

U.S. Fish and Wildlife Service

Lower Klamath, Clear Lake, Tule Lake, Upper Klamath, and Bear Valley National Wildlife Refuges

Record of Decision for the Final Comprehensive Conservation Plan/ Environmental Impact Statement

National Wildlife Refuge System Mission

To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

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Record of Decision

Introduction

We, the United States Department of the Interior (DOI), Fish and Wildlife Service (Service) have prepared this Record of Decision (ROD) for the Lower Klamath, Clear Lake, Tule Lake, Upper Klamath, and Bear Valley National Wildlife Refuges (Refuge Complex) final comprehensive conservation plan/environmental impact statement (CCP/EIS). The Refuge Complex is located in Modoc and Siskiyou Counties, California, and Klamath County, Oregon. This ROD has been prepared in compliance with the National Environmental Policy Act of 1969 (NEPA), as amended. We used the final CCP/EIS (Service 2016) and the intra-Service section 7 consultation (Service 2017) to prepare the ROD. Both of these documents are incorporated by reference (40 United States Code [USC] 1502.21).

The final CCP/EIS for the Refuge Complex has been prepared pursuant to the NEPA, and the National Wildlife Refuge System Administration Act of 1966 (NWRS Administration Act), as amended (16 USC § 668dd), and Part 602 (National Wildlife Refuge System Planning) of the Fish and Wildlife Service Manual. The Service Manual requires that a comprehensive conservation plan (CCP) be prepared concurrent with the preparation of appropriate NEPA documentation. When preparing an environmental impact statement (EIS) with a CCP, the two documents are to be integrated. Key issues addressed in the final CCP/EIS include habitat management (including agricultural practices), visitor services, cultural resources, and resource protection.

The CCP/EIS is a programmatic document intended to analyze proposed management actions on a conceptual level, except in those cases where sufficient information is available to provide project-specific analysis. Therefore, the extent of analysis provided for each wildlife/habitat management and/or public use proposal reflects the level of detail currently available for the specific proposal. A programmatic CCP/EIS allows the Service to focus on issues that are “ripe for decision at each level of environmental review (Title 40 Code of Federal Regulations Part 1502.20). In the case of the CCP, this means that some of the decisions in the CCP can be examined at a site-specific level and are ready for implementation when the EIS is finalized, but some are not yet ready to implement and need to be described generally until funding or additional information is available or other processes outside NEPA have been completed. In the case where the CCP/EIS does not provide sufficiently in-depth analysis for future actions with environmental effects, the impacts of these actions will be analyzed in a future site-specific document. These are referred to as “tiered” analyses and are linked to the original CCP/EIS. It is during subsequent project-level planning, referred to as “step-down” planning, that additional studies would be conducted, additional baseline data would be gathered, the appropriate project-level NEPA documentation would be prepared, all necessary permits would be acquired, and final engineering and planning would be conducted. Step-down planning would also include a public involvement component similar to that provided during the CCP process.

This ROD includes a statement of the decisions made, the basis for the decisions, a description of the alternatives considered, a description of the environmentally preferable alternative, an overview of the measures to minimize environmental impacts, and a summary of public involvement in the decision-making process.

Purpose of the Action

The overarching purpose of this federal action is to develop and implement a comprehensive 15-year management plan for the Refuge Complex consistent with refuge purposes; refuge goals and objectives; and applicable laws, regulations, and policies. The CCP will provide Refuge Complex managers with a 15-year strategy for achieving these purposes and contributing toward the mission of the National Wildlife Refuge System (NWRS), consistent with sound principles of fish and wildlife conservation and legal mandates. The CCP is flexible and will be revised periodically to ensure that its goals, objectives, strategies, and timetables are still valid and appropriate.

Need for the Action

Such a plan is needed because no formal management plan currently exists for the Refuge Complex. The Refuge Improvement Act requires the Service to develop a CCP for each refuge and to manage refuges in a way that ensures the long-term conservation of fish, wildlife, plants, and their habitats, and provides for compatible wildlife-dependent recreation. Following is a list of the more specific purposes for the CCP.

- Provide a clear statement of direction for the future management of the refuges.
- Provide long-term continuity in management.
- Communicate the Service's management priorities for the refuges to its conservation partners, neighbors, visitors, and the general public.
- Provide an opportunity for the public to help shape the future management of the refuges.
- Ensure that management programs on the refuges are consistent with the mandates of the NWRS and the purposes for which each refuge was established.
- Ensure that the management of the refuges fully considers resource priorities and management strategies identified in other federal, state, and local plans.
- Provide a basis for budget requests to support each refuge's needs, staffing, operations, maintenance, and capital improvements.
- Evaluate existing and proposed uses of each refuge to ensure that they are compatible with the purposes of the refuge as well as the maintenance of biological integrity, diversity, and environmental health.

Decision (Selected Action)

The draft and final CCP/EIS evaluated multiple alternatives for managing these refuges within the Refuge Complex. The Service will implement the following alternatives.

- Lower Klamath Refuge: Alternative C
- Clear Lake Refuge: Alternative B
- Tule Lake Refuge: Alternative C
- Upper Klamath Refuge: Alternative B
- Bear Valley Refuge: Alternative B

The following sections summarize the selected alternative for each of the refuges covered by the CCP.

Lower Klamath Refuge Selected Alternative

Adaptive Management Approach	■ Habitat objectives (Appendix F) support achievement of proper waterfowl management as defined in Appendix M. ■ Waterfowl population objectives: 75th percentile of 1970s duck and 1990s goose populations. ■ Develop annual habitat plans and specific objectives each spring based on habitat conditions, water delivery projections, and the results of monitoring. ■ Update Lower Klamath Refuge Habitat Management and Inventory and Monitoring Plans. ■ Monitor changes in the environment, such as vegetation communities, wildlife trends, and surface water and groundwater levels, to assess the effects of climate change on the refuge. ■ Provide 60% of the Lower Klamath Refuge land base as disturbance-free sanctuary area. ■ Implement the wildlife disease management plan. ■ Protect all colonial nesting waterbird breeding sites from disturbance. ■ Maintain the Lower Klamath Refuge species catalog. ■ Maintain geographic information system (GIS) layers including boundaries, management units, grassland management units, fire perimeters, wetlands, and water infrastructure.
Water Rights	■ Maintain 1905 irrigation right and Federal Reserved water rights pursuant to 2013 Final Order of Determination (FOD). ■ Pursue exceptions to the 2013 FOD that would allow the use of irrigation water in seasonal wetlands, the flood fallow agricultural practice, and change the period of use for irrigation water to year-round. ■ If the Klamath Basin Restoration Agreement (KBRA) or some comparable agreement is not implemented, pursue changes in the type, place of use, and period of use for Lower Klamath and Tule Lake water rights to ensure sufficient water is available for refuge wetlands.
Water Deliveries	■ The range of projected water delivery scenarios under the current allocation system (2013 Biological Opinion [BiOp]) and KBRA are presented in the final CCP/EIS, Chapter 4, Figure 4.2. ■ Improve water conservation and efficiencies to optimize water use. ■ Seek opportunities to offset increasing power and pumping rates.
Water Management	■ Given volume and timing of deliveries, manage water to achieve habitat objectives (Appendix F) in accordance with Tables 4.2 and 4.3 in the final CCP/EIS. ■ Use irrigation water (1905) to flood leased land and cooperative farmed grain and hay units. ■ Use water from D Plant and Federal Reserved water deliveries to flood seasonal and permanent wetland units. ■ Maintain existing water delivery facilities. ■ Monitor water quality of delivered water supplies, pass through water, and spill water. ■ Identify water quality issues and implement Best Management Practices (Appendix L) with the assistance of partners and other agencies.
Wetland Habitat Management	■ Use disking, plowing, prescribed burning, and rotation through grain in seasonal wetland units to set back vegetative succession and improve habitat conditions for waterfowl. ■ Amount of wetlands dependent on water delivery. In an average water year, Lower Klamath Refuge would provide: ○ 700 acres of permanent wetlands and 9,700 acres of seasonal wetlands under the current water allocation system. ○ 8,100 acres of permanent wetlands and 14,100 acres of seasonal wetlands under KBRA. ■ Update Refuge Habitat Management Plan.

Lower Klamath Refuge Selected Alternative

Upland Habitat Management	■ Continue to use haying on approximately 2,000 acres in Area K, Unit 2, and the Miller Lake Unit. ■ Continue to use grazing on up to 12,500 acres in Area K and Units 2, 3B, 5A, 10, and 13A; Miller Lake; and Sheepy West. ■ Expand the use of grazing in uplands and dry seasonal wetland units by 2 to 3,000 acres per year to improve habitat conditions, limit wildfire danger, and control invasive plants.
Agricultural Habitat Management	■ Amount of cropland dependent on water delivery. In an average water year, Lower Klamath Refuge would provide: ○ 4,300 acres of grain and 2,400 acres of pasture under the current water allocation system. ○ 4,000 acres of grain and 2,300 acres of pasture under KBRA. ■ Structure lease land contracts so that if habitat objectives for unharvested standing grain cannot be met on cooperatively farmed units, lease land contract holders would be required to leave 25% of their fields as unharvested standing grain. ■ Expand area of lease land and cooperatively farmed units that are managed organically. ■ Expand incentives such as lease extensions for farmers that manage fields organically. ■ Use flood fallow agricultural practice on fields with expiring contracts if needed to achieve habitat objectives. ■ Leave at least 25% of cooperatively farmed unharvested grains standing for wildlife benefit. ■ Maintain fall flooding in Area K. ■ To support dabbling duck and geese population objectives during winter and spring, increase unharvested grain by approximately 500 acres and convert an additional 1,300 acres of unharvested grain to pasture/green browse (subject to water availability). ■ Expand cooperative farming program in dry years by up to 4,000 acres to control invasive plant species in dry management units. ■ Leverage more wetland habitat on private lands in the basin by expanding the use of preferential permits for cooperatively farmed grain and hay units for farmers that participate in the Walking Wetlands Program on their private lands. ■ Periodically evaluate the leasing program to ensure that sufficient agricultural foods are available to support spring and fall population objectives for geese and dabbling ducks. ■ Require an annual special use permit (SUP) for Bureau of Reclamation (Reclamation) with stipulations and prescribed habitat mixture based on the energetics modeling. ■ Require annual SUPs for commercial contractors (e.g., fertilizer, pesticide applications). ■ Require stipulations and all other specific requirements from the SUPs be included as part of lease contracts.

Lower Klamath Refuge Selected Alternative

Integrated Pest Management	■ Pest management on the lease land farming units would continue to be guided by the 1998 Refuge Integrated Pest Management (IPM) Plan. ■ Continue to evaluate and permit chemical applications according to Service and DOI policies, and Pesticide Use Proposals (PUPs). ■ Continue to scout, map, and control priority weed species with an emphasis on protecting high-priority wildlife habitats. ■ Reduce populations of perennial pepperweed, scotch thistle, purple loosestrife, hemlock, and other nuisance species. ■ Use flood-fallow agricultural practice in management units every 5 to 8 years as needed to manage invasive plants. ■ Formalize ongoing pest management for cooperatively farming and general pest management activities under an IPM program. ■ Use global positioning system (GPS) data to monitor weed populations. ■ Expand use of non-pesticide tools to control invasive species in wetland and upland units (e.g., grazing, restoration plantings). ■ Develop program for managing berms to reduce invasive species cover and improve cover for nesting waterfowl and other species. ■ Prevent the introduction of aquatic invasive species by pursuing partnerships with the states of California and Oregon to develop and operate a portable decontamination station(s) near boat launches on the refuge.
Fire Management	■ Continue to implement the Refuge Complex Fire Management Plan. ■ Suppress all wildfires. ■ Focus fuel reduction projects on a 5- to 10- year cycle or more frequent if needed for invasive plant control or other resource reasons. ■ Allow lease land farmers to contract for prescribed burning of fields.
Land Conservation	■ Coordinate with local, state, and federal agencies to explore development of an easement program. ■ Continue to pursue acquisition of lands within the approved acquisition boundary from willing sellers.
Cultural Resources	■ Continue to manage and conserve cultural and archaeological resources in accordance with all applicable laws, policies, and regulations. ■ Identify historic properties that coincide with existing and planned roads, facilities, public use areas, and habitat projects. ■ Evaluate the National Register of Historic Places (NRHP) eligibility of threatened and impacted sites. ■ Prepare and implement activities to mitigate impacts to sites as necessary. ■ Implement a cultural resources management program to evaluate the NRHP eligibility of cultural resources that may be impacted by Service undertakings, management activities, erosion, or neglect. ■ Develop partnerships with The Klamath Tribes for cultural resources inventory, evaluation, and project monitoring. ■ Perform an inventory and assessment of archaeological and historic sites to determine NRHP eligibility. ■ Develop partnerships (e.g., University of Oregon, National Park Service [NPS]) to assist in the stabilization and restoration of archaeological and historic sites and structures. ■ Create and use a Memorandum of Agreement with Native American groups to implement the inadvertent discovery clause of the Native American Graves Protection and Repatriation Act.

Lower Klamath Refuge Selected Alternative

Wildlife Observation and Photography	■ Maintain public opportunities for wildlife observation and nature photography via photo blinds, vehicle pull-offs, a wildlife overlook, and a 10-mile auto tour route. ■ Provide additional observation opportunities by developing another vehicle pull-off on State Line Road. ■ Re-letter the auto tour route.
Interpretation	■ Maintain public opportunities for nature interpretation via entrance kiosks and signs along auto tour route. ■ Continue to provide staffed periodic nature interpretive programs to the public. ■ Continue to provide brochures, maps, and visitor information to the public. ■ Maintain website to include current information. ■ Provide additional interpretive programs to the public. ■ Provide a contact station at the entrance of Lower Klamath Refuge to greet visitors. ■ Update general brochure to include current boundaries. ■ In consultation with The Klamath Tribes, prepare interpretive media (e.g., pamphlets, signs, exhibits) that relate the cultural resources.
Hunting	■ Maintain a diversity of waterfowl and pheasant hunting opportunities. ■ Maintain waterfowl-only hunt areas, pheasant-only hunt areas, and joint waterfowl and pheasant hunting areas. ■ Maintain hunting opportunities via large free roam areas, flooded pit blinds, and mobility-impaired hunt areas. ■ Maintain hunt area accessibility via automobiles, motor boats, canoe style boats, and walk-ins. ■ Maintain hunt areas in a variety of habitats including flooded marsh, dry and flooded grain fields, and upland fields. ■ Maintain a hunt program consistent with California and Oregon state hunting dates and regulations. ■ Provide drive-in, boat-in mobility-impaired accessible hunting opportunities. ■ Evaluate guide program (i.e., maintain, modify, or eliminate guide program). ■ Analyze hunting area and auto tour route (i.e., maintain or separate in time or space). ■ Analyze cost-effectiveness of current hunt fees (i.e., maintain or increase fee). ■ Phase in a requirement allowing only 4-stroke or direct injection 2-stroke boat engines to be used on the refuge.
Environmental Education	■ Maintain environmental education programs from the Visitor Center facility with an emphasis on wetland habitats and birds. ■ Maintain kindergarten through 12th grade bird curriculum and kindergarten through 8th grade wetlands curriculum and match to California and Oregon State standards. ■ Continue to offer workshops to train teachers on how to use the curriculum. ■ Develop a Walking Wetlands Program curriculum. ■ Create partnerships with schools to develop schoolyard habitat programs.
Outreach	■ Maintain public outreach about natural resources in the eco-region and the NWRS by hosting special events at the Refuge Complex, participating in community events, and offering off-site presentations upon request. ■ Develop an outreach event on waterfowl identification for youth hunters. ■ Incorporate cultural resource messages into outreach events in the area, including National Wildlife Refuge Week and appropriate local festivals.
Public Safety and Law Enforcement	■ If funding is available, hire one to two additional law enforcement officers to improve public safety and protect resources.

Clear Lake Refuge Selected Alternative

Habitat Management	■ Continue present program of intensively managed cattle grazing, herbicide application, combination cattle grazing/herbicide treatments, and juniper removal to promote sage-steppe habitat. ■ Develop habitat management plan. ■ Work with the U.S. Forest Service to identify an alternative location/source of water for cattle grazing on the adjacent Tucker Allotment.
Integrated Pest Management	■ Continue to reduce populations of invasive annual grasses. ■ Chemical applications are evaluated and permitted according to Service and DOI policies, and PUPs. ■ Continue to scout, map, and control priority weed species with an emphasis on protecting high-priority wildlife habitats. ■ Maintain baseline monitoring for invasive annual grasses. ■ Maintain current roads for administrative access only and limit overland travel to reduce spread of invasive plants. ■ Continue to use grazing to control invasive annual grasses and juniper seedlings, reduce wildfire fuels, and create a mosaic of short-grass habitat on approximately 5,500 acres in the “U” Unit. ■ Formalize pest management practices under an IPM program. ■ Work with Intermountain Research and Extension Station to develop control strategies targeted toward exotic annual grasses while protecting native grasses, shrubs, and forbs. ■ Develop a rapid assessment and control program for new invasive species. ■ Use grazing on approximately 3,000 acres to control exotic annual grasses and assist with restoration of habitat on the east side of the “U” Unit that was damaged by the Clear Fire.
Fire Management	■ Continue to implement the Refuge Complex Fire Management Plan. ■ Suppress all wildfires. ■ Prioritize wildfire suppression activities to protect the “U” which will allow for accelerated sagebrush restoration and prevent further destruction of this desired habitat.
Monitoring and Inventory	■ Maintain the Clear Lake Refuge species catalog. ■ Develop and maintain GIS layers including boundaries, management units, grassland management units, fire perimeters, wetlands, and water infrastructure. ■ Continue to monitor colonial nesting waterbirds and the sage-grouse lek on the “U”. ■ Develop a wildlife inventory and monitoring plan focused on priority species including sage-grouse and colonial nesting waterbirds on the islands.
Cultural Resources	■ Same as Lower Klamath Refuge Selected Alternative.
Wildlife Observation and Photography	■ Explore development of a viewing facility on the boundary of the refuge.
Interpretation	■ Continue to provide information about Clear Lake Refuge at the Refuge Complex Visitor Center. ■ Consider providing interpretive signs and a viewing platform on the boundary of the refuge. ■ Increase interpretive information at the Refuge Complex Visitor Center. ■ Develop interpretive pamphlet to educate users on how to prevent invasive species. ■ Provide exhibit and increase interpretive information at Refuge Complex Visitor Center.

Clear Lake Refuge Selected Alternative

Hunting	■ Maintain waterfowl hunting opportunities by offering a large free-roam hunt area. ■ Maintain walk-in only hunting opportunities. ■ Maintain a hunt program consistent with California State hunting dates and regulations. ■ Maintain no hunting fee. ■ Continue to provide special-draw pronghorn hunting opportunities for big game hunters. ■ Continue to coordinate with California Department of Fish and Wildlife to maintain special drawing and fees regulated through the State of California. ■ Revise hunt plan to require non-toxic ammunition for pronghorn hunting, consistent with state regulations.
Environmental Education	■ Continue to provide environmental education programs in the Refuge Complex Visitor Center facility or in the classroom about sage-grouse and sage-steppe habitat. ■ Work with local high schools to develop sage-grouse monitoring program.
Outreach	■ Continue to provide outreach to the public about Clear Lake Refuge, natural resources in the ecoregion, and the NWRS by hosting special events at the Refuge Complex Visitor Center and participating in off-site special events.
Public Safety and Law Enforcement	■ Maintain safe conditions at all visitor facilities at the refuge and ensure adequate law enforcement is available.
Monitor Public Use	■ Continue to monitor visitor use of refuge lands including the six priority public uses.

Tule Lake Refuge Selected Alternative

Adaptive Management Approach	■ Set annual habitat objectives to achieve proper waterfowl management as defined in Appendices M and N. ■ Waterfowl population objectives: 75th percentile of 1970s duck and 1990s goose populations. ■ Prepare habitat management plan. ■ Update Refuge Inventory and Monitoring Plan. ■ Monitor changes in the environment, such as vegetation communities, wildlife trends, and surface and groundwater levels, to assess the effects of climate change on the Refuge. ■ Maintain the species catalog for Tule Lake Refuge. ■ Develop and maintain GIS layers including boundaries, management units, grassland management units, fire perimeters, wetlands, and water infrastructure. ■ Monitor effects of Sumps 1A and 1B drawdowns on water quality. ■ Monitor effects of Sumps 1A and 1B drawdowns on endangered Lost River and shortnose suckers.
Wildlife Management	■ Provide 60% of the Tule Lake Refuge land base as disturbance-free sanctuary area. ■ Protect all colonial nesting waterbird breeding sites from disturbance. ■ Implement the wildlife disease management plan. ■ Monitor and manage for all resident native wildlife, including federally endangered Lost River and shortnose suckers. Provide disturbance-free areas for these species.

Tule Lake Refuge Selected Alternative

Water Quantity Management	■ Maintain 1905 irrigation water rights and 1928 Federal Reserved water rights pursuant to the 2013 FOD. ■ Reclamation delivers water to lease lands and Sumps 1A and 1B according to Reclamation's within-Project priority ranking. ■ Water is delivered during irrigation season to lease lands by Tulelake Irrigation District (TID). ■ Excess water from irrigation return flows and winter run off is pumped to Lower Klamath Refuge through D Plant. ■ Continue to improve water conservation and efficiencies to optimize existing water use. ■ If KBRA is implemented: - o water for lease lands and Sumps 1A and 1B would come from the irrigator's allocation. - o water for walking wetlands is shared, 2 acre-feet from irrigator, 1 acre-foot from Lower Klamath Refuge allocation. ■ Explore feasibility of using groundwater at south end of refuge.
Water Quality Management	■ Continue to work with Reclamation to monitor water quality of delivered water supplies, pass through water, and spill water. ■ Continue to identify water quality issues and implement best management practices (BMPs). ■ Continue to assist with Lost River total maximum daily load planning and implementation.
Wetland Habitat Management	■ Create habitat management and wildlife inventory and monitoring plan. ■ Develop and implement plan to manipulate water elevations in Sumps 1A and 1B to improve wetland diversity and productivity. ■ Amend 2013 BiOp to address the drawdowns in Sump 1A.
Upland Habitat Management	■ As public use facilities are developed on the Peninsula Unit, expand invasive species control efforts on adjacent areas. ■ Implement temporary closures and/or buffer zones as needed to protect nesting raptors.
Agricultural Program	■ Require annual SUPs for Reclamation with stipulations and prescribed habitat mixture based on the energetics modeling. ■ Require annual SUPs for commercial contractors (i.e., fertilizer, pesticide applications). ■ Require stipulations and all other specific requirements from the SUPs be included as part of lease contracts. ■ Increase unharvested standing grain to approximately 1,500 acres to support dabbling duck and geese population objectives during winter and spring. ■ Cooperative farm land participants are selected based on ability to provide conservation benefits on private lands. ■ Leverage more wetland habitat on private lands in the basin by expanding the use of preferential permits for cooperatively farmed grain and hay units for farmers that participate in the Walking Wetlands Program on their private lands. ■ Strive to increase acreage and interspersions of walking wetlands within lease lands so that all fields are within 1 mile of a wetland (minimum of approximately 1,380 acres). ■ Maintain up to 15,500 acres of lease land crops such as small grains, alfalfa, onions, and potatoes. ■ Complete construction of dikes around lease land lots in Sump 3 where walking wetlands management is feasible. ■ Construct dikes around lease land lots in Sump 2 where walking wetlands management is feasible. ■ Evaluate existing leased lands program administration agreement with Reclamation. ■ Increase attractiveness of agricultural lands to waterfowl with fall flooding. ■ Expand area of lease land and cooperatively farmed units that are managed organically. ■ Expand incentives such as lease extensions for farmers that manage fields organically.

Tule Lake Refuge Selected Alternative

Integrated Pest Management	■ Pest management on the lease land farming units is guided by the 1998 Refuge Integrated Pest Management Plan. ■ Chemical applications are evaluated and permitted according to Service and DOI policies, and PUPs. ■ Reduce populations of perennial pepperweed, scotch thistle, purple loosestrife, hemlock, and other nuisance species. ■ Continue to scout, map, and control priority weed species with an emphasis on protecting high-priority wildlife habitat. ■ Formalize ongoing pest management for cooperative farming and general pest management activities under an IPM program. ■ Develop program for managing berms to reduce invasive species cover and improve cover for nesting waterfowl and other species. ■ Use GPS and other appropriate tools to map and monitor invasive plant populations and treatment actions. ■ Prevent the introduction of aquatic invasive species by pursuing a partnership with the State of California to develop and operate a portable decontamination station(s) near boat launches on the refuge. ■ Periodically conduct water, sediment, and fish and wildlife tissue monitoring in in refuge waterbodies to ensure pesticides are at concentrations below those having an adverse effect to listed species and other wildlife.
Fire Management	■ Continue to implement Refuge Complex Fire Management Plan. ■ Suppress all wildfires. ■ Focus fuel projects on a 5- to 10-year cycle or more frequent if needed for invasive plant control or other resource reasons. ■ Allow lease land farmers to contract locally for prescribed burning of fields.
Cultural Resources	■ Same as Lower Klamath Refuge Selected Alternative.
Wildlife Observation and Photography	■ Maintain public opportunities for wildlife observation and nature photography via two hiking trails, two canoe trails, photo blinds, vehicle pull-offs, a wildlife overlook, a wildlife observation platform, and an auto tour route. ■ Incorporate up to four pull-off areas on existing auto tour route. ■ Improve/redesign the Sheepy Ridge Trail to decrease the slope, improve drainage, and reduce erosion. ■ Work with NPS to develop a trail to the top of the Peninsula Unit.
Interpretation	■ Maintain public opportunities for nature interpretation via information kiosks, interpretive signs along auto-tour routes and nature trails, and visitor center. ■ Continue to provide staffed periodic nature interpretive programs to the public. ■ Continue to provide brochures, maps, and visitor information to the public. ■ Maintain website to include current information. ■ Provide additional interpretation about Walking Wetlands Program to the public. ■ Provide hands-on exhibits in visitor center. ■ Update visitor center entrance to be more visitor-friendly. ■ Update visitor center to be compliant the Americans with Disabilities Act.

Tule Lake Refuge Selected Alternative

Hunting	■ Maintain a diversity of waterfowl and pheasant hunting opportunities. ■ Maintain waterfowl-only hunt areas, pheasant-only hunt areas, and areas of joint waterfowl and pheasant hunting. ■ Maintain hunting opportunities via large free-roam areas, lottery drawn spaced-blinds, and lottery drawn open units. ■ Maintain hunt area accessibility via automobiles, motor boats, canoe style boats, and walk-ins. ■ Maintain hunt areas in a variety of habitats including deep and shallow flooded marshes, dry grain fields, and upland fields. ■ Maintain a hunt program consistent with California State hunting dates and regulations. ■ Evaluate guide program (i.e., maintain, modify, or eliminate guide program). ■ Analyze hunting area and auto tour route (i.e., maintain or separate in time or space). ■ Analyze cost-effectiveness of current hunt fees (i.e., maintain or increase fee). ■ Phase in a new requirement allowing only 4-stroke or direct injection 2-stroke boat engines to be used on the refuge.
Environmental Education	■ Maintain environmental education programs from the visitor center facility with an emphasis on wetland habitats and birds. ■ Maintain kindergarten through 12th grade bird curriculum and kindergarten through 8th grade wetlands curriculum and match to California and Oregon State standards. ■ Develop a high school Walking Wetlands Program curriculum. ■ Continue to offer teacher training workshops to train teachers on how to use the curriculum. ■ Create partnerships with schools to develop schoolyard habitat programs. ■ Construct a floating boardwalk next to education center on the permanent pond at Discovery Marsh.
Outreach	■ Maintain public outreach about natural resources in the ecoregion and the NWRS by hosting special events at the Refuge Complex, participating in community events, and offering off-site presentations upon request. ■ Develop an outreach event on waterfowl identification for youth hunters. ■ Develop a friends group.
World War II Valor in the Pacific National Monument	■ Maintain cooperative management with NPS Lava Beds National Monument. ■ Explore land exchange opportunities for the C-Camp with the NPS. ■ Maintain cooperative management of peninsula with NPS Lava Beds National Monument.
Public Safety and Law enforcement	■ Maintain safe conditions at all visitor facilities at the refuge and ensure adequate law enforcement is available.
Monitor Public Use	■ Continue to monitor visitor use of refuge lands including the six priority public uses.

Upper Klamath Refuge Selected Alternative

Wetland Habitat Management	■ Wetland water elevation throughout Upper Klamath Refuge is dependent on the operation of the Klamath Reclamation Project consistent with the 2013 BiOp. ■ Refuge wetlands largely dry below lake elevation of 4,139.50 feet. ■ The potential to reach this lake elevation occurs in 11 of 12 months under the current water allocation system (2013 BiOp) and in 6 of 12 months if the KBRA were implemented. ■ Continue present program of managed cattle grazing and use of prescribed fire to maintain wetland and marsh habitats. ■ Collaborate with adjoining landowners and other organizations to enhance and restore fringe wetland habitats on Upper Klamath Lake adjacent to Upper Klamath Refuge. ■ Support implementation of recovery actions in the Revised Lost River Sucker and Shortnose Sucker Recovery Plan (Service 2012).
Barnes-Agency Unit Management	■ Evaluate options for restoring wetland habitat on Barnes-Agency Unit (project details will be evaluated under a separate environmental analysis). ■ Collaborate with the Bureau of Land Management to integrate subsidence reversal.
Integrated Pest Management	■ Monitor for purple loosestrife. ■ Continue to monitor and treat existing invasive weed infestations with an emphasis on new infestations. ■ Formalize pest management practices under an IPM program. ■ Prevent the introduction of aquatic invasive species by pursuing partnerships with the State of Oregon and U.S. Forest Service to develop and operate a portable decontamination station(s) near boat launches on U.S. Forest Service lands.
Fire Management	■ Continue to implement Refuge Complex Fire Management Plan. ■ Continue to suppress all wildfires.
Inventory and Monitoring	■ Maintain the species catalog for Upper Klamath Refuge. ■ Develop and maintain GIS layers including boundaries, management units, grassland management units, fire perimeters, wetlands, and water infrastructure. ■ Continue to monitor waterfowl and colonial nesting waterbirds. ■ Update refuge inventory and monitoring plan with an emphasis on priority wildlife species and habitats.
Cultural Resources	■ Same as Lower Klamath Refuge Selected Alternative.
Tribal Trust Resources	■ Continue to support the collection of wocus within the refuge by The Klamath Tribes.
Wildlife Observation and Photography	■ Maintain public opportunities for wildlife observation and photography by maintaining a canoe trail through the wetland. ■ Create a pull-off on West Side Road for views of the refuge.

Upper Klamath Refuge Selected Alternative

Interpretation	■ Continue to provide canoe trail maps and brochures at the refuge headquarters and Rocky Point Resort. ■ Continue to provide a canoe trail map and interpretive signs at Rocky Point and Malone Springs boat launches. ■ Continue to provide information and interpretive programs to the public by hiring seasonal volunteers. ■ Collaborate with U.S. Forest Service and Bureau of Land Management to provide interpretation about the refuge, specifically Barnes-Agency Unit, which borders the Wood River Wetlands. ■ Establish a seasonal contact station to provide maps, brochures, and other information to visiting public. ■ Develop a more permanent solution to having a seasonal point of contact during peak visitation. ■ Develop interpretive signs along the canoe trail. ■ Develop an interpretive kiosk on West Side Road at a pull-off.
Hunting	■ Maintain a diversity of waterfowl hunting opportunities. ■ Maintain hunting opportunities via large free-roam areas. ■ Maintain hunt area accessibility via motorized and non-motorized boats. ■ Continue to provide hunt opportunities in a variety of habitats including flooded marsh. ■ Maintain a hunt program consistent with Oregon State hunting regulations. ■ No hunting fee required.
Fishing	■ Maintain a diversity of sport fishing opportunities. ■ Maintain fishing opportunities via motor boat or canoe style boat accessibility. ■ Maintain a fishing program consistent with Oregon State fishing regulations.
Environmental Education	■ Continue to provide limited field trips to the refuge and bordering U.S. Forest Service public lands upon request. ■ Provide seasonal field trips to the refuge to lead canoe tours. ■ Collaborate with U.S. Forest Service to provide educational programs on site and around refuge year-round.
Outreach	■ Maintain public outreach about natural resources in the ecoregion and the NWRS by hosting special events at the Refuge Complex, participating in community events, and offering off-site presentations upon request.
Public Safety	■ Maintain safe conditions at all visitor facilities. ■ Install more directional signs and maintenance to ensure safety on canoe trail.

Bear Valley Refuge Selected Alternative

Forest Habitat Management	■ Continue present program of prescribed fire and understory mowing to reduce fuel loading, promote fire-resistant conifer species, and allow forested habitats to develop old growth and mature forest characteristics. ■ Continue to manage forested habitats primarily as winter roosting habitat for bald eagles. ■ Evaluate potential to manage forests for a wider array of wildlife species while continuing to promote old growth and mature forest characteristics. ■ Evaluate need for future silvicultural thinning to achieve desired habitat characteristics. ■ Coordinate with partners on snag retention guidelines to benefit tree cavity-dependent wildlife.
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Bear Valley Refuge Selected Alternative

Riparian Habitat Management	■ Manage riparian habitats along Bear Valley Creek to optimized use by priority species as identified in the Partners in Flight East Slope Cascades Plan.
Invasive Species Management	■ Continue periodic monitoring and treatment of invasive species on a yearly basis. ■ Formalize pest management practices under an IPM program.
Fire Management	■ Continue to implement Refuge Complex Fire Management Plan. ■ Continue to suppress all wildfires. ■ Focus fuel projects on a 5- to 10-year cycle or more frequent if needed for invasive plant control or other resource reasons.
Inventory and Monitoring	■ Maintain the species catalog for Bear Valley Refuge. ■ Develop and maintain GIS layers including boundaries, management units, grassland management units, fire perimeters, wetlands, and water infrastructure. ■ Continue to monitor winter roosting bald eagles via twice per month morning fly-out counts. ■ Continue to monitor eagle nests. ■ Develop wildlife inventory and monitoring plan which would include all priority wildlife species (in addition to bald eagles).
Cultural Resources	■ Same as Lower Klamath Refuge Selected Alternative.
Wildlife Observation and Photography	■ Explore new opportunities for wildlife observation and photography (e.g., viewing area at the south entrance for bald eagle viewing).
Interpretation	■ Maintain public opportunities for nature interpretation via media at Refuge Complex Visitor Center and Refuge Complex website.
Hunting	■ Maintain deer hunting consistent with Oregon State hunting dates and regulations. ■ Tags provided by State of Oregon. ■ Maintain walk-in access only. ■ Establish parking for designated hunting access points on north and south sides of the refuge. ■ Consider allowing additional hunting opportunities. ■ Revise hunt plan and refuge-specific regulations to require non-toxic ammunition.
Environmental Education	■ Maintain kindergarten through 12 th grade curriculum about wintering bald eagle biology. ■ Provide on-site educational field trips that highlight refuge forest management practices.
Outreach	■ Continue to participate in annual Winter Wings Festival in Klamath Falls.
Public Safety and Law Enforcement	■ Maintain safe conditions at all visitor facilities at the refuge and ensure adequate law enforcement is available. ■ Install additional directional and boundary signs.
Monitor Public Use	■ Continue to monitor visitor use of refuge lands.

Other Alternatives Considered

A brief summary of alternatives considered but not selected is presented below.

Alternatives for Lower Klamath Refuge

Alternative A – No Action: Under Alternative A, the Service would continue current management activities. No major changes in habitat management would occur. Highlights of the current management activities are as follows. The Service would continue to manage the refuge adaptively and in doing so would follow the 1994 Habitat Management Plan for Lower Klamath Refuge. This plan provides a conceptual framework under which more specific annual plans can be written, thus allowing for the flexibility needed to address unanticipated changes in habitat conditions or wildlife populations. Annual habitat plans would continue to be developed each spring based on habitat management priorities, current habitat conditions, water delivery projections, and the results of monitoring. The acreages of wetland and agricultural habitats the refuge can support each year are highly dependent on the volume and timing of water deliveries. Monitoring activities include aerial bird surveys (twice a month from September through April) and obtaining waterfowl disease data. Under Alternative A, the Service would continue to use farming, haying, grazing, mowing, and prescribed fire to help achieve habitat and associated wildlife objectives. Figure 4.3 in the final CCP/EIS illustrates how habitat management would continue under Alternative A. This figure shows the estimated acres of habitat that could be expected under a range of water scenarios. The Service would also continue to manage pests on the refuge consistent with the policies of the Service and the DOI using an IPM approach. Ongoing pest management for the lease lands in Area K would continue as described in the 1998 IPM Plan (Service 1998). The 1998 IPM Plan did not eliminate the use of pesticides, but attempted to have them used as a last line of defense against pests, not as the first option of control. On both the leased and non-leased areas of the refuge, all pesticides proposed for use are reviewed under the PUP process before they are allowed.

The existing visitor services including wildlife observation, photography, environmental education, interpretation, hunting, and guided hunting would remain unchanged. The refuge would continue to be open to the public daily for wildlife observation and photography along the auto tour route, vehicle pull-offs, and wildlife overlook from sunrise to sunset year-round. The Service would continue to provide periodic staffed nature interpretation programs to the public. The Service would maintain kindergarten through 12th grade bird biology curriculum and kindergarten through 8th grade wetlands curriculum to match California and Oregon State standards in addition to other environmental education opportunities. Figure 4.4 in the final CCP/EIS illustrates where visitor services are provided on the refuge. Under Alternative A, 52% of the refuge land base is set aside as a disturbance-free sanctuary area (no public use). Cultural resources management would occur on a project-by-project basis.

Alternative B: Alternative B contains many of the same management strategies as Alternative A. Alternative B would differ from Alternative B as follows. Under Alternative B, the Service would continue to follow an adaptive management approach. However, the goals, objectives, and strategies identified for Lower Klamath Refuge in Appendix F would take the place of the 1994 Habitat Management Plan. The habitat objectives listed in Appendix F were designed to achieve proper waterfowl management, as defined in Appendix M. The goals, objectives, and strategies for Lower Klamath Refuge listed in Appendix F would form the basis of a new habitat management plan which the Service would develop. Annual habitat plans would be developed each spring based on habitat management objectives (Appendix F), current habitat conditions, water delivery

projections, and the result of monitoring. Under Alternative B, the acreages of wetland and agricultural habitats that the refuge can support each year continue to be dependent on the volume and timing of water deliveries. Figure 4.5 in the final CCP/EIS illustrates the estimated acreage of habitat that would be available on the refuge under a variety of water scenarios using the habitat management objectives from Appendix F. For example, to support dabbling duck and gees population objectives during winter and spring, the Service would have increased the acreage of unharvested cooperatively farmed grain by 500 acres and reduce the acreage of harvested grain accordingly.

New actions would be taken to manage pests on the refuge. For example, the Service would develop a rapid assessment and control program for new invasive species as well as develop a program for managing berms to reduce invasive species cover and improve cover for nesting waterfowl and other species. In addition to using the 1998 IPM Plan to manage pests on the leased lands of Area K, the Service would formalize the ongoing pest management for habitat, maintenance, and cooperative farming into an IPM program as described in Appendix Q of the final CCP/EIS.

The Service would leverage more wetland habitat on private lands in the Klamath Basin by expanding the use of preferential permits for cooperatively farmed grain and hay units for farmers that participate in the Walking Wetlands Program on their private lands. In addition, the Service would also require an annual SUP for Reclamation that includes stipulations and a prescribed habitat mixture based on energetics modeling to ensure that lease land farming is a compatible refuge use. An annual SUP would also be required for commercial contractors (i.e., to control fertilizer, pesticide applications).

The Service would implement a cultural resources management program to evaluate the NRHP eligibility of cultural resources that may be impacted by Service undertakings, management activities, erosion, or neglect. Listing these properties on the NRHP would provide additional protection for the resources.

The Service would work to provide additional opportunities for wildlife-dependent recreation on the refuge as follows. The Service would work with the California Department of Transportation to develop another vehicle pull-off on State Line Road that could be used for wildlife observation. Additional interpretive programs would be provided to the public and the Service would develop a visitor contact station at the entrance of the refuge. The Service would develop a Walking Wetlands Program curriculum and create partnerships with schools to develop schoolyard habitat programs. For the hunting program the Service would provide drive-in and boat-in mobility-impaired accessible hunting opportunities; evaluate the existing hunt guide program; analyze the hunt area and auto tour route; and analyze the cost-effectiveness of the current hunt fees.

Alternative C: Alternative C is the selected alternative for the Lower Klamath Refuge and is described in the *Decision (Selected Alternative)* section above.

Alternative D: Alternative D is also known as the “Big Pond” alternative. Under this alternative, the Service would work to replicate the natural hydrology in the southern quarter of the refuge by removing up to 31 water control structures and abandoning or removing up to 29 miles of interior levees/roads, and abandoning up to 100 miles of interior drain fields. Existing units actively managed as permanent wetland, seasonal wetland, and grain (see Figure 4.3 in the final CCP/EIS) would be replaced by a single large wetland unit. Water distribution in the refuge would need to

be changed to direct flows to the Big Pond. A new, taller dike up to 6 miles long would likely need to be constructed along an existing canal embankment on the north side of the unit to contain the ponded water. Water would be distributed to flood this area when available. Lease land and cooperative farming would be the same as under the Selected Alternative. The hunt and sanctuary areas would have needed to be revised under this alternative as the remnant hydrology unit was developed. Other public uses of the refuge would be the same as under Alternative B.

Alternatives for Clear Lake Refuge

Alternative A – No Action: Under Alternative A, Clear Lake Refuge would be managed adaptively, with managers and biologists adjusting management as on-the-ground monitoring reveals the results of previous habitat management practices, as other new information is developed, or as the needs of wildlife populations change. The Service would monitor priority species such as American white pelicans and greater sage-grouse populations to help inform habitat management decisions. The Service would use grazing practices to promote native forbs and perennial grasses with sufficient canopy cover and height to provide food (plant material and insects) and protection for sage-grouse during the brood-rearing season. The Service would work with Reclamation to protect islands in Clear Lake that provide nesting habitat for American white pelicans. Pest management practices would focus on using grazing to reduce invasive grasses and removing western juniper trees with pruners and/or chainsaws. The Service may also use herbicides to manage invasive plant species. The Service would continue to suppress all wildfires and prioritize suppression activities to protect the “U” which would allow for accelerated sagebrush restoration and prevent further destruction of this desired habitat.

Under Alternative A, the refuge would only be open to the public for hunting consistent with California State hunting dates and regulations. The Service would maintain existing opportunities for nature interpretation by providing information about the refuge at the Refuge Complex Visitor Center. Lead ammunition would continue to be allowed for big game hunting on this refuge.

Alternative B: Alternative B is the selected alternative for Clear Lake Refuge and is described above in the *Decision (Selected Alternative)* section.

Alternatives for Tule Lake Refuge

Alternative A – No Action: Under Alternative A, the Service would adaptively manage the refuge to adjust management as on-the-ground monitoring reveals the results of previous habitat management practices, as other new information is developed, or as the needs of waterfowl populations change. The Service would seek to provide a mosaic of habitats sufficient to support the population objectives of migrating, breeding, and molting waterfowl. In addition to the refuge’s primary focus of waterfowl management, the Service has a legal mandate to provide for migratory birds. In the case of Tule Lake Refuge, wetland-oriented non-game migratory birds are of primary importance. Similar to waterfowl, the Service would strive to provide a mosaic of wetland habitats sufficient to support objective numbers of priority non-game waterbird species during both the migratory and spring/summer breeding periods. The final focus of habitat management would be to support a full range of endemic fish and wildlife species. The Service would set annual habitat objectives each spring based on March water delivery projections.

Consistent with proper waterfowl management, the Service would continue the lease land program on 14,800 acres in accordance with the Kuchel Act. The lease land farming program would continue to be administered in accordance with the 1977 Cooperative Agreement between Reclamation and the Service. Cooperative farming would take place on 2,300 acres of the refuge with at least 25% grains on 250 acres. Cooperative farm land participants would be selected based on their ability to provide conservation benefits on private lands. Between 0 and 2,700 acres of walking wetlands would be maintained on the lease land and cooperatively farmed units.

Pest management on lease land units would continue to be guided by the 1998 IPM Plan for the Lease Land Farming Program.

The existing visitor services would be maintained and this includes two hiking trails, two canoe trails, photo blinds, vehicle pull-offs, a wildlife overlook, a wildlife observation platform, and an auto tour route. The Service would maintain public opportunities for nature interpretation via information kiosks, interpretive signs along the auto-tour route and nature trails, and the visitor center. A diversity of waterfowl and pheasant hunting opportunities would be maintained. Cultural resources management would occur on a project-by-project basis.

Alternative B: Alternative B contains many of the same management strategies as Alternative A. Alternative B would differ from Alternative A as follows. Under Alternative B, the goals, objectives, and strategies identified for Tule Lake Refuge in Appendix F would guide management over the next 15 years. Under Alternative B, the Service would create a habitat management and wildlife inventory and monitoring plan; leverage more wetland habitats on private lands; and expand invasive species control. The Service would also explore the feasibility of using groundwater at the south end of the refuge as a source of water for habitat development. The Service would require an annual SUP for Reclamation with stipulations and a prescribed habitat mixture based on energetics modeling. Unharvested standing grain would be increased to approximately 1,500 acres to support dabbling duck and geese population objectives during winter and spring. The Service would strive to increase the acreage and interspersion of walking wetlands within lease lands so that all fields are within 1 mile of a wetland. Under Alternative B the Service would periodically conduct water, sediment, and fish and wildlife tissue monitoring in refuge waterbodies to ensure pesticides are at concentrations below those have an adverse effect to listed species and other wildlife.

Although pest management on lease land units would continue to be guided by the 1998 IPM Plan for the Lease Land Farming Program, the Service would develop a program for managing berms to reduce invasive species and improve cover for nesting waterfowl and other species; and the Service would prevent the introduction of aquatic invasives by pursuing a partnership with the State of California to operate portable decontamination stations. Under Alternative B, the Service would also formalize the ongoing pest management for habitat, maintenance, and cooperative farming into the IPM program described in Appendix Q of the final CCP/EIS.

The Service would work to provide additional visitor use opportunities including working with the NPS to develop public access to the Peninsula Unit; incorporating pull-off areas on the existing auto tour route; improve the visitor center; provide additional interpretation about the Walking Wetlands Program to the public; evaluate the guide program; and analyze the cost effectiveness of the current hunt fees.

Alternative C: Alternative C is the selected alternative for Tule Lake Refuge and is described above in the section *Decision (Selected Alternative)*.

Alternatives for Upper Klamath Refuge

Alternative A – No Action: Under Alternative A, the Service would continue the present program of managed cattle grazing, haying, and the use of prescribed fire to maintain wetland and marsh habitats. These management tools can effectively open up areas choked with vegetation, control invasive plants, and create a mosaic of emergent wetland habitats for wildlife. At the Barnes-Agency Unit the Service would use haying and grazing to control invasive plants and improve habitat structure and provide green browse for migrating waterfowl. The Service would continue to monitor waterfowl and colonial nesting waterbirds, monitor and treat existing invasive weed infestations, and suppress all wildfires. The Service would maintain the current range of wildlife dependent recreation and would continue to support the collection of wocus within the refuge by the Klamath Tribes.

The Service would continue to provide a range of visitor services including opportunity for wildlife observation and photography on the canoe trail, fishing, and waterfowl hunting.

Alternative B: Alternative B is the selected alternative for Upper Klamath Refuge and is described above in the *Decision (Selected Alternative)* section.

Alternatives for Bear Valley Refuge

Alternative A – No Action: Under Alternative A, the Service would continue the present program of prescribed fire and understory mowing to reduce fuel loading, promote fire-resistant conifer species, and allow forested habitats to develop old growth and mature forest characteristics. Fuel projects would focus on a 5- to 10-year cycle or more frequent if needed for invasive plant control or other resource reasons, and riparian habitats would remain largely unmanaged. The Service would continue to monitor winter roosting bald eagles and eagle nests. Public access to the refuge would be limited to deer hunting consistent with Oregon State hunting dates and regulations. Environmental education and interpretation of refuge resources would be conducted off-site at the Refuge Complex Visitor Center and on the Refuge Complex website.

Alternative B: Alternative B is the selected alternative for Bear Valley Refuge and is described above in the *Decision (Selected Alternative)* section.

Environmentally Preferable Alternatives

In accordance with the Council of Environmental Quality, the environmentally preferable alternative is defined as the alternative that will promote the national environmental policy as expressed in Section 101 of the NEPA (42 USC Section 4331). Section 101 states that all agencies of the Federal Government shall:

1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;

3. attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
4. preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment that supports diversity, and variety of individual choice;
5. achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and
6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The environmentally preferable alternatives for the Klamath Basin Refuge Complex correspond to the alternatives selected for implementation. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (CEQ 40 Most Commonly Asked Questions, question 6a). The Service believes these alternatives best satisfy the six goals of NEPA identified above. In some cases, actions in the environmentally preferable alternative are also part of other alternatives; however, the combination of actions in the selected alternatives provide the greatest overall environmental benefits.

Lower Klamath Refuge

All of the alternatives for Lower Klamath Refuge would contribute to achievement of the six goals of NEPA identified above. However, the Service believes that Alternative C would best contribute to goal 3 through a balance of improvements to wildlife-dependent recreation opportunities and measures to minimize environmental degradation associated with these opportunities (e.g., developing a boat decontamination station). Though Alternative D provides similar benefits, it would result in substantially less permanent and seasonal wetland habitat than Alternative C under most water years. This would reduce the Service's ability to contribute to goal 4.

Implementation of the selected alternative would increase the acreage of unharvested grain and pasture so the refuge can fully support population objectives for waterfowl (see Appendices N and F). The expansion of the Walking Wetlands Program would result in a long-term beneficial effect by increasing the area of wetland habitat available off refuge in the Klamath Basin to help support waterfowl population objectives. Implementation of the Habitat Management and the Inventory and Monitoring Plans is expected to improve habitat conditions in the long term by helping the Service be more strategic in management and monitoring of refuge resources. Implementation of the IPM Plan in Appendix Q for cooperative farm units, habitat restoration, and general maintenance on the refuge is expected to increase the effectiveness of invasive species management, perhaps reducing the need for pesticide applications. In addition, development of a program for managing berms is expected to result in long-term beneficial effects to vegetation and habitat resources by reducing invasive species cover and improving the cover for nesting waterfowl and other species.

Under the selected alternative, the use of grazing in uplands and dry seasonal wetlands would be increased by 2,000 to 3,000 acres per year. Expansion of grazing in uplands and dry seasonal wetlands is expected to improve habitat conditions for waterfowl and other wildlife, limit wildfire danger, and provide a non-pesticide alternative for controlling invasive plants. Under the selected alternative the refuge would also structure lease land contracts so that if the habitat objective for

unharvested standing grain cannot be met on cooperatively farmed units, lease land contract holders would be required to leave 25% of their fields as unharvested standing grain. These changes would ensure that food for waterfowl would be available in drier years. Increasing unharvested grain is the most land-efficient option for increasing food for waterfowl in the fall and winter. Under the selected alternative, the Service may convert some fields with expiring contracts to flood/fallow if needed to achieve the habitat objectives.

The application of chemical pesticides used for farming would also decrease under this alternative as the refuge works to expand the area of lease land and cooperative farmland units that are managed organically and by expanding incentives such as lease extensions for farmers that manage fields organically.

The development and operation of portable decontamination station(s) near boat launches is expected to have a long-term beneficial effect on wetland vegetation by helping prevent the introduction of aquatic invasive species.

Habitat improvements would also benefit visitor services. Recreational opportunities also would be enhanced by the additional amount of unharvested standing grain. The additional food resources for waterfowl should draw more waterfowl and enhance the quality of recreational experiences on the refuge for all user groups. Improvements to signs along the auto tour route, updated interpretive and outreach media, additional interpretive programs, development of a Walking Wetlands Program curriculum, and partnerships with schools will enhance visitors' understanding of the refuge system and their awareness and appreciation of the refuge's wildlife, habitat, and cultural resources. The enhanced opportunities would benefit the public, likely resulting in increased visitation.

Clear Lake Refuge

Both alternatives for Clear Lake Refuge would contribute to achievement of the six goals of NEPA identified above. However, the Service believes that Alternative B would best contribute to goal 3 through a balance of improvements to wildlife-dependent recreation opportunities and measures to minimize environmental degradation associated with these opportunities (e.g., prohibiting the use of lead ammunition in antelope hunts).

The selected alternative would reduce the area of invasive species on the refuge and promote the sage-steppe habitat so that it becomes more cohesive in general. Juniper removal, wildfire suppression, grazing, and herbicide application result in temporary disturbances to the upland habitats at the refuge, but they primarily result in long-term beneficial effects that improve habitat conditions.

Under the selected alternative, the Service would investigate the construction of a viewing facility that would open the refuge to a wider range of wildlife-dependent recreation, increasing the opportunities for a variety of visitors to connect with nature. Prohibiting the use of lead ammunition for hunting would reduce the risk of secondary poisoning of higher-level predators and scavengers.

Tule Lake Refuge

All of the alternatives for Tule Lake Refuge would contribute to achievement of the six goals of NEPA identified above. However, the Service believes that Alternative C would best contribute to goal 3 through a balance of improvements to wildlife dependent recreation opportunities and measures to minimize environmental degradation associated with these opportunities (e.g., developing boat decontamination station and restrictions on polluting boat engines). In addition, the expansion of farmed units that are managed organically under Alternative C would increase the Service's ability to contribute to goal 3 compared to the other alternatives.

Under the selected alternative, a plan would be implemented to manipulate water elevations in Sumps 1A and 1B to improve wetland habitat diversity and productivity, which would benefit waterfowl and other wetland-dependent wildlife. The farming program would also be modified to increase the attractiveness of agricultural lands to waterfowl with additional fall flooding. The acreage of walking wetlands would not change from that proposed under Alternative B. The increased use of fall flooding is expected to improve and increase waterfowl habitat. Other modifications under this alternative are expanding the area of lease land and cooperatively farmed units that are managed organically, and expanding incentives such as lease extensions for farmers that manage fields organically. As a result of these incentives, the application of chemical pesticides used for farming is expected to decrease under this alternative. The expanded incentives to manage fields organically are expected to reduce the use of pesticides and associated potentially adverse effects and result in beneficial biological effects to all natural resources on the refuge, including fish and wildlife. Beneficial effects to wildlife under Alternative C are likely to be somewhat higher than Alternative B because of the increase in fall flooding of agricultural land and the potential reduction of chemical pesticides.

The selected alternative is expected to result in more beneficial effects to vegetation, wetland habitats, wildlife, and other refuge resources than either of the other alternatives. Further, the additional fall flooding of lease land farm fields (beyond that in Alternative B) is expected to increase attractiveness of agricultural land to waterfowl, thereby increasing waterfowl foraging habitat. The expanded incentives to manage fields organically are expected to reduce the use of pesticides and associated potentially adverse effects and result in beneficial biological effects to all natural resources on the refuge, including vegetation and habitat resources.

Upper Klamath Refuge

Both alternatives for Upper Klamath Refuge would contribute to achievement of the six goals of NEPA identified above. However, the Service believes that Alternative B would best contribute to goal 3 through a balance of improvements to wildlife-dependent recreation opportunities and measures to minimize environmental degradation associated with these opportunities (e.g., developing boat decontamination station).

The selected alternative includes wetland restoration and the expanded use of haying, prescribed grazing, and prescribed fire, which is expected to benefit migrating waterfowl, including dabbling ducks and geese, by improving habitat structure and providing green browse in spring. Long-term benefits of invasive species management include improving wildlife habitat conditions to achieve refuge objectives for managing a preserve and breeding ground for wild birds and animals. Updating the inventory and monitoring plan with an emphasis on priority wildlife species

and habitats is expected to benefit the health and biodiversity of the plant communities and habitats on the refuge. The emergent marsh habitat restoration projects on the fringe wetland habitats on the Upper Klamath Lake and other restoration projects (that will be analyzed under a separate NEPA process) are expected to have beneficial effects to wetland habitat resources.

Wetland enhancement and restoration activities under the selected alternative for the Upper Klamath Refuge support the recommendations in the Revised Lost River Sucker and Shortnose Sucker Recovery Plan (Service 2013), Recovery Action 1.4: *Conserve and restore wetland and riparian areas*, and Recovery Action 2.3: *Conserve and restore riparian and wetland areas along... Upper Klamath Lake to improve water quality*.

The short spring vegetation structure produced from haying or grazing may also enhance breeding sites for the state sensitive and federally listed threatened Oregon spotted frog.

Pursuing a partnership(s) with the U.S. Forest Service and the State of Oregon to develop and operate a portable decontamination station(s) near Upper Klamath Lake boat launches would help educate hunters, canoeists, wildlife watchers and photographers, and other refuge visitors about invasive species issues; and provide boaters a convenient opportunity, away from the water, to check for and remove invasive plants from their boats, trailers, and potentially other equipment. This would reduce the potential that these visitors would introduce a new invasive species to the refuge or reintroduce (and increase the population of) an existing pest.

The selected alternative is expected to have more beneficial effects than Alternative A because of the wetland restoration and expanded land management programs that would improve wildlife habitat quality.

Bear Valley Refuge

Both alternatives for Bear Valley Refuge would contribute to achievement of the six goals of NEPA identified above. However, the Service believes that Alternative B would best contribute to goal 3 through a balance of improvements to wildlife-dependent recreation opportunities and measures to minimize environmental degradation associated with these opportunities (e.g., prohibiting the use of lead ammunition in antelope hunts). In addition, improvements in coniferous forest, riparian habitat, and invasive species management described below would increase the Service's ability to contribute to goal 4.

Under the selected alternative, new or modified fire management activities would be identified in a revised Fire Management Plan. These activities could reduce the high fire hazard by incorporating techniques that return the fire regime to conditions that more closely reflect historic conditions. Improvements to the fire management activities would benefit the habitats and resources at the refuge by protecting them against detrimental fires. Additional tree thinning in the forest and along Bear Valley Creek would improve the overall vegetative structure. Tree cavity-dependent species are expected to benefit from implementation of the selected alternative as the Service coordinates with partners who are assessing the effects of climate change on the rate of snag creation and deteriorations and applies the results of these assessments to habitat on the refuge.

The indirect and long-term effects of prescribed fire and silvicultural management on the refuge result in habitat that benefits bald eagle in the following ways. Thinning of the ponderosa pine

stands reduces the percentage of canopy closure and fosters a more productive understory. Prescribed fire removes much of the hazardous fuels on the refuge and lessens the potential in the short-term that the roost and nest trees would be destroyed in a large high-severity fire. This is a benefit to bald eagles as well as other forest-dependent wildlife species. Prescribed fire and tree thinning also encourage the growth of large diameter ponderosa pine, Douglas fir, and other conifer species that provide future nesting and roosting habitat for the bald eagle.

Prohibiting the use of lead ammunition for big game hunting will reduce the risk of secondary poisoning of higher-level predators and scavengers.

Under the selected alternative, the Service would investigate the construction of a viewing facility that would open the refuge to a wider range of wildlife-dependent recreation, increasing the opportunities for a variety of visitors to connect with nature.

Measures to Minimize Environmental Harm

BMPs listed in Appendix B to the ROD are incorporated into the selected alternatives. The BMPs are designed to reduce adverse effect to wildlife and plants and their habitats on lands owned by the Service. BMPs shall be implemented on Service-owned lands by all project coordinators. The following additional measures would be implemented under the selected alternatives.

Lower Klamath Refuge

- Under the selected alternative, the Service would phase in a new requirement allowing only 4-stroke (4-cycle) or direct injection 2-stroke boat motors to be used on the refuge.
- Prior to ground-disturbing activities other than those related to areas previously farmed, hayed, or grazed, cultural resource surveys and other requirements would be followed to minimize the potential for adverse effects to cultural resource sites that have yet to be discovered in accordance with applicable regulations and guidance. Potentially adverse effects to cultural resource sites would be minimized through cultural resource reviews, surveys, and compliance with Section 106 of the National Historic Preservation Act (NHPA) when a site-specific action is being considered, and prior to ground-disturbing activities. All sites discovered in the future would be treated as eligible for listing under the NHPA until formally evaluated in consultation with the State Historic Preservation Officer.

Clear Lake Refuge

- To reduce the risk of lead contamination of biological resources from the use of lead ammunition, a requirement to use non-toxic ammunition for pronghorn hunting on the refuge would be phased in under the selected alternative. Prohibition of the use of lead ammunition for big game species would further reduce the likelihood that wildlife would be exposed to lead toxicity and associated morbidity and mortality as a result of hunting.
- Actions related to previously undiscovered cultural resources would be the same as described for the Lower Klamath Refuge.
- Stipulations in the grazing agreements shall prohibit ranchers from disturbing, collecting, and removing any archaeological or historic artifacts from the refuge.
- Stipulations in the grazing agreements also require that if reservoir levels drop to extremely low elevations, ranchers are required to take appropriate actions to keep livestock away from

newly exposed, sensitive areas that contain known or may contain unknown cultural resources or remove the livestock from the refuge.

Tule Lake Refuge

- The use of groundwater as a water source for the refuge may require balancing groundwater withdrawal with aquifer input to minimize adverse effects to the aquifer. Specific measures would be identified and evaluated in a subsequent NEPA document during consideration of this proposed strategy.
- The Service would periodically conduct water, sediment, and fish and wildlife tissue monitoring in refuge waterbodies to ensure pesticides are at concentrations below those having an adverse effect to listed species and other wildlife.
- The Service would phase in a new requirement allowing only 4-stroke (4-cycle) or direct injection 2-stroke boat engines to be used on the refuge which would reduce adverse impacts on aquatic plants, as associated with water quality degradation.
- Mitigation related to previously undiscovered cultural resources would be the same as described under the Lower Klamath Refuge.

Upper Klamath Refuge

- The Service would phase in a new requirement allowing only 4-stroke (4-cycle) and direct injection 2-stroke boat motors to be used on the refuge and would prohibit boaters from traveling at speeds greater than 10 miles per hour.
- To reduce the likelihood that hunting-related activities would contribute to invasive species problems on the refuge, the Service would pursue partnerships with the State of Oregon and the U.S. Forest Service to develop and operate portable decontamination stations near boat launches on or near the refuge that are popular with hunters.
- Mitigation related to previously undiscovered cultural resources would be the same as described under the Lower Klamath Refuge.

Bear Valley Refuge

- Mitigation related to previously undiscovered cultural resources would be the same as described under the Lower Klamath Refuge.

Public Involvement

Public involvement is an essential component of the CCP and NEPA process. Preliminary planning for the CCP/EIS for the Refuge Complex began in 2009. The official planning process for the CCP/EIS commenced with public scoping during spring 2010. Briefing materials and requests for input were posted to the website, circulated via newspapers and radio programs, and mailed to known interested parties. On April 29, 2010, the Service published a notice of intent in the Federal Register for the preparation of the CCP/EIS for the Refuge Complex (75 FR 22620). The notice of intent provided details for public participation in the scoping process, including the location and timing for public scoping meetings. Public scoping meetings were held in Tulelake, California (May 10, 2010); Medford, Oregon (May 11, 2010); Redding, California (May 12, 2010); and Klamath Falls, Oregon (May 13, 2010). Approximately 72 people attended the four meetings, and written

comments were recorded. Additional comments were received via letters, emails, and comment cards. The scoping comment period ended on June 28, 2010.

In May 2010, the Service mailed letters to elected officials to describe the CCP planning process, describe the CCP and refuge management issues of concern, and to offer briefing meetings. Elected officials included Klamath County Commissioners, Modoc County Supervisors, Siskiyou County Supervisors, California Representative Herger, California Representative McClintock, Oregon Senator Wyden, California Senator Boxer, California Senator Feinstein, Oregon Senator Merkley, and Oregon Representative Walden. Senator Feinstein's staff requested a briefing and the meeting was held in June 2010. The Service also met with Senator Merkley's staff about refuge management on several occasions throughout 2010 and 2011.

The draft CCP/EIS was filed with the U.S. Environmental Protection Agency (EPA) and a notice of availability (NOA) was published by both the EPA (81 FR 27442) and the Service (81 FR 27467) on May 6, 2016. The Service then extended the close of the public comment period from June 20 to August 4, 2016 (81 FR 39639 and 81 FR 39946). The Service held two public meetings on May 23, 2016, in Klamath Falls to solicit comments on the draft CCP/EIS.

After the comment period ended, the Service compiled all received comments. In total, the Service received 796 non-duplicate responses, including 317 form letters and 479 unique letters. The Service addressed and responded to all substantive comments received during the public comment period. The Service's response to comments can be found in Appendix U of the final CCP/EIS and the comment letters submitted can be found in Appendix V of the final CCP/EIS.

Planning updates were also distributed throughout the planning process and published on the Refuge Complex website.

On December 9, 2016, the final CCP/EIS was filed with the EPA and a NOA was published by both the EPA (81 FR 89095) and the Service (81 FR 89138). The 30-day wait period required before a decision is implemented was initiated with the publication of these notices on December 9, 2016. During the 30-day wait period the Service received comments from Reclamation, Clait E. Braun, Ph.D., Western Watersheds Project, Tulalake Irrigation District, and the Crag Law Center requesting that the Service consider their concerns before issuing the ROD. Appendix B to the ROD contains the Service's response to these concerns.

Basis for the Decision

The Service has considered the environmental and relevant concerns presented by agencies, organizations, and individuals on the proposed action to develop and implement a CCP for the Klamath Basin Refuge Complex. The Service believes that implementing Alternative C for the Lower Klamath Refuge, Alternative B for Clear Lake Refuge, Alternative C for Tule Lake Refuge, Alternative B for Upper Klamath Refuge, and Alternative B for Bear Valley Refuge is the best way to achieve the purposes, vision, and goals for the refuges and the mission of the NWRS. The decision to select these alternatives was based on review and careful consideration of the analyses and impacts identified in the final CCP/EIS; public comments received throughout the process; and other relevant factors. As described above, all the selected alternatives represent the environmentally preferable alternative for each refuge (42 USC §4331). The alternatives for Lower Klamath and Tule Lake Refuges ensure that farming programs are consistent with proper waterfowl management, as defined in Appendix M of the Final CCP/EIS. The selected

alternatives also balance the need to protect habitat with the need to provide the public with the opportunity to experience and enjoy the resources being protected.

Implementation

As stated in the December 9, 2016, Notice of Availability for this final CCP/EIS, implementation of this decision has not occurred sooner than 30 days from the date of the Notice.

A handwritten signature in black ink, appearing to read "R. Souza", is written over a horizontal line.

Regional Director
Pacific Southwest Region
Sacramento, California

1-13-17

Date

References

- U.S. Fish and Wildlife Service (Service). 1998. *Integrated Pest Management Plan and Environmental Assessment for Leased Lands at Lower Klamath and Tule Lake National Wildlife Refuges, Oregon/California*. Tulelake, California: U.S. Fish and Wildlife Service, Klamath Basin National Wildlife Refuge.
- . 2013. *Revised Recovery Plan for the Lost River Sucker and Shortnose Sucker*. Sacramento, California: U.S. Fish and Wildlife Service, Pacific Southwest Region.
- . 2016. *Lower Klamath, Clear Lake, Tule Lake, Upper Klamath, and Bear Valley National Wildlife Refuges, Final Comprehensive Conservation Plan/Environmental Impact Statement*. Pacific Southwest Region. Sacramento, California.
- . 2017. *Request for Concurrence on the Implementation of the Klamath Basin National Wildlife Refuge Complex Comprehensive Conservation Plan*. Klamath Falls Fish and Wildlife Office. Klamath Falls, Oregon.

Appendix A
Best Management Practices

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Appendix A – Best Management Practices

Lower Klamath, Clear Lake, Tule Lake, Upper Klamath, and Bear Valley Refuges

Best Management Practices (BMPs) are designed to reduce adverse effects to wildlife and plants and their habitats on lands owned by the U.S. Fish and Wildlife Service (Service). BMPs shall be implemented on Service-owned lands by all project coordinators. These BMPs can also be found in Appendix L in the final comprehensive conservation plan/environmental impact statement (CCP/EIS). None of the BMPs have been modified.

General BMPs

1. All trash and construction debris shall be disposed of at disposal areas approved in writing by the Service.
2. Standard measures shall be implemented to minimize construction impacts on fish and wildlife, including avoiding unnecessary disturbance to habitats by driving on existing roads, working only in the required area, and minimizing direct disturbance to streams and open water sources.
3. All terms, conditions, and stipulations in regulatory permits and other project authorizations to eliminate or reduce adverse effects to endangered, threatened, and sensitive species and their critical habitats from actions described in the CCP shall be adhered to.
4. Complete restoration activities at individual project sites in a timely manner to reduce disturbance and/or displacement of wildlife in the immediate project area.
5. Use existing roadways or travel paths for access to project sites.
6. Avoid the use of heavy equipment and techniques that will result in excessive soil disturbances or compaction of soils, especially on steep or unstable slopes, except as required for dike maintenance as approved by the refuge manager.
7. Streams, riparian zones, and wetlands shall not be used as staging or refueling areas. Equipment shall be stored, serviced, and fueled a minimum of 150 feet from aquatic habitats and other sensitive areas.
8. A written contingency plan shall be developed for all project sites where hazardous materials (e.g., pesticides, herbicides, petroleum products) will be used or stored. Appropriate materials/supplies (e.g., shovel, disposal containers, absorbent materials, first aid supplies, clean water) shall be available on site to clean up small scale accidental hazardous spill. Hazardous spills shall be reported. Emergency response, removal, transport, and disposal of hazardous materials shall be done in accordance with the U.S. Environmental Protection Agency. Hazardous materials and petroleum products shall be stored in approved containers or chemical sheds and be located at least 150 feet from surface water and in an area protected from runoff.

9. The evaluation of herbicide, pesticide, and fertilizer use shall include the accuracy of applications, effects on target and non-target species, and the potential impacts to aquatic and terrestrial ecosystems. Treatments for the control or removal of invasive plants in riparian/wetland areas shall be limited to hand or wick applications by qualified personnel. Chemicals shall be applied during calm, dry weather and unsprayed buffer areas shall be maintained near aquatic habitats and other sensitive areas. Chemical applications are prohibited where seasonal precipitation or excess irrigation water is likely to wash residual toxic substances into waterways. All chemicals shall be handled in strict accordance with label specifications. Proper personal protection (e.g., gloves, masks, protective clothing) shall be used by all applicators. The material safety data sheet (MSDS) from the chemical manufacturer shall be readily available to the project coordinators for detailed information on each chemical to be used, in accordance with applicable Federal and State regulations concerning the use of chemicals. Chemicals shall only be considered when other treatments would be ineffective or cannot be applied.
10. Project coordinators shall ensure that all waste resulting from the completion of a project is removed and disposed of properly before work crews vacate the project site.
11. Structures containing concrete or wood preservatives shall be cured or dried a minimum of 36 hours before being placed in streams, riparian zones, or wetlands. No wet concrete or runoff from cleaning tools that have wet concrete slurry or lye dust shall enter aquatic habitats. Runoff control measures shall be employed, such as hay bales and silt fences, until the risk of aquatic contamination has ended.
12. Monitoring is required during restoration project implementation and for at least one year following project completion to ensure that restoration activities implemented at individual project sites are functioning as intended and do not create unintended consequences to fish, wildlife, and plant species and their critical habitats or adversely impact human health and safety. Corrective actions, as appropriate, shall be taken to address potential and existing adverse effects to fish, wildlife, and plants.
13. Prior to equipment use, special status plants and habitats shall be well-marked and communicated to equipment operators to avoid direct and indirect adverse effects.
14. An environmental awareness training program shall be presented to all construction personnel to brief them on the status of the special status species and the required avoidance measures.
15. To protect special status species, the Service will conduct the following activities:
 - (a) trails, roads, and/or areas will be closed to ensure that human access does not disturb special status species;
 - (b) prior to habitat and ground disturbing activities, potential habitat for special status species will be evaluated and, if appropriate, presence/absence surveys and additional mitigation measures taken (e.g., avoid location, change timing of action), if necessary, to ensure that planned activities do not affect special status species; and
 - (c) the Service will comply with all terms and conditions resulting from Section 7, Endangered Species Act consultation when specific projects are undertaken.
16. Bank stabilizing vegetation removed or altered because of restoration activities shall be replanted with native vegetation and protected from further disturbance until new growth is well

established. Native shrubs, trees, and erosion control seed mixes from only local ecotypes shall be included in the reclamation and restoration of disturbed sites.

17. Sedimentation and erosion controls shall be implemented, when and where appropriate, during wetland restoration or creation activities to maintain the water quality of adjacent water sources.
18. Restoration activities that require prescribed burning shall be planned in coordination with the refuge manager and in accordance with the approved Fire Management Plan.
19. Slash materials shall be gathered by hand or with light machinery to reduce soil disturbances and compaction. Avoid accumulating or spreading slash in upland draws, depressions, intermittent streams, and springs. Slash control and disposal activities shall be conducted in a way that reduces the occurrence of debris in streams. These practices will eliminate or reduce debris torrents, avalanches, flows, and slides.
20. Snags shall be retained on project sites for cavity dependent wildlife species whenever possible.
21. Seedlings, cuttings, and other plant propagules for restoration shall be sourced from local ecotypes.
22. When necessary for invasive plant removal or habitat restoration, trees shall be felled away from streams, riparian zones, and wetlands whenever possible.
23. Livestock crossings and off-channel livestock watering facilities shall not be located in areas where compaction and/or damage may occur to sensitive soils, slopes, or vegetation due to congregating livestock. If livestock fords across streams are rocked to stabilize soils/slopes and prevent erosion, material and location shall be subject to the approval of the refuge manager.
24. Crushed rock is prohibited for use to stabilize fords. Fords shall be placed on bedrock or stable substrates whenever possible.
25. Implement the integrated pest management (IPM) approach and the BMPs required as part of the IPM Program (Appendix Q) to reduce potentially adverse effects to refuge resources.
26. Construction and habitat management activities shall be implemented during the non-breeding/nesting season for waterfowl to the extent feasible. Disturbance during the breeding/nesting season requires pre-construction surveys to locate active nests and establish buffers around the nest site until a wildlife biologist designated by the Service determines the nest site is abandoned. These and other mitigation measures shall be addressed in site-specific National Environmental Policy Act (NEPA) compliance once the locations of the project areas are identified. New facilities shall be sited in previously disturbed areas, to the extent feasible, and shall be designed to avoid sensitive habitats and affect the least amount of native vegetation.
27. Prior to construction and ground-disturbing activities, project sites and staging areas shall receive pre-watering and other preparations maintaining surface soils in stabilized conditions where support vehicles and equipment will operate.

28. During ground-disturbing activities including clearing, grubbing and earth moving activities, water or an approved dust palliative shall be applied to keep soils moist throughout the process and immediately after completion.
29. Sloping surfaces equal to or steeper than 10% shall be stabilized using soil binders approved in writing by the Service until vegetation can effectively stabilize the slope.
30. Stipulations defined in the Compatibility Determinations shall be implemented in the course of refuge management activities and for refuge use activities conducted under special use permits.

Pesticide Application and Integrated Pest Management

31. To protect the health of workers, pesticide applicators shall wear appropriate personal protective gear (e.g., clothing, gloves, and masks) in accordance with state applicators' licensing requirements when applying, mixing, or otherwise handling pesticides on the refuge. Detailed, refuge- and site-specific BMPs are included and implemented through the Service's Pesticide Use Proposal process to protect refuge resources. BMPs for mixing, handling, and applying pesticides for all ground-based pesticide treatments are specified in the IPM Program (Appendix Q).

Water/Riparian

32. Ground-disturbing activities shall incorporate the use of sediment barriers or other erosion control devices downstream of the activities.
33. Ground-disturbing activities, vehicles, and machinery are prohibited in waterbodies and prohibited within a 150-foot buffer zone surrounding waterbodies.
34. Stream crossings will be limited to designated and existing locations.

Air and Noise

35. Operation of equipment, machinery, and large vehicles is restricted to daylight hours, between the hours of 8:00 a.m. and 5:00 p.m. unless otherwise specified in writing within the construction contract, special use permit, or by the refuge manager.
36. When hauling operations are being conducted, unpaved access routes shall be wetted each day by the contractor to reduce fugitive dust.
37. To reduce dust, effective cover shall be maintained by the contractor over stockpiled fill or debris materials.
38. Vehicle speeds shall be limited to 15 miles per hour or less in staging areas and on all unpaved access routes; and to 25 miles per hour on paved refuge access roads.
39. Applicable recommendations from the local air quality district shall be implemented to minimize vehicle and equipment emissions during construction and habitat management activities.

Hunt-related

40. During movement of hunting blinds and other portable structures, measures shall be taken to minimize generation of dust and erosion. Refuge-specific stipulations are included in the compatibility determinations for hunting for each refuge (Appendix G).

41. Except for spot maintenance by Service staff to remove obstructions, no improvements shall be made to intermittent waterways and no clearing shall be done in forested areas.

Fire Management

42. Prescribed burning plans will be developed; a burning permit will be obtained from the Air Pollution Control District and adhered to; activities will be coordinated with the Air Pollution Control District.
43. The fire management program at Klamath Basin Refuges will comply with the Air Quality Smoke Management Guidelines presented in the Service's Fire Management Handbook.
44. To reduce the likelihood that prescribed burns would generate substantial volumes of smoke that would drift into populated areas of the Klamath Basin, the Service will continue on-going training of fire personnel and site-specific planning prior to ignition in accordance with the refuge's Fire Management Plan.
45. Small unit sizes, wind direction, and distance to receptors will be considered to mitigate adverse effects of prescribed burns.
46. Fire lines shall be located outside of highly erosive areas, steep slopes, intermittent streams, riparian areas, and other sensitive areas.
47. The use of fire retardants and foams are prohibited in riparian areas.
48. At Bear Valley Refuge, mechanical thinning (large equipment) operations are prohibited within 100 feet of intermittent streams and steep slopes (>35% slope).
49. At Bear Valley Refuge, mechanical equipment shall be restricted in operations to dry or frozen ground (<20% soil moisture).
50. At Bear Valley Refuge, thinning and prescribed fire operations will be concentrated between August 1 and November 15 to avoid potential impacts to nesting and/or roosting bald eagles.
51. During the peak bald eagle roosting period (November 15–April 1), Service personnel may enter the refuge to conduct habitat management (treatment unit) reconnaissance and layout; however, this activity shall only occur in the refuge during the daylight hours when the eagles are not present (approximately between 9:00 a.m. and 3:00 p.m.).
52. During the bald eagle nesting season (April 1–July 31), prescribed fire will be allowed on some stands in the spring months and thinning efforts will be allowed on some stands during the spring and summer months after consultation with and clearance from an endangered species biologist(s) designated by the Service, and only after meeting the following mitigation measures:
 - (a) work shall be prohibited within 0.5 mile from active nests;
 - (b) a wildlife observer may be stationed to watch active nests for any disturbance caused by smoke or noise from thinning and prescribed fire activities (on Pearson Butte at Bear Valley Refuge);

- (c) work shall be immediately curtailed in the event that disturbance was observed;
- (d) backing fires shall be used when possible to limit smoke production. All burns shall be aggressively mopped-up (managed until out); and
- (e) burn prescriptions shall be written to minimize the potential for high-intensity fire and to avoid severe drought and/or high wind conditions.

- 53. All sites where improvements are made or obstructions removed will be rehabilitated to pre-fire conditions, to the extent practicable.
- 54. Whenever consistent with safe, effective suppression techniques, the use of natural barriers will be used as extensively as possible.
- 55. Following the conclusion of fuels thinning activities, road improvements shall be made, as necessary, to repair damage to the access roads resulting from vehicle and equipment use associated with thinning operations.

Fire Management - Cultural Resources

- 56. Prior to all thinning and prescribed fire activities, cultural resources in treatments areas will be identified and avoided.
- 57. If unrecorded cultural resources are discovered during thinning and prescribed fire activities, all work in the immediate vicinity of the cultural resource will stop until an archeologist designated by the Service surveys and records the location, and issues a written notice allowing work to resume.
- 58. Continued training of fire personnel and careful planning prior to ignition would continue to reduce the likelihood that prescribed burns on the refuge lands would escape and become wildfires.
- 59. No handlines exposing mineral soil will be allowed through cultural sites, and all handlines will be revegetated with an endemic native erosion control seed mixture. Erosion control methods will be used on slopes exceeding 30% where handline construction takes place.

Cultural Resources

- 60. Potentially adverse effects to cultural resources shall be minimized through cultural resource reviews, surveys, and compliance with section 106 of the National Historic Preservation Act (NHPA). All sites discovered in the future shall be treated as eligible for listing on the National Register of Historic Places (NRHP) until listed or formally evaluated as ineligible in consultation with the State Historic Preservation Officer (SHPO).
- 61. Under federal ownership, archaeological and historical resources within a refuge receive protection under federal laws mandating the management of cultural resources, including, but not limited to, Archaeological Resources Protection Act (ARPA), Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), and NHPA. Should any cultural resources be discovered on the refuges, ground-disturbing activities shall be stopped immediately and not resumed until authorized in writing by the Service to do so. The Service will take all necessary steps to comply with section 106 of the NHPA, in consultation with the SHPO and pertinent tribes.

62. Sites identified in the future could be found to contain human remains, funerary items, sacred objects, or items of cultural patrimony and may therefore require consideration under the NAGPRA). The Service will comply with the NAGPRA consultation process and other applicable laws and guidance required for consideration of human remains.
63. Under federal ownership, paleontological resources within a refuge receive protection under federal laws mandating the management of paleontological resources, including, but not limited to, Paleontological Resources Preservation Act (Public Law 111-011) (Omnibus Public Land Management Act of 2009). Collection of paleontological resources is prohibited on the Refuges. Under the provisions of the Act, the Service may restrict access or close areas to further protect paleontological resources or for public safety.

Public Use

64. Areas under construction or being restored would be temporarily closed to public use for public safety. These areas will be adequately marked and information on other recreational areas will be provided to the public.
65. Construction will be scheduled during the week or during slower seasons when feasible, to minimize the impacts of construction traffic on public access.

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*Appendix B – Summary of Comments
Received on the Final CCP/EIS*

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Appendix B – Summary of Comments Received on the Final CCP/EIS

Summary of comment letters received on the Final CCP/EIS and our responses (a copy of the letter is included in this Appendix).

U.S. Bureau of Reclamation (Reclamation)

1. Reclamation notes that in Chapter 4, Section 4.4.1, page 4-64, the fifth sentence in the first paragraph under Agricultural Habitat Management, Farming, states “Consistent with the Kuchel Act, no more than 25% of the leased area would be planted to row crops...”. The BOR states that placement of this sentence specifically in the section on Tule Lake Refuge is misleading because section 4 of the Kuchel Act specifically lists the lease lands on both Lower Klamath and Tule Lake Refuges and states that “...not more than 25 per centum of the **total** leased lands...”.

Response: The Service concurs with this comment and revises the text of the final CCP/EIS as follows: Consistent with the Kuchel Act, no more than 25% of the leased area (**combined total of leased areas on both Lower Klamath and Tule Lake Refuges**) would be planted to row crops and the leases “for these lands shall be at a price or prices designed to obtain the maximum lease revenues.”

Clait E. Braun

1. Clear Lake NWR is too small to support a functioning Greater Sage-Grouse population over time as demonstrated by the maps of the locations of radio-marked Sage-Grouse (Bell 2011; California Department of Fish and Game unpublished reports and maps 2012, 2013).

Response: Comment noted.

2. It is not possible to support the desired number of 500 Sage-Grouse solely on the Refuge.

Response: Comment noted.

3. The Refuge presently provides a limited amount of secure winter-use, brood use, and nesting habitat.

Response: Comment noted.

4. It is likely the large fires in 2001 and in prior years were the proximate cause of the decline in number of male Sage-Grouse counted. The ultimate causes may be related to encroachment over time of juniper and no relief from livestock/feral horse grazing pressure (which influenced establishment of junipers) (Beck and Mitchell 2000, Boyd et al. 2014, Chambers et al. 2016).

Response: Comment noted.

5. The best option for increasing the number of Sage-Grouse in the area (including on Clear Lake NWR) is better habitat management of the existing areas dominated by sagebrush.

Response: Comment noted.

6. There is potential for increasing numbers of Sage-Grouse, primarily off the Refuge, through continued cutting and removing juniper. Unfortunately, expected increases in Sage-Grouse use and numbers of birds seem not to have been realized anywhere. It may take longer than expected or possibly there may be a minimum area size before increases in Sage-Grouse numbers will be realized.

Response: Comment noted.

7. Establishment of satellite leks in recent years is the result of the increasing size of the population. This also reaffirms the fact the main area on the Refuge is too small to support more birds. Focus should be placed on creating potential lek sites (in suitable terrain using playback of sounds of Sage-Grouse on leks in the late evening and early morning in March-May) at least 2 miles from the existing site on the Refuge.

Response: Comment noted.

8. Consideration should be given to immediately reducing or eliminating all livestock grazing in areas (on and off the Refuge) where radio-marked Sage-Grouse have been located in at least 2 of every 3 years. Livestock grazing reduces height and density of grasses (cover) and forbs (food) necessary for Sage-Grouse nest success and early survival of broods (Connelly et al. 2000, Beck and Mitchell 2000, Boyd et al. 2014, Chambers et al. 2016).

Response: Please see responses to comments 653-1, 653-7, and 663-5 in Appendix U of the final CCP/EIS.

9. The boundaries of Clear Lake NWR should be fenced to better manage livestock and to prevent trespass by cows.

Response: The U Unit is already fenced. However, the western boundary of the refuge (adjacent to the forest) is not fenced because we believe that the potential impacts of fencing on pronghorn, deer, and sage-grouse outweigh the benefits.

10. The planned construction of an observation structure on the north side of the area will not benefit Sage-Grouse and will decrease use of the area within 1-2 miles of the structure. Sage-Grouse tend to avoid structures viewed as predator perches.

Response: Comment noted. The Service will consider potential impacts to sage-grouse during the site-specific planning for this project.

11. The Modoc National Forest should be involved as it will be crucial to any expansion of potential and occupied area by Sage-Grouse. It is logical that expansion is possible to the west, south, and east at the least, and possibly to the north, which would be highly desirable.

Response: Comment noted.

12. Clear Lake NWR is too small and too important for Sage-Grouse to allow any livestock grazing at any rate (once per year for 300 to 500 head over areas as small as 800 acres or other grazing prescriptions). Thus, all livestock grazing on Clear Lake NWR should cease because livestock grazing reduces the height and density of grasses (cover) and forbs (food) important for successful nesting and early survival of chicks (Connelly et al. 2000, Beck and Mitchell 2000, Boyd et al. 2014, Chambers et al. 2016). **Season of grazing use** modification as indicated in Alternative B (1 March-mid April) beyond the general fall grazing proposed on the Refuge should be avoided as this period overlaps the start of the breeding and nesting intervals.

Response: Please see responses to comments 653-1, 653-7, and 663-5 in Appendix U of the Final CCP/EIS.

13. Fences - Use of fences is implied to manage livestock in Chapters 5 and 6 as well as in Appendix G. Use of fences will be necessary, at least to keep trespass livestock from the Refuge. Please note that I understand the concern about Sage-Grouse impacting fences and I would be more concerned if more Sage-Grouse were present. Fence locations and type of wire, number of strands (to benefit Pronghorn and Mule Deer) can be easily modified with local data. One has to start somewhere and managing livestock is a major issue in improving habitats for Sage-Grouse on the Refuge and adjacent lands.

Response: See response to comment 9.

14. Fire Management - Fire (mostly wildfire) is mentioned in Chapters 5, 6, and Appendix G. Fire of any type is negative for Sage-Grouse habitat as it kills sagebrush. Fire prevention as suggested in the Alternatives must have high priority if Sage-Grouse habitat is to be maintained and improved (Connelly et al. 2000).

Response: Comment noted.

15. Grazing - The FEIS fails to consider reduced- or no-grazing alternatives for Clear Lake NWR. There is no consideration of benefits of passive restoration and removal of direct and indirect impacts to sage-grouse from livestock. The FEIS also fails to consider cumulative impacts to the Sage-Grouse population from livestock grazing on adjacent Modoc National Forest allotments, even though the work of Bell (2011) and the California Department of Game and Fish (2012, 2013) clearly demonstrate use of lands adjacent to the Refuge by radio-marked Sage-Grouse captured or released on the Refuge. Livestock grazing is not a reasonable solution to exotic forb or grass management, fuel reduction, biological control of non-native plants, or to provide native bunchgrasses and sagebrush a 'competitive edge'. This is a major flaw in the FEIS and Compatibility Determination (Appendix G). Livestock grazing must be removed from the Refuge if recovery of Sage-Grouse is a priority goal per The Local Sage-Grouse Working Group and national direction by the U.S. Department of Interior.

Response: Please see responses to comments 653-1, 653-7, and 663-5 in Appendix U of the final CCP/EIS.

16. Herbicides - Chemical control of exotic grasses presented as an alternative to livestock grazing is identified in both Alternatives (Chapter 6). The goal has to be to improve rangeland health in terms of native grasses and forbs (planting of dryland alfalfa is a reasonable substitute for native forbs [food] and even hiding cover). This is a better alternative than livestock grazing for managing exotic grasses.

Response: Comment noted.

17. Juniper Encroachment - Control of juniper within the sagebrush type is mentioned in Chapters 5, 6, and Appendix G. Emphasis must continue to be placed on removal of junipers (even though it is not yet clear that population recovery of Sage-Grouse can be linked to juniper removal). The FEIS indicates that ~ 86% of the area with junipers on Clear Lake NWR has been cleared (of juniper). That appears not to be true for adjacent areas in Modoc National Forest.

Response: Comment noted.

18. Public Use - Construction of a public viewing structure referenced in the Alternatives (Chapter 6) at the north end of the Refuge is not recommended as Sage-Grouse tend to perceive structures as raptor perches. They avoid use near those perches if at all possible for distances up to and exceeding 1 mile during the breeding and winter periods.

Response: Comment noted.

19. All grazing of domestic livestock should cease on the Refuge (the grazing period is far too long with too many AUMs) and also on much of the surrounding Modoc National Forest. The non-native feral horses also need to be eliminated as they confound vegetation recovery. The problem with non-native plants can be resolved through chemical treatment followed by planting strips of dryland alfalfa in the most seriously affected areas. (Grazing of the alfalfa by waterfowl and native ungulates is not a concern with merit). Enhancement of lek sites off the Refuge, livestock/feral horse management and reduction, fencing, and water development off the Refuge are also important. The goals for Sage-Grouse should be to encourage secure nesting habitats and chick survival as well as expansion into habitats from which junipers have been removed both on and off the Refuge.

Response: Please see responses to comments 653-1, 653-7, and 663-5 in Appendix U of the final CCP/EIS.

Western Watersheds Project (WWP)

1. The FEIS is inadequate because it fails to analyze reasonable alternatives, including alternatives for reduced grazing and no grazing on the Upper Klamath, Lower Klamath, and Clear Lake Refuges, though these alternatives would meet the purposes and need for the CCP and are required by NEPA.

Response: We disagree that the range of alternatives is inadequate. Please see responses to comments 653-1 and 56-28 in Appendix U of the final CCP/EIS, as well as section 4.1 in the final CCP/EIS.

2. The failure to analyze reduced- and no-grazing alternatives prevents a hard look at the beneficial effects of livestock reduction and removal.

Response: Please see responses to comments 653-1, 663-11, and 56-28 in Appendix U of the final CCP/EIS.

3. The Service did not take a hard look at many direct and indirect impacts to sage-grouse and sagebrush steppe habitat from livestock grazing at Clear Lake.

- a. Insufficient baseline data. The FEIS's baseline data on sage-grouse is nearly absent, and prevents an adequate review of impacts to the Devil's Garden/Clear Lake sage-grouse population from the proposed action and alternatives for Clear Lake Refuge.

Response: We disagree and feel the baseline data presented in the final CCP/EIS are sufficient to support the impact analysis. See response to comment 56-28.

- b. Grazing during sage-grouse breeding and nesting season, and in nesting habitat. The FEIS barely acknowledges the impacts that livestock grazing is likely to have on sage-grouse during critical periods of the year.

Response: We disagree and feel that the impact analysis presented in the final CCP/EIS and compatibility determination (Appendix G) adequately analyze the potential effects of grazing on sage-grouse.

- c. Failure to discuss seasonal habitat objectives or prescribe grazing use standards. The commenter states that the FEIS does not acknowledge the importance of different seasonal habitats to sage-grouse in general or identify which areas the Devil's Garden/Clear Lake sage-grouse use in and around Clear Lake Refuge at different times of year. The Service needs to identify how seasonal habitat objectives are accomplished.

Response: We disagree and feel that the final CCP/EIS and compatibility determination (Appendix G) adequately describe how grazing is and will be used to accomplish management objectives. In addition, we believe the impact analysis presented in these documents sufficiently analyzed the potential effects of grazing on sage-grouse.

- d. New infrastructure. The commenter states that the Final EIS has not evaluated the adverse impacts of livestock grazing infrastructure on sage-grouse and has not evaluated the impacts of the new watering facilities for livestock grazing under a special use permit for the Modoc National Forest.

Response: We anticipate new infrastructure would be developed by Modoc National Forest who would complete any required environmental compliance including NEPA.

- e. Ravens. The commenter states that the Service has not analyzed indirect impacts of increased sage-grouse nest predation by ravens due to increased livestock grazing.

Response: The selected alternative includes the development of an Inventory and Monitoring Plan focused on priority species including sage-grouse and colonial nesting waterbirds on the islands within Clear Lake. Monitoring presence of ravens will be included in this Inventory and Monitoring Plan.

- f. Grazing as fire prevention. The commenter believes there is a discrepancy between the Service's response to comment 663-3 regarding the use of grazing for fire prevention and text of the FEIS and CDs.

Response: We disagree with this comment. The full text of the first sentence in response to comment 663-3 is "The Service is not using or proposing to use grazing for the purpose of preventing fires or reducing fuels on the Klamath Basin Refuges; *fire prevention and fuel reduction are only recognized as a potential secondary benefit of grazing.*" None of the text in the final CCP/EIS cited by the commenter states that grazing is used primarily for fire prevention.

4. The Service did not consider impacts to the Devil's Garden/Clear Lake sage-grouse population or ESA-listed sucker species from grazing authorized by the Modoc National Forest on federal lands adjacent to Clear Lake Refuge, violating NEPA.

Response: The Service does not graze cattle on the west side of the refuge where the cattle from the Tucker allotment access the refuge for water. The Forest Service completed an EA in 2008 analyzing the effects of grazing from the Tucker allotment. We believe the potential effects of grazing have been fully disclosed. The Service reviewed potential effects of grazing on the shortnose and Lost River suckers and concluded that the proposed management is not likely to adversely affect these species.

Tulelake Irrigation District (TID)

1. The TID states that language on page 4-64 of the final CCP/EIS should be revised to clarify that the 25% row crop limitation is based on the acreage of lease lands on both Lower Klamath and Tule Lake Refuges.

Response: The Service concurs. Please see response to comment #1 from Reclamation.

2. The TID requests that the detailed description of the proposed Sump 1A drawdown be removed and replaced with a more robust explanation of how the Service will collaborate with TID, Westside Improvement District and Reclamation to determine if a Sump 1A drawdown program is even feasible. The ROD should provide a commitment that all parties will have considerable involvement in development of all aspects of planning if a drawdown project were to go forward.

Response: The Service is committed to collaborating with TID, Westside Improvement District, and Reclamation on developing this project in the future. As noted in the final CCP/EIS, the drawdown of Sump 1A is a future step-down plan for which planning and environmental compliance documents would be prepared. The general description of the Sump 1A drawdown was

included to provide some parameters for a future step-down plan. The drawdown elevations in this description are estimates and will likely be revised when detailed planning and engineering is conducted.

3. The final CCP/EIS includes a newly added prohibition of genetically modified crops or organisms on the refuge. The TID does not believe that there is any justification to prohibit genetically modified crops or organisms on the refuge. The prohibition should be removed from the final compatibility determination.

Response: In the compatibility determinations for farming on Tule Lake and Lower Klamath Refuges, the Service modifies stipulation C by replacing the last sentence with the following sentence: “Genetically modified crops/organisms are not permitted on the Refuge without prior approval from the Regional Chief of Refuges. The Service will consider requests from the lessees for the use of genetically modified crops on a case by case, with each request evaluated in accordance with the Biological Integrity, Diversity, and Environmental Health Policy (601 FW 3), and using the eligibility questionnaire issued in the July 28, 2010, memorandum from the Assistant Director of the National Wildlife Refuge System.” The modification of this stipulation does not change the Service’s conclusion that the uses are compatible uses of the refuges because in order to approve the use of genetically modified crops, the Regional Chief must concur that the proposed use of a genetically modified crop is “essential” to fulfill refuge purposes. If genetically modified crops/organisms are proposed for use in the future, additional environmental compliance may be necessary.

Response to comment 812-7 is also revised as follows: “The Service will not unilaterally prohibit the use of genetically modified crops; instead, the Service will consider requests for the use of genetically modified crops from lessees and cooperative farmers on a case by case basis, with each request evaluated in accordance with Biological Integrity, Diversity, and Environmental Health Policy (601 FW 3), and using the eligibility questionnaire issued in the July 28, 2010, memorandum from the Assistant Director of the National Wildlife Refuge System.” If genetically modified crops/organisms are proposed for use in the future, additional environmental compliance may be necessary.

4. The TID recommends removing the stipulation in the CDs for lease lands and cooperative farming that specifies that farm lands will be flooded post-harvest to February 15 at the Service’s discretion. TID describes a situation in which this timing would not allow farmers to prepare soil for planting.

Response: The Service acknowledges the concern raised by TID. As previously noted in the response to comment 743-48, the Service’s post-harvest flooding on Tule Lake Refuge would be subject to the availability of water, taking into consideration crop types, and implemented in coordination with Reclamation and TID. Stipulation A2a in the Tule Lake Lease Land CD is modified as follows: **“All lease farm lands will be flooded post-harvest to February 15 at the Service’s discretion and in coordination with TID and Reclamation.”** Stipulation A2a in the Tule Lake Cooperative Farming CD is modified as follows: **“All cooperative farm lands will be flooded post-harvest to February 15 at the Service’s discretion and in coordination with TID and Reclamation.”** Similarly, Stipulation A3a in the Lower Klamath Lease Land CD is modified as follows: **“All lease farm lands will be flooded post-harvest to February 15 at the Service’s discretion and in coordination with KDD and Reclamation.”** Stipulation A2a in the Lower

Klamath Cooperative Farming CD is modified as follows: **“All cooperative farm lands will be flooded post-harvest to February 15 at the Service’s discretion and in coordination with Reclamation.”**

5. The TID believes the stipulation prohibiting hazing of waterfowl should be eliminated.

Response: We disagree. One of the purposes of the refuge is to prevent crop depredation off of the refuge; therefore, we will not eliminate this stipulation.

6. The TID believe the Service would unnecessarily limit flexibility of refuge management if it does not allow onions on cooperative farm land. Lease land farmers that rotate onion crops with grain crops experience significantly higher yields of grain crops following a planting of onions. The higher grain yield, of course, is a benefit to waterfowl.

Response: In the CD for cooperative farming on Tule Lake Refuge the Service will add the following sentence under Crop Types and Habitat Management: **“Other types of row crops may be grown at the Refuge Manager’s discretion if it facilitates achievement of the refuge habitat objectives.”**

7. The TID does not believe that the stipulation in the Lease Land CDs requiring Reclamation to apply for an annual SUP is warranted or legally appropriate.

Response: Comment noted.

Crag Law Center

1. Water Rights – Ensuring Supply. During the 30-day wait period the Crag Law Center submitted comments on several of the Service’s responses to issues raised by the Crag Law Center during the review of the draft CCP/EIS.
 - a. Regarding the Service’s 1905 irrigation right and the March 28, 2014 Amended and Corrected Findings of Fact and Final Order of Determination (ACFFOD) for the Klamath Basin adjudication by the State of Oregon, the Crag Law Center believes it is unreasonable for the Service to exclude an alternative that commits to permanently dedicating the 1905 water rights to refuge purposes because there is no evidence that the adjudication process will take over 15 years to be complete.

Response: The Service disagrees. We estimate the judicial phase of the adjudication will take a minimum of 10-12 years to complete. This would include the process leading up to the circuit court decree as well as likely appeals to the Oregon Court of Appeals, Oregon Supreme Court, and potentially U.S. Supreme Court. Once the appeals are exhausted and the judicial phase is completed, the Service would then need to apply to the Oregon Water Resources Department to permanently transfer the water right (i.e. change the use, place of use, and/or point of diversion of the water). Given the potential for protests, we anticipate that this process could take several years. In summary, the Service believes it is unreasonable to assume that process would be completed within the 15-year timeframe of this CCP.

- b. The Crag Law Center states that the Service's response regarding the ACFFOD's limitations on the definition of "irrigation" also raises issues regarding the CCP's reliance on the KBRA water delivery scenarios. While not explicit in the CCP, water delivered to Lower Klamath and Tule Lake Refuges pursuant to the KBRA, or similar agreement, would presumably be Klamath Project irrigation water. The State of Oregon's limited definition of "irrigation" applies to all water rights within the Klamath Project and would therefore significantly undercut the Service's proposed water delivery scenarios under the KBRA. The CCP/EIS does not explain how water delivered under the KBRA would be regulated differently than other Project water.

Response: The Service disagrees with the conclusions of this comment. First, not all water delivered to the refuge is Project water. There is non-Project water or excess water delivered to the refuge under its federal reserved water rights. The use of this water is not limited to irrigation. Second, implementation of the KBRA would have amended the Project to include fish and wildlife as a project purpose. The Service believes that the state's interpretation of the water right would have taken the agreement (KBRA) into consideration. Finally, the Service also believes the commenter misconstrues the use of the "KBRA" in the CCP/EIS. As explained in response to comment 846-22, the Service used the KBRA to provide a bracketed approach to evaluating how habitat on the refuge could be developed and managed under a range of water delivery scenarios. Use of the "KBRA" was intended to illustrate how habitat on the refuge could be developed and managed under a scenario where more water was available with fewer restrictions on its use.

- c. The Crag Law Center states that the Service does not provide adequate support for assuming that the KBRA, or a similar agreement, will be implemented during the 15-year planning period of the CCP. In contrast, the 2013 BiOp will expire in 2023 by its own terms, within the 15-year planning period of the CCP. Thus the reasonable approach for the Service to take in the CCP is to evaluate alternatives based on water delivery scenarios that are not based on the guaranteed-to-expire BiOp.

Response: Regarding the KBRA, please see response to comment 846-22. Regarding the use of the 2013 BiOp, the Service also directs the commenter to the discussion of Water Delivery Scenarios on page 4-10 in the final CCP/EIS. As discussed in the referenced section, the Service focused on disclosing to the public how habitat on the refuge could be developed and managed under a range of water delivery scenarios. The Service believes it is appropriate to use the 2013 BiOp and the "KBRA" to bracket the development of water delivery scenarios. In addition, it is unclear how the Service could consider water deliveries in the final CCP/EIS from a biological opinion that has not yet been written.

- d. The Service has failed to consider several alternative options regarding water availability in the CCP/EIS, including the purchase or transfer of other water rights and the temporary transfer of its 1905 irrigation rights to instream use for the benefit of fish and wildlife on the Refuges. The Service also stated that it is currently investigating transfer of Service-owned water rights at Upper Klamath Refuge for delivery to Lower Klamath. This type of transfer is clearly a reasonable alternative; however, the alternatives analyzed in the CCP/EIS do not include discussion of this option.

Response: Please see response to comment 634-3 regarding the purchase or transfer of other rights. Regarding the suggestion to obtain a temporary transfer of the Service's 1905 irrigation rights to instream use for the benefit of fish and wildlife on the refuges, the Service does not concur that this suggestion would improve the refuge water supply. The delivery of water to the Lower Klamath Refuge is not an instream water use. Regarding the potential transfer of Service-owned water rights at Upper Klamath Refuge for delivery to Lower Klamath, the Service will likely pursue this action but the volume of water potentially available is far short of the needs at Lower Klamath Refuge. Regardless, such a transfer would result in water deliveries within the range of alternatives evaluated for Lower Klamath Refuge in the CCP/EIS. Habitat management with these increased deliveries would be within the range of scenarios we have evaluated in the CCP/EIS (see Figures 4.6).

- e. The Crag Law Center believes the Service should have considered the opportunity to divert water to Lower Klamath Refuge via Ady Canal in the winter season. Relying on the constraints in the 2013 BiOp does not adequately address how the Service will employ its junior Federal Reserved water rights for refuge purposes.

Response: See response to comment 1d. Winter water is available under the 2013 Bi-Op and the Service takes every opportunity to secure that water for the Refuge. Although water may be available from March to May, the 2013 BiOp does not allow refuge deliveries during that period, although it is unclear if this restriction would apply to the Service's vested water rights as well, were the Service to get an A priority for the Project.

2. The final CCP/EIS contains inconsistent statements regarding management of the Area K lease lands in Lower Klamath Refuge. In the final CD for the Lower Klamath lease land program, the Service relies on pre-irrigation or "flood fallow" on Area K to improve soil quality and increase attractiveness of the agricultural lands for waterfowl. The Service uses the terms "walking wetlands" and "flood fallow" interchangeably throughout the CCP/EIS. This leads to the appearance the Lower Klamath Leaseland CD is still relying on walking wetlands, or equivalent program, to ensure compatibility. The Service should clarify whether it intends to use flood fallow or pre-irrigation on Lower Klamath to ensure the leasing program is compatible with refuge purposes and whether it is feasible in light of the Service's existing water rights.

Response: The Service does not concur that the Lower Klamath Lease Land CD appears to rely on "walking wetlands" to ensure compatibility. The stipulation in the Lower Klamath Lease Land CD that mentions "flood fallow" is stipulation B, Integrated Pest Management. As explained in this stipulation the short-cycle wetland rotation program termed "flood fallow" will be used to control quackgrass on Lower Klamath Refuge lands. The Service has used this method in the past on Lower Klamath and intends to use it in the future as explained in the compatibility determination. Only the vested water rights are limited in season and in use, the federal reserved rights are available the full year for wildlife use. The Service can use our irrigation water right to initiate flood fallow and pre-irrigation agricultural practices within the current period of use for that water right. This means the Service can flood up fields at the end of the growing season, and due to fall/winter precipitation and the low levels of evapotranspiration, the fields can remain flooded until the following spring with a relatively small amount of additional water. Units that are flood fallowed would receive additional water during the summer under our irrigation water right.

3. The Service should consider conducting supplemental NEPA analysis to adequately consider a range of reasonable alternatives to ensure that the CCP/EIS includes management actions that will achieve refuge purposes.

Response: Comment noted.

Email from Mike Green, U.S. Bureau of Reclamation

Mark

On Tue, Dec 27, 2016 at 11:03 AM Green, Michael <mgreen@usbr.gov> wrote:

Mark,

Unsure if we missed during our internal comment period, but wanted to bring up a potential bombshell if not addressed somehow in CCP/ROD. The concern is in Chapter 4, Alternatives, Section 4.4.1 Features Common to All Alternatives-Tule Lake NWR, Agriculture Habitat Management, Farming on page 4-64. The fifth sentence in the first paragraph states, "consistent with the Kuchel Act, no more than 25% of the leased area would be planted to row crops..." Since this CCP section relates directly to TLNWR, it would potentially reduce and restrict the existing row crop acreage significantly in Tule Lake.

As stated in Kuchel Act section 4 and after the specific listing of leased areas (LK+TL), "not more than 25 per centum of the total leased land may be planted to row crops." Thus we have always operated under the guidelines of not exceeding the 25% rule of "all" lease areas combined. For instance if the combined leased area (LK+TL) equals 20K acres and with no row crops in Area K, then Tule Lake leases are capped at 5K acres of row crops.

One solution is to clarify the 25% rule relates to the combined total leased acreage of both refuges.

If you would, please let us know what can be done to correct this concern before the ROD is signed.

Thanks,

U.S. Fish and Wildlife Headquarters
Public Comment Processing
Attn: FWS-R8-NWRS-2016-0063
5275 Leesburg Pike
Falls Church, VA 22041-3803

23 December 2016

Mark Pelz, Refuge Planner
U.S. Fish and Wildlife Service
Pacific SW Region
Attn: Klamath Refuge Complex FEIS/CCP
2800 Cottage Way, W-1832
Sacramento, CA 95825

To Whomever It May Concern:

My name is Clait E. Braun, and I reside in Tucson, Arizona. I have a B.S. in Technical Agronomy from Kansas State University, a M.S. in Wildlife Management from the University of Montana, and a Ph.D. in Wildlife Biology from Colorado State University. In addition, I have attended numerous short courses, workshops, technical sessions, etc., to remain current in my professional work and am a Certified Wildlife Biologist. I was a Research Wildlife Scientist, Wildlife Research Leader, and Avian Program Manager for the Colorado Division of Wildlife during 1969-99. In addition, I taught as an Instructor at the University of Montana (1963-65) and Colorado State University (1966-69), and have been an invited lecturer at more than 20 U.S. and Canadian universities. I also worked as a Soil Scientist in Kansas (1961) and Montana (1964) for the U.S.D.A., Soil Conservation Service and as a Research Technician with the Montana Department of Fish and Game (1965). My field research was primarily on different species of birds, especially grouse (1965-2016). I specifically conducted and directed research on Sage-Grouse (*Centrocercus* spp.) throughout Colorado from 1973 through 1999. My research on Sage-Grouse has caused me to review sagebrush-steppe ecosystems (plants and animals) throughout all western states and provinces. This research has led to more than 300 scientific publications, mostly in peer-reviewed journals. A copy of my biographic sketch is attached.

I thoroughly reviewed portions of the Final Comprehensive Conservation Plan/Environmental Impact Statement for the Lower Klamath, Clear Lake, Tule Lake, Upper Klamath, and Bear Valley National Wildlife Refuges dated December 2016. I especially focused on that portion that pertained to the Clear Lake National Wildlife Refuge in Modoc County, California, especially the portions concerning Description of Use, Grazing, Fire Management, Juniper Removal, Public Use, Greater Sage-Grouse, Weed Control, and Alternatives A and B. I also reviewed a M.S.

Thesis by C. B. Bell (Nest site characteristics and nest success of translocated and resident Greater Sage Grouse at Clear Lake National Wildlife Refuge, Humboldt State University, 2011) and subsequent annual reports as well as the Conservation Strategy for Sage Grouse (*Centrocercus urophasianus*) and Sagebrush Ecosystems within the Devil's Garden/Clear Lake Population Management Unit Prepared by Clear Lake Sage Grouse Working Group dated 23 March 2010 and all available maps. I also reviewed appropriate scientific papers.

Overview

The effort to benefit Sage-Grouse (see Affected Environment [Chapter 5], Alternatives [Chapter 6], and Compatibility Determination [Appendix G]) using Clear Lake NWR is of major importance, but must include the entire Devil's Garden/Clear Lake Population Management Unit. My professional view is that Clear Lake NWR is critical for enhancing habitats for Sage-Grouse in this now isolated area (from connections with other Sage-Grouse populations). The focus of Clear Lake NWR should continue to be two fold; 1 = waterfowl and 2 = recovery of Greater Sage-Grouse. The Refuge is the most important portion of the Devil's Garden/Clear Lake Population Management Unit as it contains, apparently, the best or most secure lek site, good brood habitats, and reasonably secure nesting habitats. However, it is only one piece of the entire puzzle but, the rest of the puzzle cannot be solved without the piece represented by the Refuge. The other pieces are under the control of the Modoc National Forest.

Findings

1. Clear Lake NWR is too small to support a functioning Greater Sage-Grouse population over time as demonstrated by the maps of the locations of radio-marked Sage-Grouse (Bell 2011; California Department of Fish and Game unpublished reports and maps 2012, 2013).
2. It is not possible to support the desired number of 500 Sage-Grouse solely on the Refuge.
3. The Refuge presently provides a limited amount of secure winter-use, brood use, and nesting habitat.
4. It is likely the large fires in 2001 and in prior years were the proximate cause of the decline in number of male Sage-Grouse counted. The ultimate causes may be related to encroachment over time of juniper and no relief from livestock/feral horse grazing pressure (which influenced establishment of junipers) (Beck and Mitchell 2000, Boyd et al. 2014, Chambers et al. 2016).
5. The best option for increasing the number of Sage-Grouse in the area (including on Clear Lake NWR) is better habitat management of the existing areas dominated by sagebrush.
6. There is potential for increasing numbers of Sage-Grouse, primarily off the Refuge, through continued cutting and removing juniper. Unfortunately, expected increases in Sage-Grouse use and numbers of birds seem not to have been realized anywhere. It may take longer than expected

or possibly there may be a minimum area size before increases in Sage-Grouse numbers will be realized.

7. Establishment of satellite leks in recent years is the result of the increasing size of the population. This also reaffirms the fact the main area on the Refuge is too small to support more birds. Focus should be placed on creating potential lek sites (in suitable terrain using playback of sounds of Sage-Grouse on leks in the late evening and early morning in March-May) at least 2 miles from the existing site on the Refuge.

8. Consideration should be given to immediately reducing or eliminating all livestock grazing in areas (on and off the Refuge) where radio-marked Sage-Grouse have been located in at least 2 of every 3 years. Livestock grazing reduces height and density of grasses (cover) and forbs (food) necessary for Sage-Grouse nest success and early survival of broods (Connelly et al. 2000, Beck and Mitchell 2000, Boyd et al. 2014, Chambers et al. 2016).

9. The boundaries of Clear Lake NWR should be fenced to better manage livestock and to prevent trespass by cows.

10. The planned construction of an observation structure on the north side of the area will not benefit Sage-Grouse and will decrease use of the area within 1-2 miles of the structure. Sage-Grouse tend to avoid structures viewed as predator perches.

11. The Modoc National Forest should be involved as it will be crucial to any expansion of potential and occupied area by Sage-Grouse. It is logical that expansion is possible to the west, south, and east at the least, and possibly to the north, which would be highly desirable.

12. Clear Lake NWR is too small and too important for Sage-Grouse to allow any livestock grazing at any rate (once per year for 300 to 500 head over areas as small as 800 acres or other grazing prescriptions). Thus, all livestock grazing on Clear Lake NWR should cease because livestock grazing reduces the height and density of grasses (cover) and forbs (food) important for successful nesting and early survival of chicks (Connelly et al. 2000, Beck and Mitchell 2000, Boyd et al. 2014, Chambers et al. 2016). **Season of grazing use** modification as indicated in Alternative B **(1 March-mid April) beyond the general fall grazing** proposed on the Refuge **should be avoided as this period overlaps the start of the breeding and nesting intervals.**

Management Issues Identified in FEIS and Compatibility Determination

Fences

Use of fences is implied to manage livestock in Chapters 5 and 6 as well as in Appendix G. Use of fences will be necessary, at least to keep trespass livestock from the Refuge. Please note that I understand the concern about Sage-Grouse impacting fences and I would be more concerned if more Sage-Grouse were present. Fence locations and type of wire, number of strands (to benefit Pronghorn and Mule Deer) can be easily modified with local data. One has to start somewhere and managing livestock is a major issue in improving habitats for Sage-Grouse on the Refuge and adjacent lands.

Fire Management

Fire (mostly wildfire) is mentioned in Chapters 5, 6, and Appendix G. Fire of any type is negative for Sage-Grouse habitat as it kills sagebrush. Fire prevention as suggested in the Alternatives must have high priority if Sage-Grouse habitat is to be maintained and improved (Connelly et al. 2000).

Grazing

The FEIS fails to consider reduced- or no-grazing alternatives for Clear Lake NWR. There is no consideration of benefits of passive restoration and removal of direct and indirect impacts to sage-grouse from livestock. The FEIS also fails to consider cumulative impacts to the Sage-Grouse population from livestock grazing on adjacent Modoc National Forest allotments, even though the work of Bell (2011) and the California Department of Game and Fish (2012, 2013) clearly demonstrate use of lands adjacent to the Refuge by radio-marked Sage-Grouse captured or released on the Refuge. Livestock grazing is not a reasonable solution to exotic forb or grass management, fuel reduction, biological control of non-native plants, or to provide native bunchgrasses and sagebrush a 'competitive edge'. This is a major flaw in the FEIS and Compatibility Determination (Appendix G). Livestock grazing must be removed from the Refuge if recovery of Sage-Grouse is a priority goal per The Local Sage-Grouse Working Group and national direction by the U.S. Department of Interior.

Herbicides

Chemical control of exotic grasses presented as an alternative to livestock grazing is identified in both Alternatives (Chapter 6). The goal has to be to improve rangeland health in terms of native grasses and forbs (planting of dryland alfalfa is a reasonable substitute for native forbs [food] and even hiding cover). This is a better alternative than livestock grazing for managing exotic grasses.

Juniper Encroachment

Control of juniper within the sagebrush type is mentioned in Chapters 5, 6, and Appendix G. Emphasis must continue to be placed on removal of junipers (even though it is not yet clear that population recovery of Sage-Grouse can be linked to juniper removal). The FEIS indicates that ~ 86% of the area with junipers on Clear Lake NWR has been cleared (of juniper). That appears not to be true for adjacent areas in Modoc National Forest.

Public Use

Construction of a public viewing structure referenced in the Alternatives (Chapter 6) at the north end of the Refuge is not recommended as Sage-Grouse tend to perceive structures as raptor perches. They avoid use near those perches if at all possible for distances up to and exceeding 1 mile during the breeding and winter periods.

Recommendations

All grazing of domestic livestock should cease on the Refuge (the grazing period is far too long with too many AUMs) and also on much of the surrounding Modoc National Forest. The non-native feral horses also need to be eliminated as they confound vegetation recovery. The problem

with non-native plants can be resolved through chemical treatment followed by planting strips of dryland alfalfa in the most seriously affected areas. (Grazing of the alfalfa by waterfowl and native ungulates is not a concern with merit). Enhancement of lek sites off the Refuge, livestock/feral horse management and reduction, fencing, and water development off the Refuge are also important. The goals for Sage-Grouse should be to encourage secure nesting habitats and chick survival as well as expansion into habitats from which junipers have been removed both on and off the Refuge.

I request these comments be considered in the U.S. Fish and Wildlife Service's final decision.

Clait

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Literature Cited

- Beck, J. L. and D. L. Mitchell. 2000. Influences of livestock grazing on Sage-Grouse habitat. Wildlife Society Bulletin 28:993-1002.
- Bell, C. B. 2011. Nest site characteristics and nest success of translocated and resident Greater Sage Grouse at Clear Lake National Wildlife Refuge. Humboldt State University, Arcata, California.
- Boyd, C. S., J. L. Beck, and J. A. Tanaka. 2014. Livestock grazing and Sage-Grouse habitat: Impacts and opportunities. Journal of Rangeland Applications 1:58-77.
- Chambers, J. C., J. L. Beck, S. Campbell, J. Carlson, T. J. Christiansen, K. J. Clause, J. B. Dinkins, K. E. Doherty, K. A. Griffin, D. W. Havlina, K. F. Henke, J. D. Henning, L. L. Kurth, J. D. Maestas, M. Manning, K. E. Mayer, B. A. Meador, C. McCarthy, M. A. Perea, and D. A. Pyke. 2016. Using resilience and resistance concepts to manage threats to sagebrush ecosystems, Gunnison Sage-Grouse, and Greater Sage-Grouse in their Eastern Range: A strategic multi-scale approach. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins. General Technical Report RMRS-GTR-356.
- Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. Guidelines to manage Sage Grouse populations and their habitats. Wildlife Society Bulletin 28:967-985.

BIOGRAPHICAL SKETCH

Clait E. Braun, Grouse Inc., 5572 N. Ventana Vista Road, Tucson, AZ 85750
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Phone/Fax 520-529-4614

Born: 4 October 1939, Kansas City, Missouri, USA

Academic Training

B.S. 1962. Technical Agronomy, Kansas State University, Manhattan
M.S. 1965. Wildlife Management, University of Montana, Missoula
Ph.D. 1969. Wildlife Biology, Colorado State University, Fort Collins

Experience (50 years of study of species of grouse, including Sage-Grouse)

Director, Grouse Inc., Tucson, AZ (2000-Present)
Avian Research Program Manager, Colorado Division of Wildlife
Wildlife Research Leader-Avian, Colorado Division of Wildlife
Soil Scientist, Soil Conservation Service, USDA, Kansas and Montana

Memberships

The Wildlife Society

Editor (*Journal of Wildlife Management*) (1981-83)
Vice President, President, Past President
Charter and Founding Member of Colorado and Montana Chapters
Editor, Sixth Edition, *The 'Techniques Manual'* (2005)
Fellow

The Wilson Ornithological Society

Elected Board Member, Vice President, President
Life Member
Editor (*Wilson Journal of Ornithology*) (2007-2012)

Colorado-Wyoming Academy of Science

Elected Board Member, Treasurer, President, Life Member

American Ornithologist's Union

Elected Member, Elected Fellow, Life Member

Cooper Ornithological Society: Life Member

American Society of Mammalogists: Life Member

Great Plains Natural Science Society: Life Member

American Association for the Advancement of Science (1969-2016)

American Men and Women of Science

Who's Who in the West

Personalities of the West and Midwest

Dictionary of International Biography

Professional Achievement Awards

Colorado State University
Colorado-Wyoming Academy of Science
Defenders of Wildlife, Science Award, 2015
Gunnison Sage-Grouse Stewardship Award
The Wildlife Society (Chapter, Section, National, Group Achievement [1986])
U.S. Department of Agriculture (SCS)
Western Agencies Sage & Columbian Sharp-tailed Grouse Technical Committee
---Robert L. Patterson Award
Wilson Ornithological Society---Klamm Award

Publications

Over 300 Technical Articles (especially on grouse) published in Peer-reviewed and Non
Peer-reviewed Journals, Symposia, Proceedings (List Available upon Request)

Referee

Peer Reviewer for 20+ National/International Journals

Technical Editor or Editor

Multiple Books and Proceedings, and Professional International Journals
Most Recent

Greater Sage-Grouse; Ecology and Conservation of a Landscape Species
and its Habitats. 2011. Studies in Avian Biology, Number 38. 645 pp.
Quail VII: Proceedings of the Seventh National Quail
Symposium: 2012: 386 pp.

Consultant

County (Gunnison, Colorado), State (Nevada, New Mexico, Oregon, Utah,
Wyoming), Federal (USFWS), and Provincial (Alberta) governments, and Private
Entities (NGO's, Private Ranchers)

Professional Interests

Birds (especially Grouse and Columbids), Habitat Management, Alpine Ecology,
Sagebrush-steppe, Population Dynamics

National Advisory Committee, Wildlife Services (USDA, APHIS)

1999-2005, Vice Chair and Chair
2008-2009 Chair



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Working to protect and restore Western Watersheds and Wildlife

January 4, 2017

By Certified Mail and email

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U.S. Fish and Wildlife Headquarters
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Falls Church, VA 22041-3803

Re: Comments on the Klamath Basin Complex National Wildlife Refuge CCP/Final Environmental Impact Statement and Compatibility Determinations

Dear Fish and Wildlife Service:

Western Watersheds Project has thoroughly reviewed the Final Environmental Impact Statement (FEIS) for the Klamath Refuges Comprehensive Conservation Plan (CCP). We write to call your attention to a number of points that we raised in our initial comments but which the Service has declined to appropriately address. We respectfully request that you reconsider your analysis and findings in the FEIS and Compatibility Determinations (CDs) and address these concerns before issuing your Record of Decision (ROD) for the Klamath Basin Complex CCP.

- 1. The FEIS is inadequate because it fails to analyze reasonable alternatives, including alternatives for reduced grazing and no grazing on the Upper Klamath, Lower Klamath, and Clear Lake Refuges, though these alternatives would meet the purposes and need for the CCP and are required by NEPA.**

As in our previous comments, we note that among the purposes of this CCP and EIS are the need to “ensure that management programs on the refuges are consistent with the mandates of the NWRS and the purposes for which each refuge was established” and to “evaluate the existing and proposed uses of each refuge to ensure they are compatible with the refuge purpose(s) as well as the maintenance of biological integrity, diversity, and environmental

health.” FEIS at 1-1, 1-3. Further, one of the “issues and concerns identified during plan development” was to “[d]iscuss the pros and cons of continuing existing agriculture, and the compatibility of agriculture on refuges.” FEIS Executive Summary at 12–13. The Summary also notes that alternatives to the proposed action allow the Service to “explore and analyze different ways to achieve refuge purposes” as well as contribute to the Refuge system mission, meet refuge goals, and resolve issues raised by the public. *Id.* at 14.

In our comments, WWP highlighted a number of reasons why, in consideration of sound fish and wildlife management principles and scientific information, status quo livestock grazing is not compatible with the maintenance of biological integrity, diversity, and environmental health, and is inconsistent with the purposes of these national wildlife refuges as critical preserves for migratory birds and other native species. Although the Service acknowledges many detrimental impacts from domestic livestock grazing, the FEIS still fails to consider *any* reduction of grazing from previously authorized levels on any of the three refuge units where grazing is proposed.

The failure to consider reasonable alternatives violates NEPA. *W. Watersheds Proj. v. Abbey*, 719 F.3d 1035, 1050 (9th Cir. 2013). Please reconsider this critical flaw in the CCP decisionmaking process, and analyze reduced- and no-grazing alternatives. Without these, neither the Service nor the public can make an informed decision on the relative pros and cons of allowing domestic livestock grazing on the Klamath Basin Complex.

In response to our comments, the Service asserts that because the grazing it authorizes is “highly controlled,” it does not need to consider reduction or cessation of the use. FEIS Appendix U-28. There is no merit to this conclusion because—even assuming that livestock grazing could achieve the habitat objectives that the Service claims, which WWP disputes—alternative means may achieve the Service’s objectives and are likely to do so without the collateral damage caused by domestic livestock.

The Service cites apparently unpublished research from Merrill-Davies for the proposition that grazing can reduce invasive annual grasses and increase native perennial grasses and forbs. Appendix U-28. However, the FEIS does not consider studies provided by WWP that found no support for that conclusion. One of these peer-reviewed studies (Reisner et al., 2013) stated that: “[o]ur results provide strong support for some *a priori* hypothesized mechanisms (i.e. cattle trampling reduces bunchgrass and [Biological Soil Crust] abundance) and no support for others (i.e. cattle reduce invasions by grazing *B. tectorum*).” They concluded that: “[o]ur findings raise serious concerns regarding proposals to use cattle grazing to control *B. tectorum* in these systems where remnant bunchgrass communities persist (Vallentine & Stevens 1994). In contrast, our findings support recent guidance for passively restoring resistance of these systems by reducing grazing levels (Pyke 2011).” The Service failed to consider this conflicting research as well as other literature WWP highlighted in its comments.

Additionally, the Service claims that it is required under the Kuchel Act to allow grazing on the Lower Klamath, Upper Klamath, and Clear Lake Refuges. Appendix U-28. WWP disagrees that the Kuchel Act requires this. As an initial matter, the Kuchel Act speaks only of “consideration” of agricultural use that is “consistent” with refuge purposes. 16 U.S.C. § 695l. Further, the history and purpose of the Act makes clear that livestock grazing was not

envisioned as the type of agriculture potentially providing any benefit to waterfowl, migratory birds, and other native wildlife. FEIS Appendix M. This is particularly evident with respect to Clear Lake Refuge, where no leasing of land for agricultural crop production is authorized, as well as at the Upper Klamath refuge, where such agricultural leasing is also minimal or non-existent. The Service's position that it may not consider reducing or eliminating livestock grazing at Clear Lake and the other refuge units because of the Kuchel Act is untenable. To the contrary, it must do so both under the Kuchel Act itself and under NEPA.

WWP disputes that domestic livestock grazing is consistent with the major purposes of any of these refuge units. However, even if the Service was required to allow grazing, it was still required to consider whether grazing at reduced levels was necessary to ensure its consistency and compatibility with refuge purposes. The FEIS did not do this because it analyzed only grazing at previously authorized levels, or increases in number of livestock, AUMs, or acres grazed.

Moreover, the Service is required to consider alternatives that are outside its immediate jurisdiction. See CEQ, NEPA's Forty Most Asked Questions, 2b citing 40 C.F.R. § 1506.2(d). The Service must even consider reasonable alternatives that would require congressional action to implement. *Id.* citing § 1500.1(a). Because grazing causes substantial harm to public resources on these refuges—including native bird species such as sage-grouse—eliminating it is a reasonable alternative that must be considered even if implementing that alternative required amending the Kuchel Act.

Further, if the Service determines that a use is not compatible with refuge purposes, it cannot authorize that use. 603 FW 2.11(A)(3). But it does not follow that merely because the Service finds a given use is compatible with the purposes of the refuge, that it *must* allow the use to occur. Indeed, “[a]lthough a refuge use may be both appropriate and compatible, the refuge manager retains the authority to not allow the use or to modify the use. . . . [T]he refuge manager may need to limit or entirely curtail one of the [conflicting] uses in order to provide the greatest benefit to refuge resources and the public.” *Id.* § 2.15; Appendix E-13. Under NEPA, the Service is still responsible for considering reasonable alternatives, such as not allowing the use, or allowing it at reduced levels. 603 FW 2.18.

In the FEIS, the Service also fails to acknowledge its authority to prevent livestock authorized to graze on the Modoc National Forest from also grazing on the western portion of Clear Lake Refuge. Grazing only occurs on the western portion of Clear Lake because livestock from the neighboring Tucker allotment on the National Forest are able to enter the unfenced Refuge. The FEIS implies that the Service cannot prevent this grazing because California open range laws place the onus on landowners to exclude livestock through fencing, and fencing is undesirable. FEIS at 6-83, 6-89, 6-94, 6-98; Appendix G-243. While we agree that fencing is undesirable in this location, the Service may exclude livestock from the land it manages regardless of whether the land is fenced. California's open range laws do not apply to the federal government. The Service's regulations speak directly to its ability to authorize livestock grazing through permits subject to terms and conditions, 50 C.F.R. §§ 25.43; 28.21; 29.1 (permitting and enforcement authority), and to exclude livestock from refuge lands altogether. *Id.* § 28.31 (general penalty provisions) and § 28.42 (procedures for impoundment of trespass

domestic livestock). The Service currently legitimizes this would-be trespass grazing through an MOU with the Modoc National Forest, which it could unilaterally revoke, or decline to re-enter into. Therefore, the Service's implied justification for continuing to allow grazing on the western portion of Clear Lake because it cannot prevent it is arbitrary and legally incorrect.

The Service also disputes that a true "no action" alternative, required by NEPA, would necessarily mean that no grazing would be authorized under that alternative. FEIS at U-29–30. But in this context, where the Service must affirmatively act in order to allow grazing, "no action" must entail declining to authorize grazing. This will be the first CCP that the Service has ever issued for the Klamath Complex Refuges. It is true that the Service has previously issued CDs for grazing in some refuge units, but it is again considering the compatibility of grazing in the CCP process, and is making new CDs. Thus, from a regulatory standpoint, grazing is not the status quo for the Upper Klamath, Lower Klamath, or Clear Lake Refuges. In fact, this is true even on public lands (such as Bureau of Land Management lands) where the management agency is subject to a multiple use mandate that assumes areas are available for livestock grazing. See *W. Watersheds Proj. v. Rosenkrance*, 4:09-cv-298-EJL, 2011 WL 39651, at *10–*11 (D. Idaho Jan. 15, 2011). That is not the case here because under the Refuge Improvement Act, the Service must determine whether grazing (which is not a wildlife-dependent use) "contributes to the achievement" of refuge purposes before it allows livestock on refuge lands in the first place. 50 C.F.R. § 29.1. And as noted, even if consistent it may ultimately prohibit the use. 603 FW 2.15.

The FEIS's failure to consider reasonable alternative means of accomplishing the goals that the Service claims increased levels of domestic livestock will accomplish violates NEPA's mandate to analyze alternatives that may "avoid or minimize adverse effects," 40 C.F.R. § 1502.1, or may accomplish goals "with less environmental harm." *Lands Council v. Powell*, 395 F.3d 1019, 1027 (9th Cir. 2010). As described in more detail below, the agency did not consider alternative means of recovering degraded vegetation communities, including passive restoration, which is more likely to produce the agency's desired results without damaging soils, polluting water, further spreading invasive plant species, degrading aesthetic qualities, and harming native wildlife.

2. The failure to analyze reduced- and no-grazing alternatives prevents a hard look at the beneficial effects of livestock reduction and removal.

The failure to consider reduction or elimination of grazing violates NEPA in another way. The Service never made a comparison between a no action (no-grazing) alternative and the action alternatives for Upper Klamath, Lower Klamath, and Clear Lake Refuges. By not considering any alternatives in which the Service would reduce grazing or decline to authorize livestock on these refuges at any level, the public and the Service were deprived of any evaluation of the relative ecological benefits of managing the landscapes so that they are free from the impacts of livestock grazing, frustrating the very purpose of the FEIS. See CEQ, NEPA's Forty Most Asked Questions, 3A (consideration of a no action alternative "provides a benchmark, enabling decisionmakers to compare the magnitude of environmental effects of the action alternatives").

Various studies that WWP described in its comments provide a benchmark for comparison of the impacts of authorizing livestock grazing and prohibiting it, but the FEIS did not consider these or any others. For instance, Anderson and Inouye (2001) found that remnant populations of native grasses and forbs are able to take advantage of improved growing conditions when livestock are removed. They found that vegetation richness increased steadily during a 45 year absence of domestic livestock grazing. Grasses and forbs increased significantly.

In addition, Beschta et al. (2012) and Beschta et al. (2014) describe livestock use of public lands in the West as a major stressor on the landscape, particularly in the context of the overarching stressor of climate change. Its removal or reduction is an ecologically efficient and unambiguous approach for restoring resilience to large areas of these lands. The Beschta et al. (2014) paper includes documentary photographs of habitat recovery on nearby Hart Mountain National Antelope Refuge following removal of livestock.

WWP described another study by Batchelor et al. (2015), which also depicts the dramatic changes to vegetation following the permanent removal of livestock from the Hart Mountain Refuge. These results demonstrate that livestock removal is likely to rapidly restore uplands, springs and seeps, and riparian areas, which are important brood-rearing and summer habitats for sage-grouse and which are often heavily degraded by livestock. See <http://www.cof.orst.edu/hart/hartimages.html>.

Without comparison to the “benchmark” that a no action alternative is meant to provide, neither the public nor the Service could compare the pros and cons of eliminating grazing on these public lands in favor of allowing them to recover passively.

3. The Service did not take a hard look at many direct and indirect impacts to sage-grouse and sagebrush steppe habitat from livestock grazing at Clear Lake.

A. Insufficient baseline data.

The FEIS’s baseline data on sage-grouse is nearly absent, and prevents an adequate review of impacts to the Devil’s Garden/Clear Lake sage-grouse population from the proposed action and alternatives for Clear Lake Refuge. Basic information was absent from the Draft EIS. In response to WWP’s comments, the Service provided a graph of lek attendance for recent years in the FEIS, but other important data is still missing and prevents the required level of analysis of potential effects to the population. *Half Moon Bay Fisherman’s Marketing Ass’n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988) (“[w]ithout establishing the baseline conditions . . . there is simply no way to determine what effect the [action] will have on the environment, and consequently, no way to comply with NEPA”).

The FEIS fails to clearly depict the imperiled state of the Clear Lake/Devil’s Garden sage-grouse Population Management Unit. The Service notes that PMU is one of the last sage-grouse populations in northeastern California, and gathers at only one lek—the last in the Modoc Plateau. FEIS at 1-20. But the FEIS does not present information on the historic extent and abundance of the population, which is important to understand the frailty of the population as it exists today. According to the California Department of Fish and Wildlife, the population of sage-grouse in Modoc County alone originally numbered 14,000. In the 1940s, the PMU

included 56 known leks, several dozen of which were concentrated around Clear Lake. Nine leks remained active in 1977, but by 2002, only one lek on the Clear Lake U persisted. Sage-grouse have continued to gather on that lek and in the last several years only around 30 males were observed displaying. Yearly translocation of sage-grouse from nearby areas in Nevada and Oregon has apparently been required to maintain sage-grouse at Clear Lake. The importance of the Clear Lake Refuge to the continued existence of the population is clear, but the FEIS fails to provide the context necessary to appreciate the grave risk of losing sage-grouse in northeast California altogether.

The FEIS also fails to acknowledge the importance of the Devil's Garden/Clear Lake sage-grouse PMU to the species as a whole. No other population exists further to the west, and if the population blinks out, a significant range contraction will occur. Sage-grouse in the Klamath OR/CA population no longer occur to the north in Oregon, and the closest population to the east is 70-80 km.

The FEIS also lacks basic information on the seasonal habitat of the remaining sage-grouse, including nesting, early and late brood rearing areas, and winter use. The Service has years of location data from this population but has provided none of it as part of its public process. It has provided no mapping of the areas that sage-grouse seasonally use. This greatly frustrates the public's understanding of the likely effects of grazing on the population's seasonal habitats. For example, the FEIS provides no diagram of the spatial relationship between the proposed new pastures and watering facilities that would enable "targeted" grazing on the U and the location of the sage-grouse lek, nesting areas, and brood rearing areas there. It is therefore nearly impossible to understand how sage-grouse use and intensive grazing will overlap physically and temporally. Likewise, the FEIS provides no mapping for the grazing use that occurs incidentally on the western portion of the Refuge, or where sage-grouse concentrate in those areas. There is no mapping or discussion of preferred use areas outside the Refuge, and when sage-grouse use those areas.

Further, the percentage of Clear Lake Refuge where the Service states that livestock grazing occurs/will occur is misleading. The FEIS states that grazing occurs on only 23% of the refuge. FEIS at 6-100. However, the Service does not make explicit that of the approximately 33,500 acres within the Refuge, approximately 20,000 acres is open water. FEIS at 1-19-1-20. While the exact number of acres covered by water fluctuates annually, in actuality, grazing (both incidental use from cattle authorized on the Tucker allotment and authorized grazing on the U) occurs on the majority of the dry land portion of the Refuge.

B. Grazing during sage-grouse breeding and nesting seasons, and in nesting habitat.

Related to its failure to describe sage-grouse seasonal habitats in and around Clear Lake and the species' use of those areas, the FEIS barely acknowledges the impacts that livestock grazing is likely to have on sage-grouse during critical periods of the year.

Initially, The FEIS states that "[i]n light of the fact that many wildlife species and their preferred habitats evolved in the presence of large, terrestrial grazing animals, there is not an inherent ecological conflict between grazing by livestock and wildlife use." FEIS at 6-99. That conclusion is at odds with the recognition by sagebrush steppe ecologists that plant systems that sage-grouse rely upon in fact evolved without significant herbivory by native ungulates. The

Service itself, for example, recognized this when it found Greater sage-grouse warranted listing under the Endangered Species Act in 2010. Specifically, the Service stated:

[P]lants of the sagebrush-steppe lack traits that reflect a history of large ungulate grazing pressure (Mack and Thompson 1982, pp. 757). Therefore, native vegetation communities within the sagebrush ecosystem evolved in the absence of significant grazing presence (Mack and Thompson 1982, p. 768).

12-Month Findings for Petitions to List the Greater Sage-Grouse as Threatened or Endangered, 75 Fed. Reg. 13,910, 13,939 (Mar. 23, 2010). Both Painter (1995) and Carter et al. (2014) also recognized that livestock do not simply fill the role of large grazing mammals, even where they were present historically in numbers sufficient to influence plant communities.

The FEIS does briefly note that a variety of native species—sage-grouse, pronghorn, and Mule deer—use the shore of Clear Lake to feed on native forbs and grasses and must compete with cows to do so. However it simply states that the Service does not know the level of impact to these species from competition with livestock, although it rightly notes that “[m]ore forage would be available for native wildlife along the lakeshore if it were not first eaten by cattle.” FEIS at 6-100. Further, in areas that are not accessible to cattle (because they are excluded), grass grows tall and provides habitat for sage-grouse broods. Appendix G-247. According to the CD, this grazing along the shoreline targets native species, not noxious weeds. Appendix G-243.

Notably, the FEIS does not discuss the indirect impacts of allowing grazing in sage-grouse breeding and nesting areas on the U under either alternatives A or B. One of the biggest negative effects that livestock grazing has on sage-grouse is the removal of herbaceous vegetation that provides security cover for hens during nesting and subsequently for broods of chicks. As WWP noted in its initial comments, the Service itself has described this relationship between grazing in sage-grouse habitat and reduction in grass heights:

Sage-grouse need significant grass and shrub cover for protection from predators, particularly during nesting season, and females will preferentially choose nesting sites based on these qualities (Hagen et al. 2007, p. 46). The reduction of grass heights due to livestock grazing in sage-grouse nesting and brood-rearing areas has been shown to negatively affect nesting success when cover is reduced below the 18 cm (7 in.) needed for predator avoidance (Gregg et al. 1994, p. 165).

75 Fed. Reg. at 13,939. The fall grazing proposed on the U (mid-August to mid-November) and on the western portion of the Refuge (beginning in late July) may have substantial impacts on the availability of this security cover for sage-grouse in the following year. The CD for grazing at Clear Lake in fact notes that “late season grazing would reduce grass heights” and densities. Appendix G-245. Braun (2006) recommends that if grazing is allowed, “all livestock should be removed by 1 August with a goal of leaving at least 70% of the herbaceous production each year to form residual cover to benefit sage-grouse nesting the following spring.”

Likewise, the spring grazing that the Service proposes on the U (March 1 to mid-April) may also reduce grass cover prior to nesting activities and have other negative impacts on sage-grouse breeding and foraging activities. WWP described a number of the direct impacts that livestock grazing is known to have on breeding sage-grouse in its comments on the DEIS.

The courts have also taken note of these impacts and directed that livestock grazing should be restricted to the “well-established” timeframes that result in fewer impacts to sage-grouse, *i.e.*, avoiding grazing in the spring and fall. *See, e.g. W. Watersheds Proj. v. Salazar*, 843 F. Supp. 2d 1105, 1115 (D. Idaho 2012); *W. Watersheds Proj. v. Dyer*, 04-cv-181-BLW, 02-cv-521-BLW, 2009 WL 484438, at *21 (D. Idaho Feb. 26, 2009).

The lack of consideration of the impacts from grazing to the seasonal habitat needs of sage-grouse is a major flaw in the FEIS that renders the Service’s conclusions about the impacts to sage-grouse from implementation of the CCP arbitrary and capricious.

C. Failure to discuss seasonal habitat objectives or prescribe grazing use standards.

As described, the FEIS does not acknowledge the importance of different seasonal habitats to sage-grouse in general, nor does it identify which areas the Devil’s Garden/Clear Lake sage-grouse use in and around Clear Lake Refuge at different times of the year. Additionally, the CCP does not discuss the specific elements that sage-grouse require in each of those seasonal habitats, nor how the Service will ensure seasonal habitat objectives are accomplished.

The Department of Interior and other federal agencies recently undertook a “range-wide” planning effort for sage-grouse on Bureau of Land Management and Forest Service lands; however, the Devil’s Garden/Clear Lake population was excluded from that effort. The Approved Resource Management Plan Amendments (ARMPA) and RODs for management of sage-grouse habitat on other federal lands in Nevada and Northeastern California include specific habitat objectives that the agencies must meet in order to ensure protection and recovery of the species. *See* BLM Table 2.2¹ and Forest Service Table 1a.² The CCP/FEIS includes no discussion or incorporation of these or similar standards. The CCP/FEIS does not provide for habitat monitoring in recognition of sage-grouse seasonal needs such as those as discussed in the ARMPA’s Monitoring Framework³ or in BLM Technical Reference 6710-01.⁴ As a result, there is no mechanism for measuring whether the Service’s management of the Clear Lake sage-grouse population’s habitat is successful in any given year or over the long term, and whether changes are required to ensure suitable sage-grouse habitat.

Given the importance of vegetation height, structure, and composition to sage-grouse reflected in the literature WWP cited in its comments, *e.g.*, Connelly, et al., (2000), and in the recent federal sage-grouse land use plan amendments, the lack of any standards that would ensure that post-grazing habitat meets the needs of sage-grouse is highly problematic. For example, the CCP would not prescribe standards for percentage of grass and other vegetation

¹ Available at https://eplanning.blm.gov/epl-front-office/projects/lup/21152/63235/68484/NVCA_Approved_RMP_Amendment.pdf

² Available at <https://www.fs.fed.us/sites/default/files/great-basinROD-package-.pdf>

³ Available at https://eplanning.blm.gov/epl-front-office/projects/lup/21152/63239/68488/NVCA_Appendix_D_GRSG_Monitoring_Framework_.pdf

⁴ Available at https://www.blm.gov/style/medialib/blm/wo/blm_library/tech_refs.Par.34086.File.dat/TR_6710-01.pdf

consumed by livestock, nor are there residual vegetation height standards that require 7 inches of grass remain after grazing.

D. New infrastructure.

The FEIS Alternative B for Clear Lake would employ an experimental, intensive grazing regime requiring new watering facilities and fencing. WWP thoroughly described the negative impacts that livestock grazing infrastructure has on sage-grouse in its initial comments. The FEIS still fails to analyze the effects that this new infrastructure is likely to have on sage-grouse. In addition, under Alternative B, the Service would work with the Modoc National Forest to develop new watering facilities for livestock that currently graze incidentally on the western portion of Clear Lake. The FEIS does not consider the negative impacts of this potential infrastructure either.

E. Ravens.

The FEIS does not consider potential impacts to sage-grouse from ravens, a known predator of sage-grouse nests. WWP noted that a study by Coates et al. (2016) found raven occurrence increased 45.8% in areas where livestock were present. The Service responded that a 2011 study of nest success at Clear Lake did not document any depredation incidents by ravens, so the FEIS was not required to consider this threat to sage-grouse. In the study cited by the Service, Bell (2011:31) speculated that the lack of observed raven predation at Clear Lake could be attributed to the small sage-grouse population, or a relative lack of ravens in the study area. Bell's theory calls the Service's failure to consider the potential for increased predation from ravens into question for several reasons.

First, the sage-grouse population at Clear Lake appears to be incrementally increasing from its lowest point in the mid-2000s, FEIS at 5-105, which may lead to an increase in interest from ravens. Second, the CCP proposes to increase grazing at Clear Lake, which based on the findings in the Coates study, could lead to an increase of ravens in the area. Relatedly, the Clear Lake Sage-grouse Working Group plan described a 10 to 15% increase in Common ravens on the Modoc Plateau from 1966 to 1999, as well as anecdotal evidence of an increased raven population in the Clear Lake area. Finally, WWP cited literature in its comments that suggested that ravens avoid areas of juniper and that removal of juniper may facilitate predation of sage-grouse nests by ravens. Both the Modoc National Forest and the Service have completed extensive juniper removal in the areas surrounding Clear Lake Reservoir in recent years. For these reasons, the Service failed to consider an important aspect of sage-grouse recovery when it refused to analyze the indirect impacts of increased sage-grouse nest predation by ravens due to increased livestock grazing.

F. Grazing as fire prevention.

WWP noted that livestock grazing as a means to prevent fires or remove fuel is not recommended where there is any component of native vegetation remaining because the collateral impacts on soils and native species are too high. We also noted that the major drivers of fires in the sagebrush steppe and elsewhere are climatic, not based on fuel loads. The Service agreed with these conclusions, stating: "[t]he Service is not using or proposing to use grazing

for the purpose of preventing fires or reducing fuels on the Klamath Basin Refuges . . .” Appendix U-341. The FEIS and CDs appear to contradict this assertion in numerous places. *See, e.g.*, FEIS at 6-83 (“Grazing is used in part . . . to reduce wildfire fuels on the refuge”); 6-83 (“Prescribed grazing is used selectively to target invasive plant species and reduce wildfire fuels”); 6-87 (“Grazing, which is also used for management of invasive plants and wildfire fuels . . .”); 6-89 (same); 6-89 (“Grazing in this area provides the refuge benefits by reducing fuel levels and associated wildfire fire [sic] threats”); 6-94 (same); 6-94 (“These prescribed grazing strategies would . . . reduce the abundance of fine fuels. As a result, the frequency, intensity, and spread of wildfires—which are associated with an abundance of annual grasses—would be reduced”); 6-98 (“Grazing in this area provides the refuge biological benefits by . . . reducing fuels and fire threats”); Appendix G-242 (“Grazing would be designed . . . to reduce the quantity of fine fuels and potential for future wildfires”); Appendix G-245 (“These prescribed grazing strategies would . . . reduce the abundance of fine fuels”). Given the lack of scientific support for using grazing as a means to reduce fuels, particularly where there is a component of native vegetation remaining, as is the case on the U, the Service’s planned use of grazing to prevent fires is arbitrary and capricious.

4. The Service did not consider impacts to the Devil’s Garden/Clear Lake sage-grouse population or ESA-listed sucker species from grazing authorized by the Modoc National Forest on federal lands adjacent to Clear Lake Refuge, violating NEPA.

WWP notified the Service of its failure to consider the cumulative impacts to sage-grouse from grazing authorized on the Tucker and other allotments that surround Clear Lake. That analysis is critical to a full understanding of the impacts that the Devil’s Garden/Clear Lake population faces because individuals within the population consistently rely on habitats both within the refuge and outside it. Grazing authorized by the Forest Service results in impacts to sage-grouse and their habitat in addition to those caused by livestock grazing approved on the Refuge under the CCP. For example, grazing infrastructure including the Tucker, Harvey, Red Lake, and Perez wells and pipeline systems that the Forest Service recently approved fragment sage-grouse habitat; expand livestock presence in sage-grouse habitat by allowing livestock to access areas that were previously too far from water; and may subsidize sage-grouse avian predators by creating disturbed areas and tall structures for perching. Besides infrastructure, grazing impacts the areas sage-grouse use on the Modoc National Forest directly and indirectly in many other ways.

Extensive telemetry and other location data from radio-marked grouse illustrate that, while the only lek the sage-grouse population currently uses (as well as other important seasonal habitat) is located within the Clear Lake Refuge itself, sage-grouse also consistently utilize habitat on surrounding Forest Service land. *See* Attachment folder (PMU maps). Sage-grouse nest in the Clear Lake Hills to the west of the Refuge within the Lacy, Holbrook, and Chandler pastures of the Tucker allotment. Sage-grouse have also nested to the south of Clear Lake in the Doublehead pasture within Tucker allotment and the Red Lake pasture of the Carr allotment. Hens with broods use riparian areas in the Clear Lake Hills as well as along Mowitz Creek outside the Refuge. Sage-grouse use has also been recorded to the north and east of the reservoir in the Carr, Clear Lake, and Mammoth allotments. The FEIS does not analyze the effects to sage-grouse from livestock grazing authorized by the Forest Service in any of these areas, or anywhere else in the PMU. Cumulative impacts from these federal actions must be considered.

40 C.F.R. §§ 1508.7, 1508.25. By turning a blind eye to the cumulative effects on these adjacent areas, the FEIS fails to show the whole picture.

The grazing authorized in the Lacy and Holbrook pastures of the Tucker allotment (from which livestock enter the Clear Lake Refuge) are also “connected actions” under NEPA that the Service must consider along with the grazing it proposes to allow on the Refuge itself because grazing on the west side of Clear Lake Refuge does not occur unless the Forest Service first authorizes livestock use in those pastures. 40 C.F.R. § 1508.25. But for the Forest Service’s approval of livestock in those pastures, they would not enter the adjacent unfenced Refuge where they water. An Environmental Assessment (EA) for the development of an allotment management plan for the Tucker allotment is currently underway. See <https://www.fs.usda.gov/project/?project=24959> (Modoc National Forest Schedule of Proposed Actions). The FEIS admits the need for coordination with the Forest Service for management of the Tucker allotment, e.g. FEIS at 4-58, 4-60 (under alternative B, the Service would coordinate with the Modoc National Forest to identify a new water source for cattle that currently use Clear Lake for water), but fails to undertake the analysis of the two concurrent actions together, as required by NEPA. Additive impacts to sage-grouse from the new water sources contemplated in alternative B completely escape consideration in the FEIS.

In its analysis of cumulative impacts, the Service “must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment.” *Te-Moak Tribe of W. Shoshone of Nev. v. U.S. Dept. of Interior*, 608 F.3d 592, 603 (9th Cir. 2010) quoting *Lands Council v. Powell*, 395 F.3d 1019, 1028 (9th Cir. 2004). “Some quantified or detailed information is required. Without such information, neither the courts nor the public . . . can be assured that the [agency] provided the hard look it is required to provide.” *Id.* quoting *Neighbors of Cuddy Mtn. v. U.S. Forest Serv.*, 137 F.3d 1372, 1379 (9th Cir. 1998). The FEIS does not disclose anything about the grazing authorized on the Forest Service allotments surrounding Clear Lake, except for its claim that it cannot prevent the recurrent access to Clear Lake by livestock on the Tucker allotment. The FEIS did not provide information about season of use, pasture rotations, number of livestock, AUMs, locations of infrastructure like fences, wells, pipelines, and troughs, required utilization limits, monitoring data, actual use reports, or evaluation of the condition of habitat on those allotments. This lack of detailed information precludes a hard look at the synergistic impacts of grazing over the complete seasonal range of the Clear Lake sage-grouse population.

Similarly, the FEIS does not analyze the cumulative impacts from land use activities on adjacent Forest Service lands to the endangered Lost River and shortnose suckers. The Refuge is designated critical habitat for these species, as are several of the tributaries to Clear Lake Reservoir—many of which enter the Refuge after flowing through lands managed by the Modoc and Fremont-Winema National Forests. Suckers use these tributaries seasonally for spawning and other life history needs. Livestock grazing along Clear Lake Reservoir directly impact the shore line, influencing riparian vegetation, soil erosion, sediment loading, and water quality. Grazing and other activities in the Willow Creek, Boles Creek, and Mowitz Creek watersheds on the Modoc and Fremont-Winema National Forests have similar impacts, and influence water quality for endangered suckers downstream in Clear Lake. Suckers may also be directly impacted by grazing and other actions authorized by the Forest Service during spawning season.

The Service violated NEPA by not considering these cumulative effects to Lost River and shortnose suckers.

Conclusion

WWP provides these supplemental comments to allow the Service to address our concerns with the FEIS and CCP and complete its environmental analysis accordingly before making its final decision on the CCP. We incorporate all our previous comments on this planning effort. Along with WWP's comments, we incorporate and enclose a copy of comments on the FEIS that WWP received from another concerned party, Dr. Clait Braun.

Thank you for considering these comments prior to issuing your Record of Decision and please contact me if you would like to discuss any of these issues.

Sincerely,

Paul Ruprecht
Western Watersheds Project

000075

Tulelake Irrigation District

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January 8, 2017

Via Electronic Mail Only

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Re: FWS-R8-NWRS-2016-0063
Comments on Final Comprehensive Conservation Plan/Environmental Impact Statement
for the Lower Klamath, Clear Lake, Tule Lake, Upper Klamath and Bear Valley National
Wildlife Refuges

Dear Greg and Mark:

I am following up on our conversation of January 6, 2017 regarding the Final Comprehensive Conservation Plan/Environmental Impact Statement for the Lower Klamath, Clear Lake, Tule Lake, Upper Klamath and Bear Valley National Wildlife Refuges (Final CCP/EIS). Given the stage of proceedings, this letter does not attempt to repeat the comments Tulelake Irrigation District (TID) submitted on the draft document that were not incorporated or addressed in the Final CCP/EIS. However, as discussed with you and some lease land growers, the Final CCP/EIS contains some errors and newly added provisions that should be reconsidered before the Service issues its Record of Decision (ROD).

Final CCP/EIS:

On page 4-64 under Agricultural Habitat Management – Farming, the percentage of allowable row crop acreage and intent of the Kuchel Act is misleading. The section states: “Consistent with the Kuchel Act no more than 25% of the leased area would be planted to row crops” Given that this section of the document is specific to Tule Lake National Wildlife Refuge (NWR), the language implies that no more than 25% of the lease land acreage in Tule

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Lake NWR would be planted to row crops, which would be a change in historic practice and incorrect, and would not serve the requirement to maximize lease revenues. Under the Kuchel Act, the 25% limitation is to take into account the total lease lands within both the Lower Klamath and Tule Lake NWRs. The sentence should be revised to clarify that the 25% row crop limitation applies to total lease land acreage in both refuges.

In general, TID has concerns with Alternative C for Tule Lake NWR, which is labeled as the Service's Preferred Alternative. The Final CCP/EIS fails to recognize the significance of partnership and cooperation between the Service, the U.S. Bureau of Reclamation (Reclamation), and TID in both development and implementation of water management operations and strategies. For example, the water management plans identified in Alternative C generally mandate specific operations without full consideration of feasibility. In particular, the Sump 1A drawdown proposal under Wetland Habitat Management identifies specific water level elevations and operations that are simply not operationally possible with current infrastructure. The Final CCP/EIS does not characterize the complexity of such a project. The detailed description of operations in this section should be removed and replaced with a more robust explanation of how the Service will collaborate with TID, Westside Improvement District, and Reclamation to determine if a Sump 1A drawdown program is even feasible. Then, the ROD should provide a commitment that all parties will have considerable involvement in development of all aspects of planning if a drawdown project were to go forward.

Compatibility Determinations for Lease Land Program and Cooperative Farming Program in Tule Lake NWR:

The draft Compatibility Determinations for the Lease Land Program and Cooperative Farming Program for Tule Lake NWR included in Appendix G of the Final CCP/EIS include a newly added prohibition of genetically modified crops or organisms on the refuge. This prohibition was not included in the draft document. There is no justification for its inclusion in the Final CCP/EIS and no analysis of its environmental impacts. Further, the draft compatibility determination does not provide any logic for the prohibition. For this reason alone, the prohibition should be removed from the final compatibility determinations (and presumably any for Lower Klamath NWR if applicable).

Regardless of the procedural concerns, TID believes that the strict prohibition of genetically modified crops potentially limits flexibility and opportunities for the Service to accomplish goals identified in the Final CCP/EIS. For example, there is potential for future minimization of noxious weed infestation and reduction of pesticide usage through a targeted and coordinated use of genetically modified crops. Similarly, as discussed by growers, there is investigation of developing new disease-resistant potato varieties, which would result in reduced chemical usage. A strict prohibition eliminates opportunities for the Integrated Pest Management program.

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TID also has operational concerns with the stipulation which specifies that all lease/cooperative farm lands will be flooded post-harvest to February 15 at the Service's discretion. There are infrastructure capacity constraints associated with draining flooded units. If draining of all flooded lands was held until after February 15, most of the lease/cooperative agricultural land may not drain and/or dry in sufficient time to allow farmers to prep the soil for planting. This constraint could then affect the amount of grain that is planted on the agricultural lands, thereby reducing food resources for waterfowl and defeating the goals of the energetics approach. TID recommends removing the February 15 date and adding a statement to the stipulation that the Service will coordinate all post-harvest flooding with TID. It could also be useful to additionally revise to state that leases "can" be flooded, as this relates to a lease stipulation.

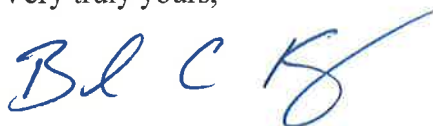
As discussed, we also believe that the stipulation prohibiting hazing of waterfowl should be eliminated. As written the proposed prohibition makes leases for those lands less desirable, deterring farmers from bidding on the leases and reducing lease revenues.

TID believes that the Service would unnecessarily limit flexibility of refuge management if it does not allow onions on cooperative farm land. Lease land farmers that rotate onion crops with grain crops experience significantly higher yields of grain crops following a planting of onions. The higher grain yield, of course, is a benefit to waterfowl. Therefore, TID recommends that language should be added to the compatibility determination for the Cooperative Farming Program to allow onions to be grown on cooperative farm land at the Service's discretion.

In addition, we have observed that the revised Draft Compatibility Determinations states that the Service will require Reclamation to apply for an SUP annually. This change is not warranted and will only complicate the program. It is also legally inappropriate. Please refer to our previous comments as related to legal and regulatory issues.

Again, this letter does not address all of TID's concerns but we ask that these issues receive further specific attention at this time.

Very truly yours,

A handwritten signature in blue ink, appearing to read 'Brad Kirby', with a stylized flourish at the end.

Brad Kirby
Manager
Tulelake Irrigation District



January 6, 2016

VIA ELECTRONIC AND CERTIFIED MAIL

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Re: Comments on Klamath Basin NWR Complex Final Environmental Impact Statement and Comprehensive Conservation Plan; Docket No. FWS-R8-NWRS-2016-0063

Dear Mr. Austin and Mr. Pelz:

This letter is submitted on behalf of Audubon Society of Portland, Oregon Wild, and WaterWatch of Oregon to provide follow-up comment on the Final Comprehensive Conservation Plan ("CCP") and Environmental Impact Statement ("EIS") (collectively "CCP/EIS") for the Upper Klamath, Lower Klamath, Tule Lake, Clear Lake, and Bear Valley National Wildlife Refuges ("Refuges" or "Klamath Refuge Complex"). These additional comments are submitted pursuant to 40 C.F.R. § 1503.1(b) and respond to issues presented in the Service's Response to Comments (Appendix U) of the CCP/EIS. Please include these comments in the record for the CCP/EIS planning process.

Water Rights – Ensuring Supply

Several comments submitted on the Draft CCP/EIS, including those submitted by this office on August 4, 2016, raised issues regarding the Service's failure to consider changes to its 1905 irrigation water rights for the Lower Klamath and Tule Lake Refuges in order to ensure more reliable water supplies for wetland management purposes. In response to these comments the Service pointed out that in the March 28, 2014 Amended and Corrected Findings of Fact and Final Order of Determination (ACFFOD) for the Klamath Basin adjudication the State of Oregon asserted that the Service may not use its 1905 irrigation right for "irrigation for or consistent with Refuge purposes," because, while the use is consistent with the state's definition of irrigation, the state claims that use is not consistent with the

meaning of the term “reclamation.” Thus, the Service responded, until there is a decree in the adjudication resolving the Service’s challenges to the ACFFOD, the Service is not allowed to use its 1905 rights for wetland management purposes. The Draft CCP/EIS did not include any discussion of this limitation on the Service’s 1905 water rights. The Service added a detailed discussion of the ACFFOD and the limitations on the Service’s 1905 irrigation right to the Final CCP/EIS. CCP at 3-8, 4-4.

The Service also asserts that the adjudication is unlikely to be resolved during the 15-year planning period for this CCP and so it is not reasonable for the Service to consider an alternative that includes changes to its 1905 water rights. CCP at U-78. There is no evidence that the adjudication process will take over 15 years to be complete. Although the initial stage of the adjudication took many years, the process is now much narrower and there is a concrete set of issues for the adjudication court to resolve. Moreover, once there is a decree the Service will have absolute authority to use its 1905 water rights for wetland management purposes on Lower Klamath and Tule Lake because it will have either succeeded in challenging the State’s limitation on the definition of “irrigation” within the Klamath Project or the Service will be able to permanently transfer the type of use of its 1905 water right to be used for wetland habitat management. Thus, a reasonable alternative exists for the Service to commit to permanently dedicating the 1905 water rights to refuge purposes as soon as possible.

The Service’s response regarding the ACFFOD’s limitations on the definition of “irrigation” also raises issues regarding the CCP’s reliance on the KBRA water delivery scenarios. While not explicit in the CCP, water delivered to Lower Klamath and Tule Lake Refuges pursuant to the KBRA, or similar agreement, would presumably be Klamath Project irrigation water. The CCP claims, “[u]nder KBRA, refuge water deliveries under the 1905 water right could be used *for any wetland or agricultural habitat management purpose.*” CCP at 4-12 (emphasis added). This claim appears to be based on the KBRA amending the Klamath Reclamation Project purposes to include fish and wildlife. However, the State of Oregon’s limitation on the definition of “irrigation” in the ACFFOD is based on the definition of “reclamation” and the text of the Reclamation Act, not on the purposes of the Klamath Project. Thus, the State’s limited definition of “irrigation” in the ACFFOD applies to all water rights within the Klamath Project and any water delivered to the Refuges pursuant to the KBRA would be subject to the same limitation as the Service’s 1905 water rights. This significantly undercuts the Service’s proposed water delivery scenarios under the KBRA and the assumption that there would be increased water deliveries for wetland habitat management over current conditions. The CCP/EIS does not resolve this issue or explain how water delivered under the KBRA would be regulated differently than other Project water.

Additionally, the Service does not provide adequate support for assuming that the KBRA, or a similar agreement, will be implemented during the 15-year planning period of the CCP. It is not reasonable to rely on a speculative agreement that requires numerous hurdles for implementation to form the basis of the CCP’s habitat management alternatives. In contrast—current legal challenges notwithstanding—the 2013 BiOp will expire in 2023 by its own terms, within the 15-year planning period of the CCP. Thus, the reasonable approach for

the Service to take in the CCP is to evaluate alternatives based on water delivery scenarios that are not based on the guaranteed-to-expire BiOp.

There are several alternative options regarding water availability that the Service failed to consider in the CCP/EIS. First, our prior comments requested that the Service consider the purchase or transfer of other water rights in order to provide for wetland habitat on Lower Klamath and Tule Lake Refuges. In response to comments, the Service acknowledged that “there may be appropriative water rights available for transfer to Lower Klamath NWR in the Upper Klamath Basin, above the lake.” CCP at U-78. The Service stated that it is currently investigating transfer of Service-owned water rights at Upper Klamath Refuge for delivery to Lower Klamath. *Id.* This type of transfer is clearly a reasonable alternative; however, the alternatives analyzed in the CCP/EIS do not include any discussion of this option.

Second, in addition to the temporary transfer in place of use suggested in our prior comments, Oregon Senate Bill 206 (2015) also provides the Service with the option to temporarily transfer its 1905 irrigation rights to instream use for the benefit of fish and wildlife on the Refuges. The Service should have explored this option as part of the CCP/EIS.

Finally, in our prior comments we questioned why the Service has not diverted its more junior Federal Reserved water rights in the winter when there is water available in the system for refuge purposes. The Service responded by claiming that the BiOp limits diversion of water by the refuge. CCP at U-83. As we acknowledged in our prior comments, the current BiOp curtails diversions under Lower Klamath Refuge water rights in the spring, summer, and early fall seasons of most years. However, the BiOp does not appear to interfere with refuge water rights during the late fall and winter seasons, which falls under the water right period of use. Indeed, there were limited diversions to Lower Klamath Refuge via Ady Canal in the late fall and winter of 2016, and the Service’s response to comments acknowledges that the Refuge may be able to divert water via Ady Canal outside these periods of BiOp interference. The CCP/EIS should have considered the opportunity to divert water in the winter season. Additionally, as discussed above, this is a 15-year planning document, meaning it will remain in effect until at least 2031, and the BiOp expires in 2023. For these reasons, simply pointing to the BiOp does not adequately address how the Service will employ its junior Federal Reserved water rights for refuge purposes.

The CCP/EIS should have included complete consideration of the reasonable alternatives available to the Service to improve water deliveries to the Refuges for waterfowl and wildlife purposes.

Lower Klamath Refuge Leaseland Farming Compatibility Determination

The Final CCP/EIS contains inconsistent statements regarding management of the Area K leaselands within Lower Klamath Refuge. Our prior comments on the Draft CCP/EIS noted that the Lower Klamath Leaseland CD stated that “walking wetlands” are used within Area K, although there was no evidence that walking wetlands had ever been implemented on

Area K. (Comment # 846-108). In response, the Service admitted that walking wetlands are not used within Area K or elsewhere on Lower Klamath Refuge and would not be included on the Refuge in the future; the Service stated that it modified the CD text accordingly. CCP at U-121. However, in the Final CD for the Lower Klamath leaseland program, the Service relies on pre-irrigation or “flood fallow” of the Area K leaselands in order to improve soil quality and increase attractiveness of the agricultural lands for waterfowl. CCP at G-146, 148, 151, 154. Confusingly, the Service uses the terms “walking wetlands” and “flood fallow” interchangeably throughout the CCP/EIS. *See, e.g.*, Tule Lake Leaseland CD at G-354. This leads to the appearance that the Lower Klamath Leaseland CD is still relying on walking wetlands, or equivalent program, to ensure compatibility.

Additionally, the Leaseland CD states that Area K lease lots “have historically been pre-irrigated from November-February with water removed from February–April.” G-146. The Leaseland CD includes stipulations to “provide flooded wetlands and flood fallow agricultural fields to ensure a sufficient balance of foraging and resting habitat for waterfowl and other waterbirds” and that “all lease farm lands will be flooded post-harvest to February 15.” G-154. However, in response to comments regarding the use of the Service’s 1905 water right the Service stated:

“The United States claimed a year-round use of water for irrigation in the adjudication for the purpose of allowing pre-irrigation. However, the state limited all the irrigation water rights on Lower Klamath NWR (Area K in Oregon and the other co-op farmed lands in California) to the March 1 to October 31 irrigation season [page 50 of 271, KBA ACCFFOD 07017]. The United States is contesting this in the adjudication as well. However, until that is resolved, the irrigation right on the Lower Klamath NWR is limited to the March to October season, and pre-irrigation November through February is not allowed.”

CCP at U-77.

The Service should clarify whether it intends to use flood fallow or pre-irrigation on Lower Klamath leaselands in order to ensure the agricultural leasing program is compatible with refuge purposes and whether it is feasible in light of the Service’s existing water rights. If the Service does not intend to use flood fallow or pre-irrigation management on the Lower Klamath agricultural leaselands, the Service must correct the stipulations and reevaluate its Compatibility Determination. Eliminating or removing stipulations necessary to ensure compatibility without further analysis or justification is arbitrary.

Conclusion

Based on the Service’s response to comments and inconsistencies and alterations to the final CCP/EIS identified in this letter, the Service should consider conducting supplemental NEPA analysis to adequately consider a range of reasonable alternatives to ensure that the CCP/EIS includes management actions that will achieve refuge purposes. *See* 40 C.F.R. § 1502.9(c)(ii).

Sincerely,



Maura Fahey
Staff Attorney

cc: Mr. Bob Sallinger, Conservation Director, Audubon Society of Portland
Mr. Steve Pedery, Conservation Director, Oregon Wild
Mr. Jim McCarthy, Communications Director and Southern Oregon Program
Manager, WaterWatch of Oregon