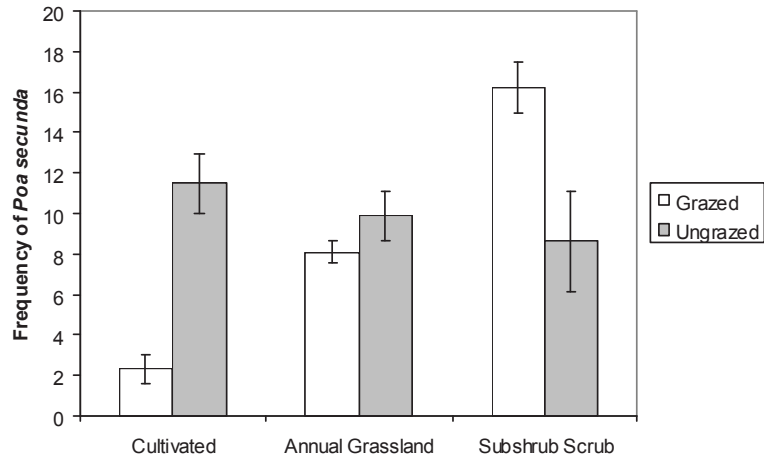


Figure 13. The relationship between cattle density and relative cover of exotic annual forbs (EAF).



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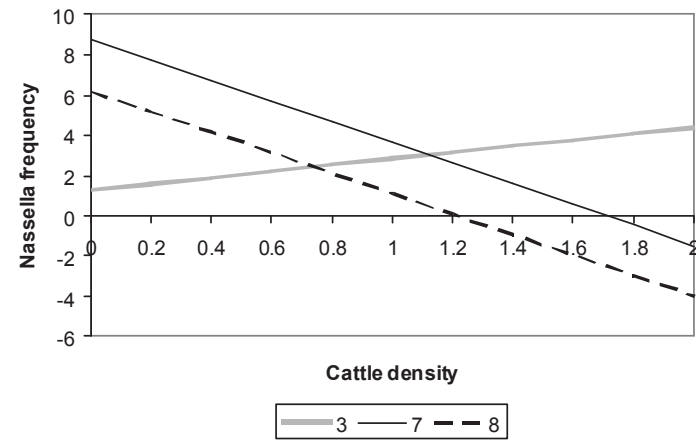
Figure 14. The effects of grazing (grazed vs. ungrazed) on the frequency of *Poa secunda* in a) three vegetation types and b) three soil types.



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Figure 15. The relationship between cattle density and the frequency of *Nassella* species in three soil types.



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Table 2. Comparison of ANCOVA models predicting: a) biomass; b) giant kangaroo rat pre-tract density; c) native plant richness; d) relative cover of native plant species; e) relative cover of exotic annual grass species; f) relative cover of exotic annual forb species; f) frequency of *Poa secunda*; and h) frequency of *Nassella* ssp. Only models with AIC weight of 0.01 or greater are included.

| Year | Pasture density | Cattle density | Grazing Y/N | Veg + soil | Slope + aspect | Distance to trough | Year*graze (or dens) | Past*graze (or dens) | Grazing (or dens) + Veg + Soil | Grazing (or dens) / Slope + Aspect | Grazing (or dens) * Dist | AICc | ΔAICc | Weight |
|---|-----------------|----------------|-------------|------------|----------------|--------------------|----------------------|----------------------|--------------------------------|------------------------------------|--------------------------|---------|-------|--------|
| a) Biomass | | | | | | | | | | | | | | |
| * | * | * | * | * | * | * | * | | | | | 82769.0 | 0 | 0.35 |
| * | * | * | * | * | * | * | | | | | | 82769.5 | 0.42 | 0.28 |
| * | * | * | * | * | * | * | | | | | | 82770.9 | 1.02 | 0.21 |
| * | * | * | * | * | * | * | | | | | | 82770.9 | 1.82 | 0.14 |
| * | * | * | * | * | * | * | | | * | | | 82776.5 | 7.41 | 0.01 |
| b) Giant kangaroo rat pre-tract density | | | | | | | | | | | | | | |
| * | * | * | * | * | * | * | * | | | | | 864.7 | 0 | 0.50 |
| * | * | * | * | * | * | * | | * | | | | 866.8 | 2.044 | 0.18 |
| * | * | * | * | * | * | * | | | | | | 867.5 | 2.716 | 0.13 |
| * | * | * | * | * | * | * | | | * | | | 869.3 | 4.608 | 0.05 |
| * | * | * | * | * | * | * | | | * | | | 870.9 | 6.143 | 0.02 |
| * | * | * | * | * | * | * | | | | | | 871 | 6.276 | 0.02 |
| * | * | * | * | * | * | * | | | | | | 872 | 7.25 | 0.01 |
| * | * | * | * | * | * | * | | | | | | 872 | 7.25 | 0.01 |
| * | * | * | * | * | * | * | | * | | | | 872 | 7.25 | 0.01 |
| c) Native plant richness | | | | | | | | | | | | | | |
| * | * | * | * | * | * | * | * | | | | | 47365.7 | 0 | 1.0 |
| d) Relative cover of native plant species | | | | | | | | | | | | | | |
| * | * | * | * | * | * | * | * | | * | | | 52349.9 | 0 | 0.57 |
| * | * | * | * | * | * | * | * | | * | | | 52350.8 | 0.862 | 0.37 |
| * | * | * | * | * | * | * | * | | * | | | 52354.3 | 4.403 | 0.06 |
| e) Relative cover of exotic annual grasses | | | | | | | | | | | | | | |
| * | * | * | * | * | * | * | * | | * | | | 53869.7 | 0 | 0.72 |
| * | * | * | * | * | * | * | * | | * | | | 53871.6 | 1.86 | 0.28 |

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Caroline Christian

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Table 1. Summary of candidate models used in analysis. An additional three sets of models were included in the analyses with rainfall instead of year and grazing treatment (Y/N) instead of cattle density, for a total of 88 models.

| Model | Year | Pasture density | Cattle density | Main effects | | | | Distance to trough | Location along gradient | Interactions | | | | |
|-------|------|-----------------|----------------|-------------------|----------------|----------------------|-----------------|--------------------|-------------------------|-----------------|-------------------|-----------|---------------|---|
| | | | | Vegetation + soil | Slope + aspect | Year*Pasture density | Pasture*Density | | | Dens*Veg + Soil | Dens*Veg + Aspect | Dens*Dist | Dens*Location | |
| 1 | * | * | * | | | | | | | | | | | |
| 2 | * | * | * | | | | | | * | | | | | |
| 3 | * | * | * | | | | | | | * | | | | |
| 4 | * | * | * | | | | | | | | * | | | |
| 5 | * | * | * | | | | | | | | | * | | |
| 6 | * | * | * | | | | | | | * | | * | | |
| 7 | * | * | * | | | | | | | * | | * | | |
| 8 | * | * | * | | | | | | | | * | * | | |
| 9 | * | * | * | | | | | | | | * | * | | |
| 10 | * | * | * | | | | | | | | * | * | | |
| 11 | * | * | * | | | | | | | | | * | | |
| 12 | * | * | * | | | | | * | | | | | | |
| 13 | * | * | * | | | | | * | | | | | | |
| 14 | * | * | * | | | | | * | | | | | | |
| 15 | * | * | * | | | | | * | | | | | | |
| 16 | * | * | * | | | * | | * | | | | * | | |
| 17 | * | * | * | | | * | | * | | | | * | | |
| 18 | * | * | * | | | * | | * | | | | * | | |
| 19 | * | * | * | | | * | | * | | | | * | | * |
| 20 | * | * | * | | | * | | * | | | | * | | * |
| 21 | * | * | * | | | * | | * | | | | * | | * |
| 22 | * | * | * | | | * | | * | | | | * | | * |

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Table 3. Summary of grazing effects and interactions with grazing in models having greatest support (models with greatest AIC weight).

| Model Support | Summary of grazing effects and interactions with grazing | | | |
|--|--|---|---|--|
| AIC Weight/ <i>K</i> | Response variable | Grazing effect | Interactions between grazing and other main effects | |
| a. Models with grazing as categorical variable (grazed vs. ungrazed) | | | | |
| 82769.0 | 0.35 Biomass | Negative | No interactions with grazing | |
| 864.7 | 0.49 0.50 0.14 | Giant kangaroo rat precinct density | Negative | Grazing*year: greater precinct density in ungrazed vs. grazed areas in 1998, 2000, 2001; no effect of grazing in 1997 & 1999 |
| 47365.7 | 1.0 0.30 | Native plant richness | No main effect | Grazing*soil type: greater richness in ungrazed vs. grazed areas across all soil types; magnitude of grazing effect: soil 7 > soil 8 > soil 3 |
| 52349.9 | 0.57 0.26 | Relative cover of native plant species | Negative | Grazing*soil type: greater richness in ungrazed vs. grazed areas across all soil types; magnitude of grazing effect: soil 7 > soil 8 > soil 3 |
| 44897 | 1.0 0.20 | Frequency of <i>Poa secunda</i> | Negative | Grazing*plant community type: greater frequency in ungrazed vs. grazed in cultivated areas; greater frequency in grazed vs. ungrazed in subshrub shrub; no effect in annual grassland Grazing*soil type: greater frequency in ungrazed vs. ungrazed areas in soil 7; greater frequency in grazed vs. ungrazed in soil 3 and 8 |
| b. Models with grazing as continuous variable (total AUM/grazing season) | | | | |
| 53869.7 | 0.73 0.27 | Relative cover of exotic annual grasses | Positive | Grazing*soil type: increased in cover in soil 7; decrease in cover in soil 8; no effect in soil 3 |
| 54420.2 | 0.54 0.19 | Relative cover of exotic annual forbs | No main effect | No interactive effect |
| 41992.1 | 0.69 0.12 | Frequency of <i>Nassella</i> ssp. | No main effect | Grazing*soil type: increased frequency in 3; decreased frequency in 7 and 8 |

Table 2. cont.

| Year | Pasture | Cattle density | Grazing Y/N | Veg + soil | Slope + aspect | Distance to trough | Year*Grazing (or dens) | Pasture*Grazing (or dens) | Grazing*soil dens + Grazing*soil dens | Grazing*soil dens + Grazing*soil dens | Grazing*soil dens + Grazing*soil dens | Grazing*soil dens + Grazing*soil dens | Grazing*soil dens + Grazing*soil dens | Grazing*soil dens + Grazing*soil dens | AICc | ΔAICc | Weight |
|--|---------|----------------|-------------|------------|----------------|--------------------|------------------------|---------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------|-------|--------|
| f) Relative cover of exotic annual forbs | | | | | | | | | | | | | | | | | |
| * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | 54420.2 | 0 | 0.54 |
| * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | 54421.6 | 1.36 | 0.27 |
| * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | 54424.5 | 4.29 | 0.06 |
| * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | 54424.8 | 4.57 | 0.06 |
| * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | 54425.4 | 5.19 | 0.04 |
| * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | 54427.2 | 6.94 | 0.02 |
| g) Frequency of <i>Poa secunda</i> | | | | | | | | | | | | | | | | | |
| * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | 44897 | 0 | 1.0 |
| h) Frequency of <i>Nassella</i> ssp. | | | | | | | | | | | | | | | | | |
| * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | 41992.1 | 0 | 0.69 |
| * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | 41994.8 | 2.728 | 0.18 |
| * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | 41995.7 | 3.61 | 0.11 |

Comments from Public Meetings

Summaries of comments received at the public open house
Poinsettia Pavilion, 3451 Foothill Road
Ventura, California
May 16, 2012, 4:00-6:00 pm

California Condor Recovery Program

Comment summary 26-1. The Service should evaluate the effects of lead, antifreeze, and wind energy projects (by BLM) on condors and consider expanding protections of habitat beyond the refuge boundaries. The long term effects of lead exposure should be studied in depth.

Comment summary 26-2. The Service should enhance enforcement and public outreach to increase awareness about the adverse effects of lead, antifreeze, chemicals, and oil operations on condors.

Comment summary 26-3. The Service should be more of an advocate for the California condor and its habitat. The Service should be more active in opposing development that adversely affects condors. For example, the Service should provide comments on proposals for such developments. The commenter is concerned with the effects of wind farm development on the condor.

U.S. Fish & Wildlife Service Response

Response 26-1. At least twice yearly, all southern California condors are trapped and sampled for contaminant levels in released condors (analyzing blood and feather samples) (more information is provided in Chapter 1, Bitter Creek Management History). The Service considers research proposals that are consistent with refuge purposes and give priority to studies that contribute to the enhancement, protection, preservation, and management of native Refuge plant and wildlife populations and their habitats. The Draft CCP/EA Appendix C includes a Compatibility Determinations for Research for each of the refuges.

Response 26-2. The Hopper Mountain NWR Complex, their partners (including the Friends of California Condors Wild and Free), and the California Condor Recovery Program (CCRP) have worked together to inform the public about potential dangers to condors. Geneticists, veterinarians, captive-breeding facilities, private conservation groups, public companies, private landowners, biologists, and other government agencies are among the diverse group of cooperators the California Condor Recovery Program relies upon for support and expertise. Outreach strategies are included in CCP Chapter 4 for all three refuges to provide information about the refuges and the CCRP.

Response 26-3. The Service's California Condor Recovery Program works closely with our partners to advocate for the best interest of the recovery of the California condor. Often we are provided draft planning documents to comment upon. The California Condor Recovery Program and the California Condor Coordinator, in coordination with our partners, work with project proponents to develop avoidance and minimization measures to reduce adverse effects to condors as early in the planning process as possible. As a part of the Recovery Program, a wind-energy work group has been established to provide recommendations to the Regional Director on wind-energy and condors by the end of 2012. A web-site with products from the Wind Energy work group can be found at: http://www.fws.gov/ventura/species_information/CA_condor_wind_energy/index.html.

Wildlife Habitat Management/Grazing

Comment summary 26-4. Comment in support of restoration of the black walnut.

Comment summary 26-5. Commenter expressed concern that funding will not be available to implement the CCP.

Comment summary 26-6. The Service should reserve areas to support tule elk and do more active management of tule elk. The Service should consider more elk and antelope and less cattle.

Comment summary 26-7. Comment in support of restoring the natural water flow especially in Klipstein Canyon at Bitter Creek NWR; to benefit water birds and vegetation.

Comment summary 26-8. The Service should use grazing in short durations (less than approximately 1 week), if grazing has to be used. The Service should determine whether grasslands could be managed using mowing or if grazing goats would work better than cattle.

Comment summary 26-9. How will the Service ensure that grazing cooperators will be responsive to the Service's directions (under a grazing agreement) to avoid over-grazing. For example, at Carrizo Plain, Elkhorn, and Wind Wolves grazing cooperators delayed removal of livestock. The Service should work with BLM, Wind Wolves, and others to find responsive cooperators.

Response 26-4. Comment noted. Hopper Mountain NWR Goal 4 is to restore and perpetuate the native black walnut and oak woodlands at the refuge (CCP Chapter 4).

Response 26-5. The commenter is correct that the CCP and other plans do not constitute a commitment for staffing increases, operational and maintenance increases, or funding. Table 5-1 of the Draft CCP provides cost estimates for one-time costs and Table 5-2 provides estimates of annual recurring costs for ongoing projects and programs. CCPs detail program planning levels that are sometimes substantially above current budget allocations and, as such, are primarily for Service strategic planning and program prioritization purposes. The projects, programs and staffing planned and analyzed in the CCP are poised for implementation when funding becomes available to the Refuge Complex.

Response 26-6. Same as response 24-2.

Response 26-7. Bitter Creek NWR Goal 4 is to restore and maintain riparian and wetland communities to support native plants and wildlife.

Response 26-8. Comments noted. Prescribed livestock grazing, mowing and other methods will be evaluated and implemented to achieve habitat Objectives 2.2 and 2.3 set forth under the Bitter Creek NWR Goal 2 in the CCP (Chapter 4). The Prescribed Grazing Plan (Appendix H) is intended to be a dynamic document; initial stocking rates will be established using production estimates from similar soils on adjacent surveys, then refined over time by monitoring annual production on small exclusion plots located on major soil/aspect types on the refuge.

Response 26-9. In addition to the Prescribed Grazing Plan, which outlines parameters for monitoring to protect refuge resources, the agreement/permit between the grazing cooperator and the Service includes additional stipulations to protect refuge resources. The Service coordinates with BLM, Wind Wolves and other partners on condor-related matters, collaborated with them on the Draft Prescribed Grazing Plan, and plans to coordinate with them on future grazing matters.

U.S. Fish & Wildlife Service Response

Comment summary 26-10. The Service should make more efforts to restore native perennial grasses.

Comment summary 26-11. The Service should investigate the use of fire as a habitat management tool at Hopper Mountain NWR.

Comment summary 26-12. Coordination is needed to ensure that cattle management will not interfere with condor management activities of the California Condor Recovery Program (e.g., interfering with the condor feeding sites on the refuge).

Comment summary 26-13. It's important to have GIS/geospatial information about the location of sensitive species on the refuges. The commenter supports collection of baseline biological information.

Comment summary 26-14. The commenter supports the enhanced public outreach and upgrading the buildings proposed in the CCP.

Comment summary 26-15. The Service should consider goats for hazardous fuels reduction at Hopper Mountain NWR, especially along the roads.

Comment summary 26-16. Any cattle brought onto the refuge should be quarantined to prevent introducing nonnative weeds.

Comment summary 26-17. Commenter is opposed to the use of grazing in Hopper Mountain Strategies 2.1.1 and 2.1.5; opposes any grazing by non-native grazers at the wildlife refuge, particularly sheep; and prefers native grazers.

Comment summary 26-18. Given that The Nature Conservancy (TNC) has provided some lands that are now part of the Hopper Mountain NWR, TNC should be notified of the opportunity to review the Draft CCP.

Response 26-10. The CCP includes strategies to map the current approximate distribution of native grasses and forbs at Hopper Mountain NWR and Bitter Creek NWR. Bitter Creek NWR Strategy 2.3.6 includes restoration efforts for native plants and Strategy 2.3.7 includes monitoring for native plants.

Response 26-11. Prescribed fire for habitat management is a possible tool to reach habitat goals at Hopper Mountain NWR and Blue Ridge NWR; it is not being used or proposed at Bitter Creek NWR. Under Hopper Mountain NWR Strategy 2.1.5, the Service will consider the use of prescribed fire and other methods to manage non-native and invasive plants at Hopper Mountain NWR.

Response 26-12. The foremost obligation of the Service and its cooperators (ranchers that enter into grazing agreements with the Service) is to protect threatened and endangered wildlife (including the condor) and plants, as well as other refuge resources.

Response 26-13. Hopper Mountain NWR Strategy 6.5.2; Bitter Creek NWR Strategies 3.1.4, 6.4.2, and others will include developing a GIS database for potentially sensitive refuge resources.

Response 26-14. Comment noted.

Response 26-15. Comment noted. Livestock grazing will be considered and used as appropriate to achieve refuge resource objectives, including fuels reduction where practical.

Response 26-16. Comment noted. A stipulation was added to the Grazing Compatibility Determinations (CCP Appendix C) to avoid the introduction of nonnative weeds and agreements/permits also include measures to protect refuge resources.

Response 26-17. Comment noted.

Response 26-18. Comment noted.

U.S. Fish & Wildlife Service Response

Comment summary 26-19. The Service should develop an emergency response plan for oil spills at Hopper Mountain NWR.

Comment summary 26-20. At Hopper Mountain NWR, the Service should test the water for chemicals related to fracking activities.

Comment summary 26-21. Commenter supports not suppressing and not controlling natural fire (wildfire) within the boundaries of Bitter Creek NWR and Hopper Mountain NWR.

Comment summary 26-22. Commenter supports the Service's cooperation with local, regional and state law enforcement as described in Hopper Mountain NWR Strategy 6.4.2.

Response 26-19. The operators of the active wells on Hopper Mountain NWR are required by conditions of a Ventura County Conditional Use Permit to clean or correct spills of oil or other contaminants in accordance with the E.P.A.'s Spill Contingency Plan. Spills shall be reported to the Service within 48 hours. Additionally, the Service's Pacific Southwest Region Oil and Hazardous Materials Contingency Plan identifies procedures for trained Service employees to respond to oil spills that affect refuge lands. The Service's 1997 contaminant assessment on Hopper Mountain NWR indicated that baseline information on habitat characteristics can help determine what species may be most susceptible to environmental contaminants and can identify resources that may need special protection measures in the event of spills. Chapter 4 of the CCP includes strategies to survey and monitor refuge resources to obtain this baseline information. Objective 3.3 includes strategies to monitor aquatic resources.

Response 26-20. Testing can be done for chemicals that may be used in hydraulic fracturing under the water quality testing included in Hopper Mountain NWR Strategy 3.3.2 (CCP Chapter 4).

Response 26-21. Comment noted. Keeping the public and firefighters safe is always our first concern. In accordance with the Service's approved Fire Management Plans for these refuges: all wildfires will be suppressed at Bitter Creek NWR and Hopper Mountain NWR. We suppress wildfires to protect people and the infrastructure that's critical to the California Condor Recovery Program and the Hopper Mountain NWR Complex. The Service generally supports the use of prescribed fire as a means of reducing the risk of catastrophic wildfires by reducing hazardous fuels. Prescribed fire for habitat management is a possible tool to reach habitat goals at Hopper Mountain NWR; is not being used or proposed at Bitter Creek NWR.

Response 26-22. Comment noted.

Visitor Services

Comment summary 26-23. Comment in support of opening limited public access to the refuges, especially Bitter Creek and Hopper Mountain NWRs.

Comment summary 26-24. On Bitter Creek NWR, add a birding and recreation trail on the west side of Cerro Noroeste Road in Management Unit 9. On Hopper Mountain NWR, at “Silver Tanks” area, install information panels interpreting the geographic features.

Comment summary 26-25. The Service should allow the public to upload condor stories and photos to a website.

Comment summary 26-26. Comment in support of the enhanced public outreach proposed in the CCP.

Response 26-23. Comment noted. A small portion Bitter Creek and Blue Ridge NWRs will be open to public for non-consumptive uses such as wildlife photography, and Service- or partner-guided tours. Hopper Mountain NWR is closed to public due to the sensitive nature of the California Condor Recovery Program activities, the sensitivity of its resources, and the lack of public access to the site.

Response 26-24. These suggestions will be considered during preparation of the Visitor Services Plan for Bitter Creek NWR.

Response 26-25. The public may upload their condor stories and photos on the US Fish and Wildlife Service’s new Facebook page at: <https://www.facebook.com/TheCondorCave>

Response 26-26. Comment noted.

Cultural Resources and Other Topics

Comment summary 26-27. Cultural resources at Hopper Mountain NWR should be shared with the public during guided tours.

Comment summary 26-28. The Service should incorporate the Chumash Tribe in condor releases, as done in other states. This is a good way to inform the public about California condors.

Response 26-27. While the locations of some cultural resources may not be disclosed to the public to reduce the risk of vandalism, interpretation of cultural history and significant sites and structures is included under Hopper Mountain NWR Goal 6 to increase the public’s understanding of the Refuge’s programs and natural and cultural resources.

Response 26-28. Comment noted.

K-204
Summaries of comments received at the public open house
Taft Fort, 915 North 10th Street
Taft, California
May 17, 2012, 4:00-8:00 pm

U.S. Fish & Wildlife Service Response

California Condor Recovery Program

Comment summary 26-29. At Bitter Creek NWR, the Service should graze intensively around the flight pen instead of mowing. Grazing removes ground litter and reduces human interaction with condors.

Wildlife Habitat Management/Grazing

Comment summary 26-30. At Bitter Creek NWR, the existing water diversions benefit wildlife and could be used for future grazing needs. Before making changes in the diversions, the Service should determine if the existing water system is the most efficient use of existing groundwater and whether changing the diversions would affect the neighboring landowners. The Service should keep the existing tanks, troughs, and pipes and focus on improving the flexibility of water control structures, while still achieving the objective of natural flow.

Comment summary 26-31. The CCP does not address management actions for many rare species. The Service should conduct surveys for all rare species that might occur at the refuge before any management actions, such as grazing, are implemented (even if we don't think they exist there). Some rare/threatened or endangered species (such as sphinx moth), are not addressed consistently in document. California Native Plant Society should have been more actively involved in the plan.

Comment summary 26-32. The Service should make the Habitat Management Plan and the Prescribed Grazing Plan (with specific numbers of cattle) for Hopper Mountain NWR available for public review and comment.

Comment summary 26-33. The literature review in the Draft Prescribed Grazing Plan and the compatibility determination for grazing are incomplete and biased.

Response 26-29. Comment noted. Response 4-2 provides information about wildfire suppression at Bitter Creek NWR. Response 2-2 provides information about how grazing cannot completely eliminate the risk of fire. Response 19-6 provides information about how the Service addresses the fire risk at Bitter Creek NWR.

Response 26-30. The water control infrastructure will be left in place while the water control system is adaptively managed to achieve Objective 4.3 to restore natural flows of 3 select springs. Response 21-10 provides more information.

Response 26-31. Comment noted. Same as response 21-3.

Response 26-32. Page 138 of the Draft CCP, section 5.3 lists the step-down plans including Habitat Management Plans (HMP) for Hopper Mountain and Bitter Creek NWRs and states, "The public will be given ample opportunity for plan review and comment." Further, this section indicates that the appropriate level of NEPA compliance will be conducted when the proposed HMP is developed. The compatibility determination for grazing at Hopper Mountain NWR was included for public review in CCP Appendix C of the March 2012 Draft CCP/EA.

Response 26-33. The Prescribed Grazing Plan and the references cited have been revised and/or supplemented in the Final CCP and appendices, including the compatibility determination. Based upon the analysis in the compatibility determinations for grazing (in Appendix C), the Service determined that, with the stipulations, grazing is a compatible use at Bitter Creek NWR and Hopper Mountain NWR.

Fire Management

Comment summary 26-34. The Service should make the Fire Management Plan for Bitter Creek NWR available to the public. When the Bitter Creek NWR Fire Management Plan is updated, it should be subject to NEPA analysis and public review.

Comment summary 26-35. If there is no fire suppression in Headwall area, there is fire risk up-slope. To reduce fire hazard, the Service should consider light grazing in oak woodlands (such as at the Headwall and Klipstein Canyon) and grazing strips in riparian areas as fire breaks.

Comment summary 26-36. Prescribed fire is included in Bitter Creek NWR Alternative B in the table in the Draft EA, but it is not included in the CCP strategies.

Comment summary 26-37. The Service should consider an adaptive approach to fencing; establish a grazing program prior to determining locations of new fences at Bitter Creek NWR.

Comment summary 26-38. Before removing any existing internal roads at Bitter Creek NWR, the Service should evaluate whether the roads are useful as fire breaks.

Comment summary 26-39. The Service should include more practical considerations in the Bitter Creek NWR Prescribed Grazing Plan, reconsider the timing of grazing in the various units based on availability of forage and climate, allow more flexibility, and be more realistic. Ralph Phillips, formerly with Kern County Agricultural Extension, was recommended as a source for grazing information.

Comment summary 26-40. The Service should define the terms used when discussing water diversions and spring flow (such as “arriving” at the natural spring flow) and when discussing a “pertinent” range of topics for the Draft Prescribed Grazing Plan.

Response 26-34. When a Fire Management Plan (FMP) is updated, a draft will be available for public review and the Service will complete the appropriately level of NEPA compliance. The Service has completed the appropriately level of NEPA for the fire suppression activities that are covered by the current FMP. The Final CCP/EA includes information about how to access the FMP on-line.

Response 26-35. All wildfires will be suppressed at Bitter Creek NWR. More information is provided in response 4-2.

Response 26-36. Same as response 2-1. This was an error in the Draft EA and it is corrected in the Final CCP/EA. Prescribed fire for habitat management is not being proposed at Bitter Creek NWR.

Response 26-37. This was considered in the preparation of the Prescribed Grazing Plan in Appendix H to the Final CCP/EA.

Response 26-38. Comment noted. Bitter Creek NWR Strategies 5.1.1 and 5.1.2 include evaluation and closure of roads as needed to reduce wildlife disturbance and habitat fragmentation and damage. The Service will carefully evaluate the internal road system on the refuge to determine which roads support the refuge purposes and the California Condor Recovery Program (CCRP). The Refuge Manager will consider several factors when closing roads, including: documented wildlife disturbance or damage to habitat and/or cultural resources from illegal uses; the importance of road in facilitating access for wildlife dependent recreation; the importance of road in accessing BLM and other non-refuge lands; and the feasibility of implementing a closure. Roads that don't support either the refuge purposes or the CCRP may be closed to vehicular traffic and/or not maintained.

Response 26-39. Comments noted. More information is provided in response 26-8.

Response 26-40. The phrase or similar phrase to “arriving at the natural spring flow” was not found in the Draft CCP/EA. Rationale 4.3 (in CCP Chapter 4) provides the background and the reasoning behind Objective 4.3 to “restore natural spring flows” in some watershed on Bitter Creek NWR. Response 21-3 provides additional information. The background section of the Prescribed Grazing Plan (Appendix H) was revised to clarify the intent of a “pertinent range of topics.”

Visitor Services

Comment summary 26-41. The Service should coordinate with the neighboring private landowners near the location of the kiosk proposed at Bitter Creek NWR for an overlook for condor viewing. The Service needs to consider potential gate closures, land ownership boundaries, room for cattle trucks to pass parked cars, and the potential for creating a need for toilets at the site. The Service should not allow camping at the overlook.

Comment summary 26-42. The Service should begin long-term monitoring at a landscape scale now.

Comment summary 26-43. The Service should not encourage elk on Bitter Creek NWR; elk can damage fences and other infrastructure.

Comment summary 26-44. The Service should clarify in Alternative B in the Draft EA what other techniques may be used besides grazing at Bitter Creek NWR.

Comment summary 26-45. The Service should study the effects of the increased raven populations on focal birds at Bitter Creek NWR. The ravens come from the Cuyama Valley.

Cultural Resources

Comment summary 26-46. The Service should indicate whether the adobe structure in Unit 7 at Bitter Creek NWR has cultural significance.

Response 26-41. Due to the relatively small number of visitors to the refuge, restrooms are included only at the refuge headquarters (visitor contact station described in the CCP). However, if visitation at the condor viewing location increases substantially in the future, the Service will consider installing restrooms at additional locations on the refuge.

Response 26-42. Monitoring strategies are scheduled to begin upon approval of the Final CCP/EA, by the end of 2012. Same as response 21-4.

Response 26-43. Comment noted.

Response 26-44. Alternative B is described in Table 2-2, Summary of Alternatives, (“Issue Area”, row for “San Joaquin Valley special status species...”), 2nd bullet states: “Use various grassland management tools (e.g., grazing, mowing, herbicide, over-seeding with native perennials) to meet SJV habitat objectives.” More detail about the techniques is provided in Chapter 4, Bitter Creek NWR Strategy 2.2.2.

Response 26-45. The Service considers research proposals that are consistent with refuge purposes and give priority to studies that contribute to the enhancement, protection, preservation, and management of native Refuge plant and wildlife populations and their habitats. The Draft CCP/EA Appendix C includes a Compatibility Determinations for Research for each of the refuges.

Response 26-46. The remains of an adobe structure and barn at that location are components of an historic site that has not been formally recorded. Bitter Creek NWR Objective 6.4 to assess all known refuge cultural resources includes the systematic documentation and evaluation of that site and others as part of the Refuge’s cultural resources management program (CCP Chapter 4).