UPPER BUTTE BASIN WILDLIFE AREA

Final Land Management Plan

Prepared for
California Wildlife Foundation

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ESA

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FINAL LAND MANAGEMENT PLAN

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Abbreviations and Acronyms

AF	acre feet
BCMVCD	Butte County Mosquito and Vector Control District
BMP	best management practice
CALFED	Bay-Delta program
CALFED Final PEIS/EIR:	CALFED Final Programmatic Environmental Impact Statement/Report
CAL FIRE	California Department of Forestry & Fire Protection
CBDA	California Bay-Delta Authority
CEQA	California Environmental Quality Act
COE	U.S. Army Corps of Engineers
CNPS	California Native Plant Society
CVHJV	Central Valley Habitat Joint Venture
DUHU	Diversified Upland Habitat Unit
Department	Department of Fish and Game
ERP	Ecosystem Restoration Program
ESA/CESA	Federal Endangered Species Act/ California Endangered Species Act
FSA	USDA Farm Service Agency
HS	Howard Slough Unit
LDC	Little Dry Creek Unit
LS	Llano Seco Unit
LMP	land management plan
MSCS	Multi-Species Conservation Strategy
NAWMP	North American Waterfowl Management Plan
ROD	Record of Decision
TNC	The Nature Conservancy
UBBWA	Upper Butte Basin Wildlife Area
USDA	U.S Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WCB	Wildlife Conservation Board
WAHC	Wildlife Area Habitat Committee

CHAPTER I
Introduction

The legislature of the State of California conferred all responsibility for the management of fish and wildlife within the State to the California Department of Fish and Wildlife (Department).[1] As such the Department is the steward over wildlife within the State. One of the methods the Department uses to achieve the goals of its mission is the acquisition, development, and management of wildlife areas. Wildlife areas provide habitat for a wide array of plant and animal species, including many that are listed for protection under state and federal endangered species acts. Some of the state's most important sites for wildlife conservation are designated Department wildlife areas.

In the mid 1980's there was a sharp decline in the number of waterfowl in North America and there was a desire to see that trend reversed. Representatives from many sectors of society including government (State and Federal), non-profit organizations, and academia convened to address the problem and develop a plan to correct it. As a result, the North American Waterfowl Management Plan (NAWMP) was created. The Department became a signatory to the plan along with other Federal and non-profit organizations. Under the NAWMP, the Department agreed to actively participate in the restoration of North America's waterfowl populations. One of the goals of the NAWMP was for the creation of Habitat Joint Ventures across the continent where efforts would be focused to improve waterfowl habitat. In California, the Central Valley Habitat Joint Venture (CVHJV) was created. The CVHJV is administered by the United States Fish and Wildlife Service (USFWS). Other partners include public and private organizations such as the Department, Department of Water Resources, Ducks Unlimited, California Waterfowl Association, and the Audubon Society.

The Central Valley of California has long been recognized as an important waterfowl wintering area because of its ample food supply and mild temperature. These attributes combine to support more than sixty percent of the waterfowl populations in the Pacific Flyway (Bellrose 1980). The CVHJV called for the creation of 120,000 acres of new wetlands and restoration or enhancement of an additional 750,000 acres of seasonal wetlands within the Central Valley. In 1988, as a step towards helping the CVHJV achieve some of the stated goals, the Department acquired property adjacent to the Butte Sink in the Sacramento Valley to form the Upper Butte Basin Wildlife Area (UBBWA). This land was selected because the Butte Sink has been recognized for its importance to migratory waterfowl and has been ranked as the second most important waterfowl wintering ground in the conterminous United States. In addition, this area was targeted in the NAWMP for

[1] At the direction of Assembly Bill 2402 (Huffman) and Governor Brown, the name of the California Department of Fish and Game has been changed to the "California Department of Fish and Wildlife" as of January 1, 2013. Literature citations prior to the change have retained the original reference throughout this document.

protection. The Butte Sink was once a wetland teeming with wildlife ranging from tule elk to waterfowl. Huge flocks of migratory waterfowl would spend the winter in the sink seeking food and shelter. Seeds and invertebrates, abundant in moist soil plant habitat, are important food sources. Vegetation growth is well supported at the area because water drains from surrounding areas and collects in low elevation sinks, creating conditions for natural wetland and riparian development. Frequent floods and slow drainage provides seasonally favorable conditions for wildlife species including waterfowl, shorebirds, neo-tropical migratory birds, resident songbirds, upland and big game species, and anadromous and resident fish species. The combination of historic early flooding and late drainage of the sink contributed to limited economic opportunities such as farming or other agricultural practices. Consequently, the majority of the land within the Butte Sink was left fallow or managed for wildlife habitat.

Over time the Butte Sink ecosystem has been profoundly altered by human activity. Beginning in the mid 1800's the adverse effects of hydraulic mining for gold upstream in the Sierra Nevada were prevalent, and tremendous accumulation of sediment in rivers and on floodplains occurred downstream of the mining. The demand for additional fertile agricultural land in the valley led to the implementation of large-scale reclamation and flood control projects to protect and enhance private lowlands. Levees and dams were eventually constructed to control flooding along the Sacramento River, Feather River, Butte Creek, the Cherokee Canal, and the northern end of the Butte Sink.

More recently, the majority of lands adjacent to the Butte Sink were developed for grazing and farming. Wetland conservation is still occurring on private lands being managed as private waterfowl hunting clubs. The historic culture of waterfowl hunting continues to this day on private lands throughout the area. Many of the lands within the Butte Sink are managed as private wetlands which obtain water from either agricultural run-off or Butte Creek water rights. The water supply is impacted by water transfers, conservation measures, waste discharge and water quality requirements, and the need to leave adequate levels of water for fish. Therefore, a major challenge for public and private wetland managers is trying to manage for both migratory and resident species on a year round basis. In order to accomplish year round management of these managed wetlands, a stable and reliable water supply must be made available or secured.

Prior to acquisition by the Department in 1988, some lands that are now within the boundaries of UBBWA were converted from seasonal wetlands with riparian corridors to agricultural lands predominately for commercial rice production. The Department's goals upon acquisition of UBBWA were to restore habitat for wetland dependent species and to develop riparian habitat corridors for wildlife along Butte Creek.

The Department created the UBBWA to help protect the unique resources that provide substantial environmental, social, and economic benefits. Located in the north central portion of the Sacramento Valley, UBBWA is situated in both Glenn and Butte Counties. The Wildlife Area is comprised of three units and totals more than 9,597 acres. Those units, from north to south, are

Llano Seco (LS), Howard Slough (HS), and Little Dry Creek (LDC). LDC and LS are located in southwestern Butte County and HS is in southeastern Glenn County (Figures 1 and 2).

Figure 1 Vicinity Map

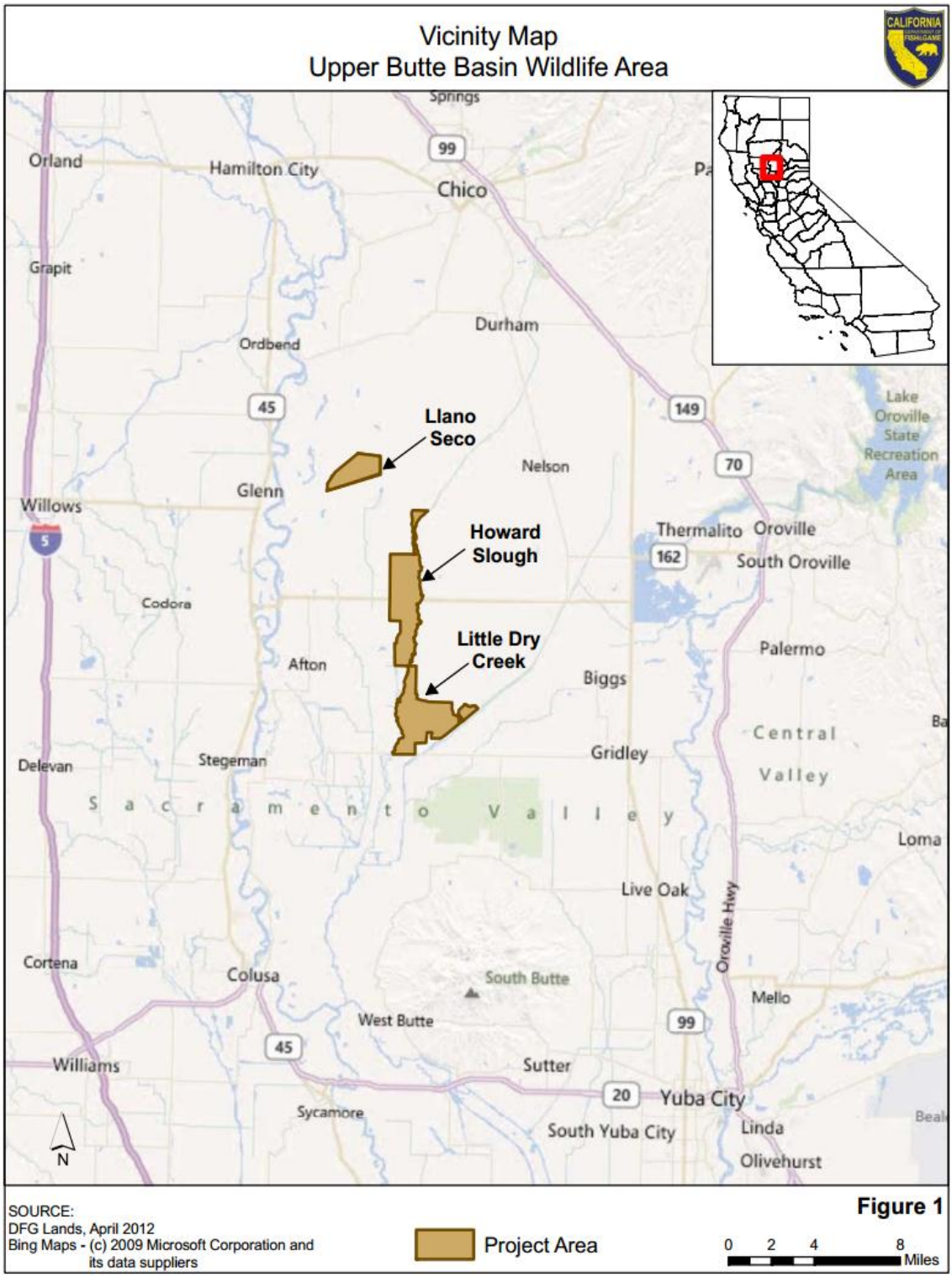
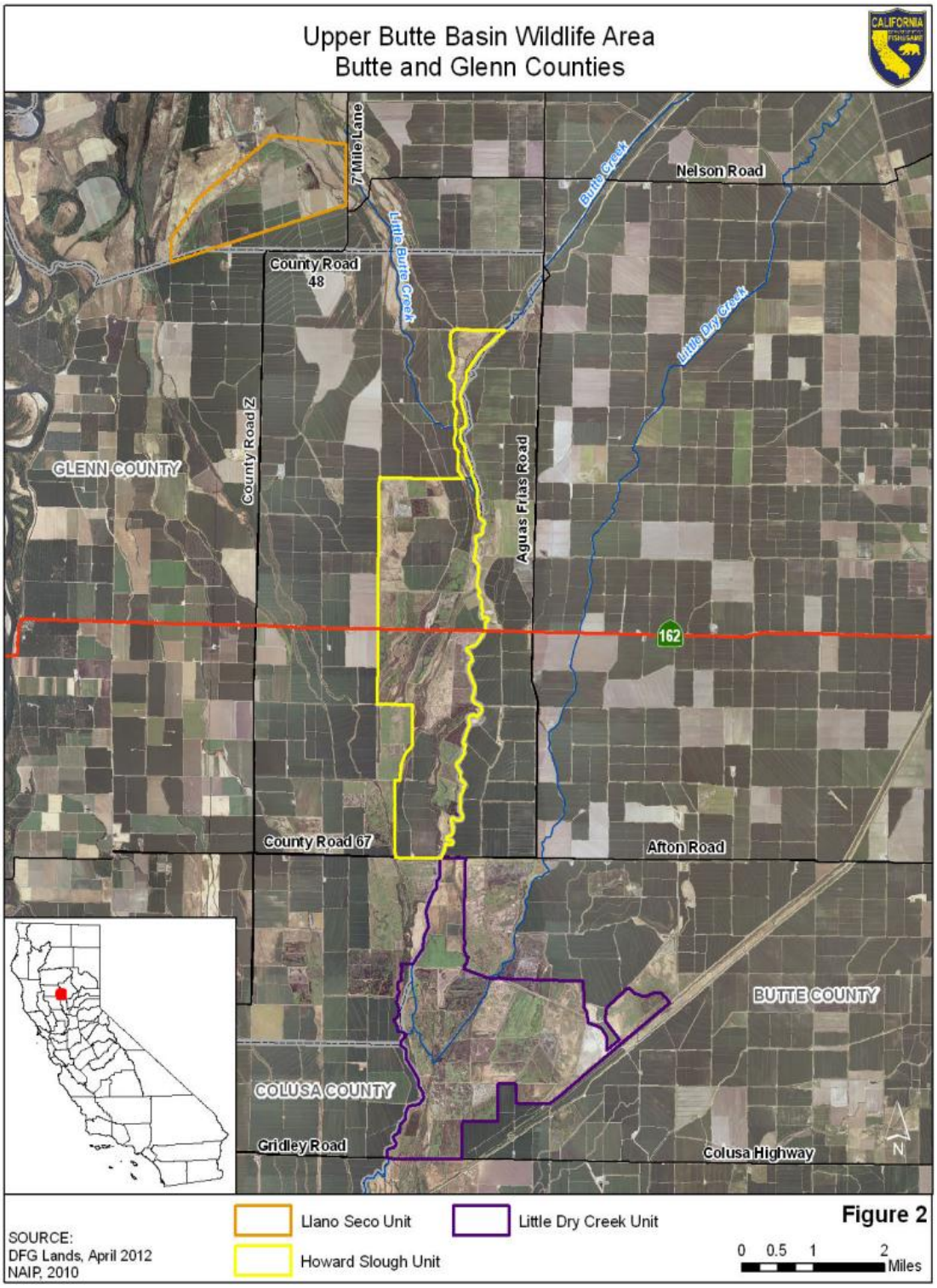


Figure 2 Upper Butte Basin Wildlife Area



More than 240 vertebrate species have been identified on the area since its designation as a wildlife area. There are numerous bird, mammal, reptile, amphibian, and fish species found seasonally or year round at all three units of UBBWA (Appendix A).

Numerous species on or adjacent to the Area are listed under the State or Federal Endangered Species Acts as endangered, threatened, or are protected under other regulations. These species include the greater sandhill crane, bald eagle, peregrine falcon, western yellow-billed cuckoo, California hibiscus, valley elderberry longhorn beetles, and spring and fall run chinook salmon. In late summer, early migrating waterfowl begin arriving and their numbers continue to increase through December when frequently, there are more than 600,000 individuals on the area. The most common waterfowl species are northern pintail, American wigeon, mallard, wood duck, green-winged teal, snow and white-fronted geese. Long legged shorebirds such as great blue herons, black-crown night herons, white faced ibis, common and snowy egrets, American bitterns, and long-billed curlews use the area for roosting and feeding, frequently following the irrigation rotations throughout the summer. Short legged shorebirds such as dowitchers, sandpipers, greater and lesser yellowlegs, black-necked stilts and American avocets are winter visitors using the area for foraging and are especially noticeable in the early fall and late winter in response to storms along the California coast.

Coyotes, raccoons, gray fox, grey squirrels, deer, mountain lions, bobcats, and ringtail are mammals found within the riparian zones. Waterways are home to resident aquatic mammals such as beaver, muskrats, mink, and river otters. The extensive water system maintained on the UBBWA harbors large numbers of fish, amphibians, and invertebrates. Resident fish include many introduced species such as catfish, largemouth bass, carp, and smaller species such as inland silversides, mosquito fish, and threadfin shad. The LS Unit is the only unit with vernal pool habitat and supports a broad assemblage of vernal pool species in areas where agricultural disturbance has been minimal.

This Land Management Plan (LMP) represents the commitment by the Department to manage the resources of the UBBWA in accordance with the laws of the United States and the State of California, incorporating the best available scientific information and professional judgment. It also incorporates the commitment of the Department to coordinate and cooperate with UBBWA neighbors, other local interests, and other conservation entities that are active throughout the region. This LMP proposes practical, science-based management and conservation of the natural resources, including provisions for compatible agriculture and public recreational use. The plan is based on an ecosystem approach to habitat management consistent with the principles conveyed through the Bay-Delta Program (CALFED), as implemented by California Bay-Delta Authority (CBDA), Ecosystem Restoration Program (ERP), and the Department. This LMP is intended to guide habitat management utilizing natural processes to create a sustainable system over the long term. This ecosystem-based management approach is intended to benefit both common and sensitive species of wildlife and plants. It may also contribute to the recovery of state and federally listed species. The LMP has been developed in accordance with the Department's Guide and Annotated Outline for Writing Land Management Plans (California Department of Fish and Game 2003).

The Mission of the California Department of Fish and Wildlife

The mission of the Department is to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public.

The Department of Fish and Wildlife maintains native fish, wildlife, plant species and natural communities for their intrinsic and ecological value and their benefits to people. This includes habitat protection and maintenance in a sufficient amount and quality to ensure the survival of all species and natural communities. The Department is also responsible for the diversified use of fish and wildlife including recreational, commercial, scientific and educational uses.

A. Purpose of Acquisition

California is renowned as a land of magnificent natural scenery and a wealth of wildlife. Some of the state's most important sites for wildlife are Department lands designated by the Fish & Game Commission as wildlife areas. These wildlife areas, including the UBBWA, provide habitat for a wide array of plant and animal species, including many that are listed for protection under state and federal endangered species acts or otherwise protected due to their rarity.

Consistent with its mission, the Department administers 240 state wildlife areas and ecological reserves encompassing approximately 891,000 acres of wildlife habitat. These areas are located throughout the state. Major facilities in the Central Valley include Upper Butte Basin, Gray Lodge, Los Banos, North Grasslands, Grizzly Island, and Yolo Bypass Wildlife Areas. The Department's stated purpose in managing these wildlife areas is: *"to protect and enhance habitat for wildlife species, and to provide the public with compatible, wildlife-related recreational uses."*

The protection and enhancement of habitat for wildlife is the principal natural resource management consideration for the UBBWA. This LMP also focuses on the management of wildlife-related recreational activities that are compatible with the diverse mosaic of habitats. The Department is committed to providing appropriate compatible public recreation consistent with the natural resource needs of the area within the three management units that comprise the UBBWA.

As previously stated, the UBBWA consists of three management units (Little Dry Creek, Howard Slough, and Llano Seco) totaling 9,597 acres. The LDC Unit was purchased primarily to protect, restore, and enhance wetland, riparian, and valley oak woodland ecosystems and to protect and restore endangered and threatened species that may be present in the area (Schmidt 1989). Additional acquisition goals included increasing wintering and nesting waterfowl habitat, benefits to game and non-game species, increased opportunities for warm-water fishing, hunting opportunities, and other uses such as outdoor education. The HS Unit was purchased to provide agricultural wetlands to benefit waterfowl and to enhance the riparian habitat along Butte Creek and Little Butte Creek for wildlife (Schmidt 1993, Schmidt & Broddrick 1993). The LS Unit was purchased for the preservation, restoration, and enhancement of historic interior wetlands and waterfowl habitat (Schmidt 1991).

B. Acquisition History

The 4,022 acre LDC Unit was acquired on behalf of the Department by the Wildlife Conservation Board (WCB) between 1988 and 2011 (Appendix B). Initially this area was known as Upper Butte Sink Wildlife Area. The name was changed in 1991 as the area expanded and was separated from the management of Gray Lodge Wildlife Area, under which it had been included upon inception. For acquisition, the WCB combined $7,719,933 in funding from the 1984 Fish and Wildlife Habitat Enhancement Fund, Interior Wetlands, Environmental License Plate Fund, and California Wildlife, Coastal and Park Land Conservation Fund of 1988. These lands were historically used to grow rice, other cereal grains, and to provide pasture for grazing livestock.

The HS Unit was created through four separate acquisitions that occurred between 1990 and 1993 (Appendix B). For acquisition, the WCB combined $9,250,150.50 in funding from the California Wildlife, Coastal and Park Land Conservation Fund of 1988, Wildlife and Natural Areas Conservation Fund, Inland Wetlands Conservation Fund, Natural Areas Conservation Fund, and the Environmental License Plate Fund. The total acquisition covered just over 4,000 acres. Prior to acquisition, the land was used to grow commercial rice, other cereal grains, and also had some extensive remnant stands of multi-trophic level riparian habitat.

The LS Unit was acquired by WCB as a single parcel in 1991, at a cost of $2,300,000 (Appendix B). For acquisition, the WCB used funds from the California Wildlife, Coastal and Park Land Conservation Fund of 1988. The land acquired had previously been grazed and used to grow commercial rice. This was a cooperative acquisition between the USFWS, The Nature Conservancy (TNC) and the Department through the WCB. The Department's portion of this acquisition was 1,521 acres.

C. Acquisition and Role of the Wildlife Conservation Board

The WCB is an independent board with authority and funding to carry out an acquisition and development program for wildlife conservation (California Fish and Game Code Section 1300 et seq.). The primary responsibilities of the WCB are to select, authorize, and allocate funds for the purchase of land and waters suitable for recreation purposes and for the preservation, protection, and restoration of wildlife habitat. The three main functions of the WCB are land acquisition, habitat restoration, and development of wildlife-oriented, public access facilities. The acquisition program is administered pursuant to the WCB's original enabling legislation, the Wildlife Conservation Law of 1947 (Fish and Game Code Section 1300 et seq.), with land acquisition being a component of all WCB programs. The WCB acquires real property or rights in real property on behalf of the Department and can also grant funds to other governmental entities or nonprofit organizations to acquire real property or rights in real property. The acquisition activities are carried out in conjunction with and based on recommended priorities for proposed acquisitions by the Department. These purchases were exempt from the California Environmental Quality Act (CEQA) under Section 15313, of the State CEQA Guidelines (Class 13 Categorical Exemption), for the acquisition of land for wildlife protection purposes.

D. Purpose of this Land Management Plan

The purposes for the development of this Land Management Plan (LMP) are:

1. To guide management of habitats, species, and programs described herein to achieve the Department's mission to protect and enhance plant and animal values
2. To direct an ecosystem approach to managing the UBBWA in coordination with the objectives of the CALFED ERP
3. Serve as a guide for appropriate public uses of the property
4. Direct the management of the UBBWA in a manner that promotes cooperative relationships with adjoining private-property owners
5. To serve as a descriptive inventory of fish, wildlife, and native plant habitats which occur on or use this property
6. Provide an overview of the property's operation, maintenance, and personnel requirements to implement the management goals. It serves as an aid for annual regional budget preparation
7. Provide a description of potential and actual environmental impacts and subsequent mitigation which may occur during the management, and contains environmental documentation to comply with state and federal statutes and regulations

This LMP represents the commitment by the Department to manage the resources of the UBBWA in accordance with the laws of the United States and the State of California, incorporating the best available scientific information and professional judgment. It also incorporates the commitment of the Department to coordinate and cooperate with UBBWA neighbors, other local interests, and other conservation entities that are active throughout the region. This LMP proposes practical, science-based management and conservation of the natural resources, including provisions for compatible agriculture and public recreation use. The plan is based on an ecosystem approach to habitat management consistent with the principles conveyed through CALFED. This LMP is intended to contribute to habitat management that utilizes natural processes where possible to create a sustainable system over the long term. This ecosystem-based management approach is intended to benefit both common and sensitive species of wildlife and plants. It may also contribute to the recovery of state and federally listed species. The LMP has been developed in accordance with the Department's Guide and Annotated Outline for Writing Land Management Plans (California Department of Fish and Game 2003).

E. Planning Process

This LMP was prepared by the Department with the benefit of extensive public input and coordination with other public and private entities which operate in the immediate region. The Department provided overall guidance to the planning process and was involved in all aspects of its development. The development of the LMP was funded through Proposition 40, and the contents coordinated with other resource agencies, and the public. The planning process was guided by the general policy parameters that direct the Department, including compliance with all state and federal laws. The Department's mission, the purpose of the wildlife areas, and the purpose of

the LMP, as stated in this chapter, provided broad direction for the development of this LMP. Finally, the objectives established through the CALFED ERP were considered as guidelines for this LMP. The ERP goals include recovering endangered and other at-risk species, maintaining ecological processes, restoring expanses of habitat to support species, limiting nonnative invasive species, and improving water and sediment quality. The planning process focused on the development of three major forms of input that all contributed to the LMP: public input, science and analysis, and integrated planning.

Public input was obtained through an extensive public-outreach program. Science and analysis was established through the development of a detailed property inventory for all of the units within the UBBWA. Information was obtained through a literature search, meetings with knowledgeable individuals, on-site field analysis, and review of various technical studies. Integrated planning included meetings with local, state, and federal districts and agencies that manage and regulate other public properties.

F. Environmental Analysis

An Initial Study (IS) pursuant to CEQA had been prepared in conjunction with the Draft LMP. This assessment evaluates the potential environmental impacts of the continued operation of the UBBWA under the provisions of the Draft LMP. The IS for the LMP is found in Appendix C, "Environmental Review." This assessment recommends that a Negative Declaration be approved for the project; a finding that the project would not have a significant impact on the environment. The draft plan was submitted to the State Clearing House for public review and comments were received. The Department's response to public comment and the notice of determination to approve this final plan is documented in "Appendix C'.

G. Relationship of this Land Management Plan to CALFED

Senate Bill 1653 (Costa) established the California Bay-Delta Act where under existing law, certain state and federal agencies with management and regulatory responsibilities in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary participate in the CALFED Bay-Delta Program for the purposes of improving ecosystem quality, water supply reliability, water quality, and the integrity of the levees and channels in the bay-delta. The *CALFED Final Programmatic Environmental Impact Statement and Environmental Impact Report* (CALFED Final PEIS/EIR) provides a broad, programmatic analysis of the general effect of implementing the multiple components of CALFED over a 30-year period (2000–2030) across two-thirds of the state of California. The analysis of impacts in the CALFED Final PEIS/EIR is not intended to address any site-specific environmental effects of individual projects; therefore, the analysis of direct, indirect, and cumulative impacts contained in the CALFED programmatic document are not sufficiently detailed to evaluate effects of the proposed LMP on the UBBWA. Preparation of the Draft LMP for the UBBWA included reviews of applicable chapters and sections contained in the CALFED Final PEIS/EIR and the Record of Decision (ROD) on the Final PEIS/EIR to

develop background information, assess consistency of the proposed LMP with the CALFED Preferred Program Alternative, and provide mitigation guidance.

The proposed LMP is intended to be consistent with the programmatic guidance contained in the CALFED programs and Final PEIS/EIR. Furthermore, it is intended to be consistent with the *Multi-Species Conservation Strategy* (MSCS), which is part of the comprehensive regulatory compliance strategy that is integrated with the CALFED Final PEIS/EIR.

Review of the resource sections of the CALFED Final PEIS/EIR included identification of mitigation strategies which address potential significant impacts on special-status wildlife species, important wildlife use areas, and agricultural lands. These mitigation strategies serve as the basis for development of strategic elements that are incorporated into the LMP management goals and tasks, thereby avoiding potential significant impacts. Refer to Chapter V, "Management Goals," of this Final LMP for further discussion.

H. Organization of this Land Management Plan

This Preliminary Draft LMP for the UBBWA is organized as follows:

- *Chapter I, "Introduction,"* summarizes the purpose of the land acquisition for the UBBWA, acquisition history, purpose of the LMP, and the planning process. This chapter also explains the scope and uses of this LMP and describes the relationship of this LMP to CALFED.
- *Chapter II, "Property Description and Management Setting,"* summarizes the most current information available to describe the geographical setting, property boundaries and easements, existing infrastructure, and management setting, including any legal constraints and existing agreements and descriptions of existing working partnerships with other agencies, and nonprofit groups. This chapter (along with Chapter III) also will serve as part of the environmental setting of the IS.
- *Chapter III, "Habitat and Species Description,"* describes the primary existing resource conditions on the property and includes a discussion on planning influences and considerations. It will also serve as the environmental setting of the IS.
- *Chapter IV, "Compatible Resource Management and Public Use,"* describes the compatible public uses of the UBBWA consistent with the purpose of acquisition and the process followed to determine compatibility of various recreational activities considered.
- *Chapter V, "Management Goals,"* describes the resource management direction of the LMP and the project description necessary for performing environmental review pursuant to CEQA.
- *Chapter VI, "Operations and Maintenance,"* guides the budget preparation and work plans for the property; summarizes the number of existing staff employed at the property and any additional requirements for personnel; summarizes all estimated operations and maintenance costs associated with management of the property; identifies potential funding sources.
- *Chapter VII, "Future Revisions to the Plan,"* describes a process that will be implemented to update and accommodate revisions to the LMP. Climate change strategies are also discussed.
- *Chapter VIII, "References"*

- Appendix A, "Species List for the Upper Butte Basin Wildlife Area"
- Appendix B, "Acquisition History and Agreements in Place at UBBWA"
- Appendix C, "Environmental Review IS/ND, NOC, NOD, Comment Letters, and Response to Comments"
- Appendix D, "Soils at UBBWA"
- Appendix E, "Plant Species Known to Occur On or Near the UBBWA"
- Appendix F, "Special Status Species Known to Occur On or Near UBBWA"

CHAPTER II
Property Description and Management Setting

This chapter describes the existing geographic setting of the UBBWA, including the Wildlife Area boundaries, associated management units, and existing easements. Existing infrastructure and management (i.e. water delivery and management, roads, levees, utilities, and houses and other structures) are also discussed. This chapter also describes the existing management setting of the UBBWA, including legal constraints and existing agreements.

A. Geographical Setting

The UBBWA is located in the Sacramento Valley along the western boundary of Butte County and the eastern boundary of Glenn County. It is bisected by State Highway 162 and is located approximately halfway between State Highway 99 and State Highway 45 in the Pennington, West of Biggs, Butte City, Llano Seco, and Nelson U.S.G.S. 7.5 minute quadrangles.

The UBBWA is located roughly 60 miles north of Sacramento. UBBWA is within the jurisdiction of the Department's North Central Region (Region 2) and it consists of three distinct units. Those units are, from south to north, LDC (Figure 3), HS (Figure 4), and LS (Figure 5). LDC and LS are located in Butte County while HS is located in Glenn County. Butte Creek serves as the western boundary for the LDC Unit and the eastern boundary of the HS Unit. The northwestern corner of LDC and the southeastern corner of HS meet in the center of Butte Creek at Afton Road.

The LDC Unit is located in southwestern Butte County. It is located approximately 5 miles north of the Sutter Buttes and 10 miles west of the town of Gridley. The southern boundary is the Colusa Gridley Highway, the western boundary is Butte Creek, the northern boundary is Afton Road, and the eastern boundary is the Cherokee Canal. The legal description of LDC is T18N R1E including all or parts of Sections 17, 20, 21, 22, 23, 26, 27, 28, 29, 32, and 33.

The HS Unit is located in southeastern Glenn County roughly six miles east of Butte City. The unit is bordered on the east by Butte Creek, on the south by Afton Road, and on the west, not directly adjacent by ZZ Road. The area is also bisected by State Highway 162 and is roughly 11 miles west of State Highway 99. The southeast corner of HS and the northwest corner of LDC touch in the center of Butte Creek at Afton Road. The legal description for HS is: T19N R1E and includes all or parts of sections 8, 9, 19, 20, 29, 30, 31, and 32.

The LS Unit is located in Butte County and the eastern border is Seven Mile Lane. The Llano Seco Unit was a part of Rancho Llano Seco, which was an unsurveyed Spanish Land Grant.

Figure 3 Little Dry Creek Unit

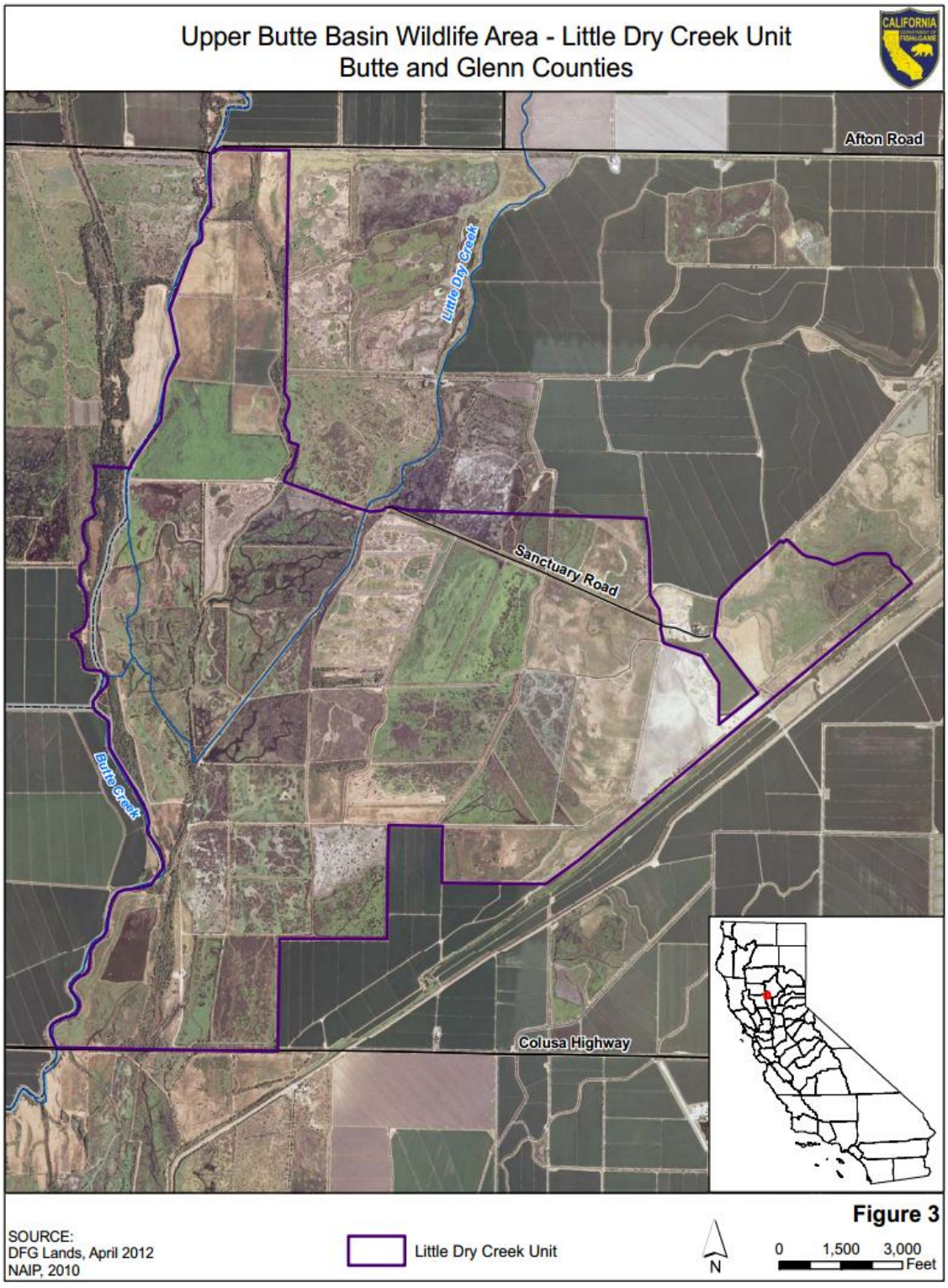


Figure 4 Howard Slough Unit

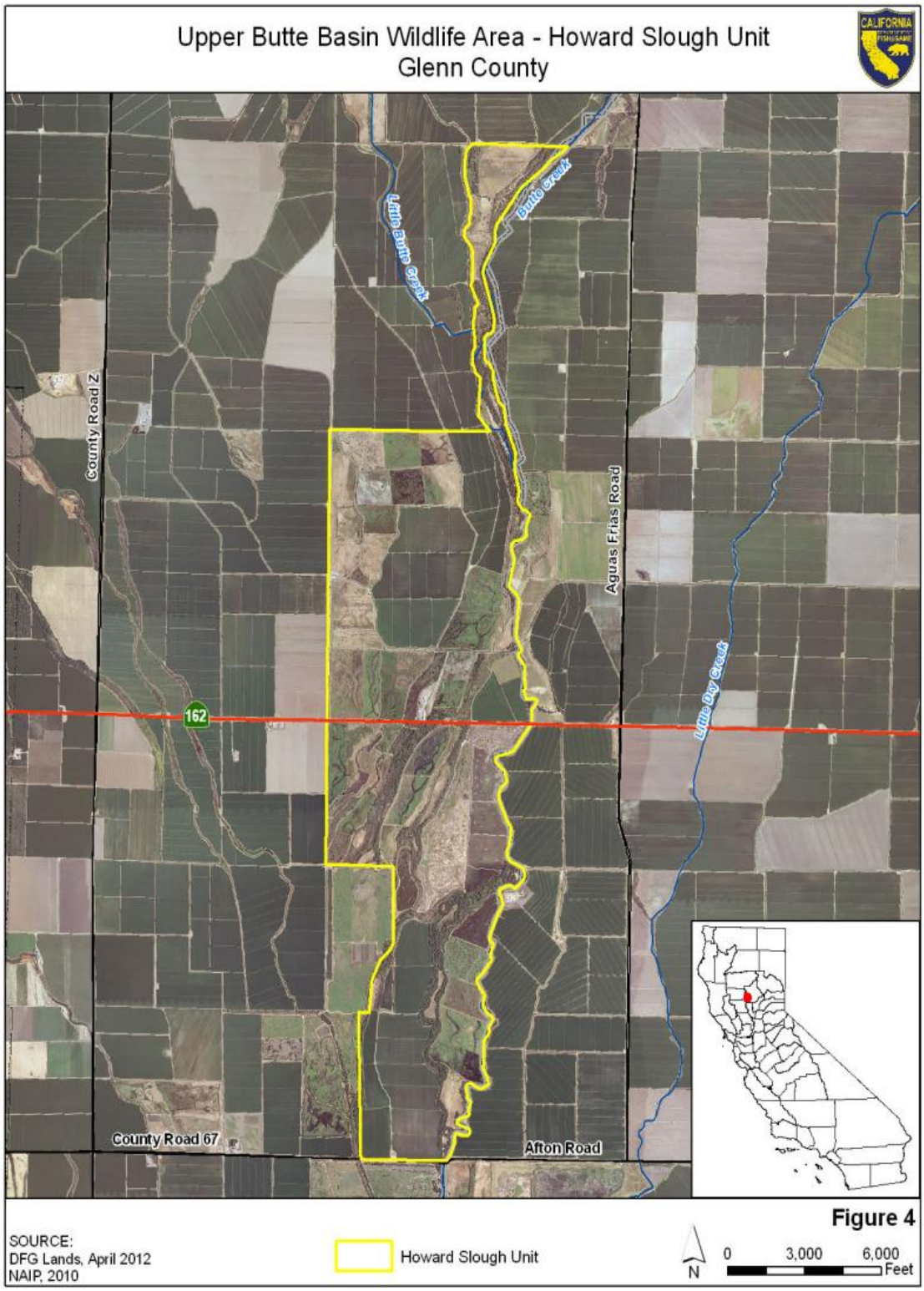
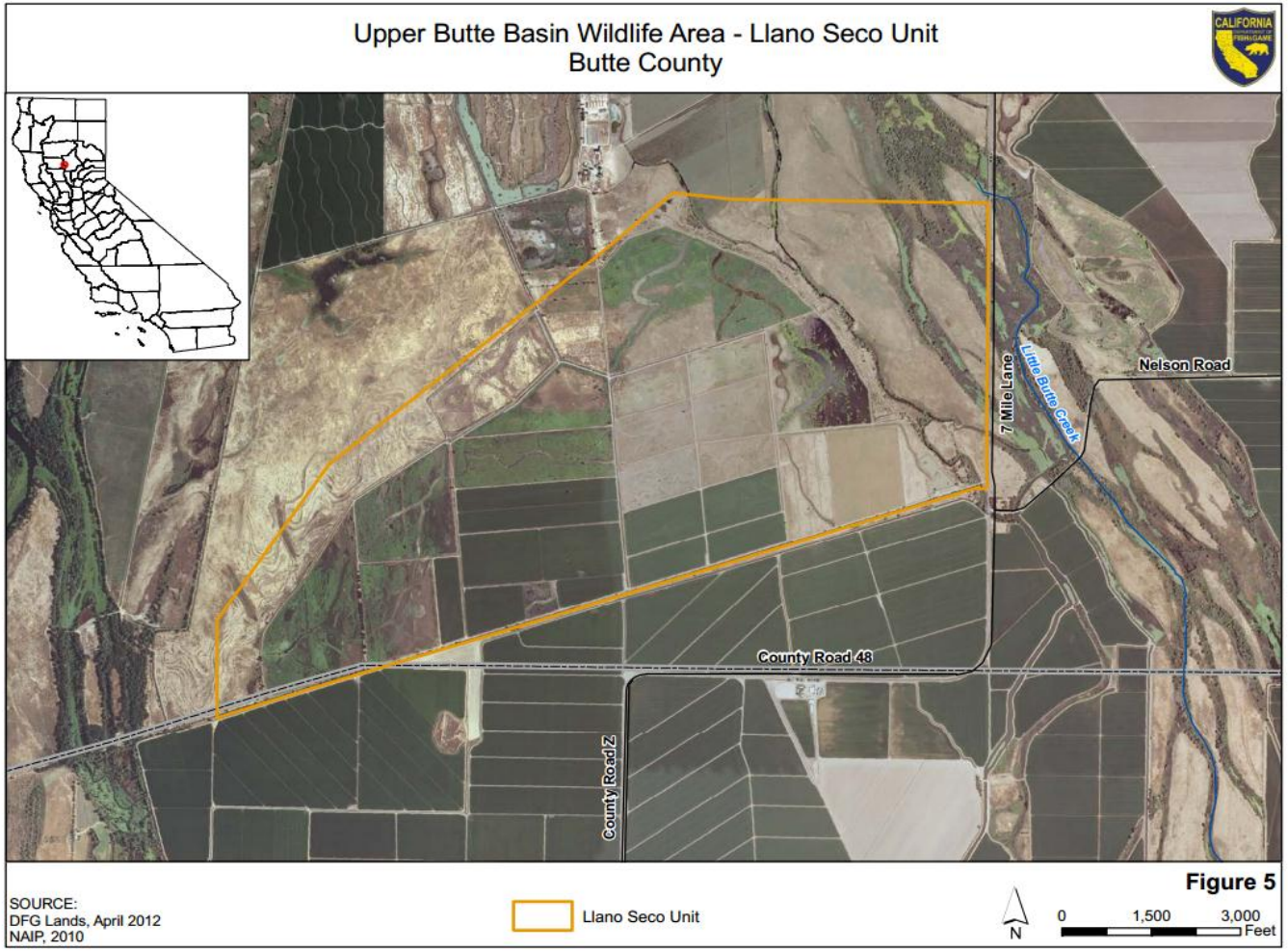


Figure 5 Llano Seco Unit



These land grants have never had section numbers assigned to them, however, a rough legal description is: T19N R1W and parts of sections 30 and 31 in addition to T19N R1E and parts of sections 25, 26, 34, 35, and 36.

The land around UBBWA has traditionally been used for agriculture, with rice production being the primary crop grown in the region. Other crops in the general area include corn, safflower, sunflower, cotton, sugar beets, almond and walnut orchards, and irrigated pasture. Within the last ten years many of the properties which surround the wildlife area have been converted from commercial rice production to managed seasonal wetland habitat. These wetlands are now being managed to provide seasonal habitat for waterfowl hunting.

Private property adjacent to the LDC Unit is managed in a variety of different ways. The land located north and northwest of LDC has been converted from commercial rice production to managed seasonal wetland habitat. These areas now house some of the most desirable private waterfowl hunt clubs in the region. Commercial rice is grown to the east, south, and west of LDC and during the winter are flooded for waterfowl hunting. Private property adjacent to the northeast corner of LDC is managed as irrigated pasture.

The HS Unit is also surrounded by land used primarily for agriculture. Lands to the north and west of HS currently grow commercial rice. The east side is a mixture of irrigated pasture, rice, and limited managed seasonal wetland. The south side of HS is managed seasonal wetland.

Private land adjacent to the LS Unit is managed for agriculture as well. The south side of LS is rice, the west and north sides are pasture for cattle grazing, and the east is wetland habitat used by the Western Canal Irrigation District for water storage. The USFWS owns an easement on the property north and west of the LS Unit and manages land to the north for wintering waterfowl.

B. Climate, Geology, Soils, and Hydrology

In the Mediterranean climate of the UBBWA all precipitation falls as rain (approximately 26 inches annually) with most falling from November through March. Summers are hot and dry with a mean high temperature of 94° F and an extreme high of 117° F. Winters are cool and wet with a mean low temperature of 37° F and an extreme low temperature of 11° F (Western Regional Climate Center 2005).

The UBBWA is located within the Butte Basin which is situated within the Sacramento Valley along the eastern side of the Sacramento Valley between the Sacramento River and the western edge of the Sierra Nevada foothills (Camp Dresser & McKee 2001). The Butte Basin begins approximately 0.75 mile downstream of the Durham-Dayton State Highway crossing of Butte Creek where there is an abrupt decrease in the channel gradient as Butte Creek flows off of its alluvial fan (Williams et al. 2002). This change in gradient is marked by a change in soil texture from loams to clay loams to clays, and is also reflected in a corresponding change in agriculture from orchards to rice fields. There is a second abrupt decrease in channel gradient in the HS Unit at the point where Butte Creek emerges from the U. S. Army Corps of Engineer's (COE) levee

system. The slope in the land above this point has been attributed to tectonic activity (uplifted anticline basin) that created the elevated Llano Seco area and serves to isolate the Butte Basin from the Sacramento River meander belt.

Currently, the bed of Butte Creek contains a significant amount of coarse mine waste overwash materials that are being transported downstream by the increased depth and velocity of Butte Creek as it passes through the COE levee system (Williams et al. 2002). These coarse materials have been identified as far downstream as the State Highway 162 Bridge on the HS Unit. The bed of Butte Creek runs over an exposed duripan (silica and calcium carbonate cemented soil) from the upper end of the basin to near the Highway 162 bridge and the duripan shows evidence of recent incision due to the combination of the increased erosive power of the creek and the abrasiveness of the coarse overwash materials. Historically, the active channel of Butte Creek migrated across a half mile wide belt and this migration created many cutoff channels or sloughs and tule marshes (Williams et al. 2002).

Additionally, under natural conditions, before entering the Butte Basin, Butte Creek overflowed into Comanche Creek and flowed westward almost to the Sacramento River where it then flowed southward through a broad belt of sloughs and Little Butte Creek (also known as Little Chico Creek) along the eastern border of the LS Unit until it merged back into Butte Creek along the current location of the Howard Unit (Butte Creek Watershed Project 1998).

Soil survey data have recently been revised for Butte County but not for Glenn County. The effect of this disparity is to group similar soils into different series depending on which county the soils are located in, and there is no available cross-walk between the old and new soil series. Soils in Butte County have been assigned numerical codes while those in Glenn County have been assigned alphabetical codes (Appendix D).

Soils in the Butte Basin can be roughly grouped by the presence or absence of an impermeable duripan layer and by flooding duration. The soil series with duripan possesses a silica and calcium carbonate cemented layer that begins at depths between twenty and sixty inches. This impermeable layer not only limits soil moisture percolation but also restricts plant rooting depth. Further, because of the low hydraulic conductivity of the clay soils, water infiltrating the soil from watercourses or unlined canals and ditches cannot move very far from those sources. The combination of duripan and low hydraulic conductivity serves to restrict riparian species to narrow bands along active summer water supply sources.

The soils that lack duripan are typically sandy loams, or loam that lines current or former drainage ways. These soils have a high hydraulic conductivity because of their relatively coarse texture, and will transmit soil moisture from water supply sources over relatively great distances. Also, because of their coarse texture, they drain rapidly and have a significantly lower water holding capacity than clay soils. Where there is an active water supply, riparian species growing on these coarser textured soils will establish relatively wider bands than those growing on clay soils. However, these coarse textured soils dry rapidly and will only support riparian plant communities near active summer water supply sources or in lower topographic areas where the water table is close to the surface. Flooding duration is primarily controlled by irrigation and drainage systems because of the extensive human alteration of the landscape.

The hydrology in the Butte Basin is dominated by natural peak flood events during the wet season and by human managed water conveyance systems during the remainder of the year. Wet season flooding may occur through local stream overflows in areas without levees, local precipitation and ponding, overflows from the Sacramento River into Angel Slough and Little Butte Creek along the western edge of the Butte Basin, or various combinations of these factors (Harmon 1994; Butte Creek Watershed Project 1998; Rodgers 2004). The HS Unit is especially prone to flooding because of its location (personal communication, Blake).

Water conveyance systems are very complex and mix Feather River water from the Thermalito Afterbay (Water Diversion Agreement" between DWR and the Joint Board May 27, 1969) with water produced in the watersheds directly connected to the Butte Basin (Butte Creek Watershed Project 1998). Approximately 225,000 acre feet per year of Feather River water is transported in the Western Canal during the irrigation season (April through September) and diverted into Little Dry Creek, Butte Creek (up to 200 cubic feet per second to supply duck and gun clubs in the Butte Sink), various supply ditches, and the Western Canal Water District wetland reservoir area at the western end of the canal. Additional Feather River water is supplied via the Cherokee Canal. Ultimately, a significant amount of the agricultural drainage water from these diversions enters Butte Creek on the Howard Slough and Little Dry Creek management units. Water from Little Chico Creek may either be diverted into Butte Creek, to prevent wet season maximum flows through the city of Chico from exceeding 1,200 cubic feet per second, or to supply water during the irrigation season. Butte Creek water is diverted into Comanche Creek (up to 11,000 acre feet per month in April, May, and June) which ultimately merges with Little Butte Creek and is subject to a number of diversions, including the Parrott-Phelan Canal. During low flow years, the supply in this area is supplemented by the M & T Ranch/Llano Seco Ranch/Wildlife Refuges pump on the Sacramento River which is currently being threatened by gravel deposits. Butte Creek water is also diverted into Hamlin Slough and the Western Canal.

Groundwater in the vicinity of the UBBWA is extracted from relatively shallow wells that tap the Basin Deposits (generally domestic sources) and from deeper wells that tap Unit B of the Tuscan Formation (irrigation wells) (Camp Dresser & McKee 2001). The field 306 well on the LS Unit, the field 226 well on the HS Unit, and the high-volume well on the LDC Unit are apparently extracting water from the Tuscan Formation (5,000 gallons per minute) while the remaining wells are apparently drawing from the Basin Deposits ($\leq$ 2,500 gallons per minute) (Butte Creek Watershed Project 1998, Forsberg 2004). Historic well monitoring data shows that wells in both formations exhibit seasonal depletion and recharge dynamics and that ground water lowering of approximately 25 feet occurs in the Tuscan Formation during droughts. Extensive surface and ground water management plans have been developed for the Butte Basin (Camp Dresser and McKee 2003, 2004d, b, a, c). The models developed for those plans predict that extended drought will drawdown ground water supplies to their minimum permissible levels under the Basin Management Objectives of the Butte County Groundwater Management ordinance and significantly reduce surface supplies. It is predicted that conservation practices such as fallowing will enable the export of water from the Butte Basin during periods of drought. No analysis has been conducted to determine the impacts of drought conditions, including fallowing of rice fields and reduced availability of drainage water,

surface water export, ground water pumping, and the increased cost of water and pumping, on the many artificial wetlands in the area such as those at the UBBWA.

Several recent planning and restoration projects have significantly improved the hydrology and water quality of Butte Creek for anadromous fish. These projects have included dam removals (CH2MHill 1996), improved fish ladders, fish screens, check dams to prevent fish from moving into agricultural ditches, and agreements to leave bypass flows in Butte Creek (U. S. Fish and Wildlife Service et al. 1996). One difficulty faced with maintaining bypass flows is ensuring that illegal diversions do not remove the bypass water as the Department of Water Resources Watermaster Service Area does not extend downstream of the Western Canal (Butte Creek Watershed Project 1998).

C. Cultural Features

Cultural and archaeological resources on lands owned and managed by the Department are important features that need to be respected and preserved. The Department requested an evaluation of the potential for occurrences of cultural resources at UBBWA be investigated. Data concerning previously identified cultural resources and cultural resource investigations were reviewed to determine the status of any cultural resources on or near the wildlife area. These references were as follows: the Northwest and Northeast Information Centers of the California Historical Resources Information System, Historic Period Government Land Office, Plat maps as sources concerning ethnographic village (Native American) locations, and The River Atlas: Appendix To Middle Sacramento River Spawning Gravel Study (Department of Water Resources 1984) Based on these literature reviews, there are no known cultural resources recorded on the UBBWA. There are however a number of known resources near, or adjacent to the UBBWA.

A review of the historic period and the ethnographic maps indicate that there may have been both prehistoric and historic period cultural resources within the general area. However, as a result of the basin hydraulics these artifacts have been washed away or degraded during the many flood events influenced by the Sacramento River, Feather River and Butte Creek. Additionally, nearly all of the area within the vicinity of UBBWA has, over the last century, been heavily disturbed due to historic agricultural practices and reclamation efforts.

As a result of the analysis of the available cultural resources information, the Department will implement the following measures for the protection of these resources:

1. Educate UBBWA staff to heighten their awareness of cultural resources and discuss what field signs may indicate a possible cultural resource area or artifact.
2. If artifacts are observed during ground disturbing activities all work within the vicinity will be halted until an evaluation can be made on the significance of the finding.
3. Inform area manager of any potential sites or artifacts discovered.
4. Consistent with the Department's policy for protection of cultural resources, (Executive Order W-26 92 and B-10-11 Final Tribal Consultation Policy) the area manager will contact appropriate Department employees and/or contact the California Historical

Resources Information and Native American Heritage Commission staff to report and discuss the findings.

D. Easements and Rights-of-Way

Easements and rights-of-way are legally recorded documents that run with the deed of the property, and are, therefore, transferred with the property from owner to owner. Easements typically preserve the rights of an entity other than the landowner. Within the UBBWA there are two different types of easements (Appendix D). The first type includes easements for accessing levees, utilities, roadways, pipelines, etc. These easements exist for the purpose of maintaining, repairing, replacing, and installing levees, roads, railroads, power lines, utility lines, and pipelines needed for regional public works. The second type of easement is related to flood plain issues.

Currently there are easements on all three units of UBBWA. The easement on LDC is tied to the Schohr Ranch acquisition and allows access through LDC on Sanctuary Road for access to pumps, irrigation water, and farming on Hoodoo Island. The easement on HS provides access to the Bird Haven Ranch property south of State Highway 162. Road maintenance is the Department's responsibility since the road also provides access for the Department. On LS an easement allows USFWS and Rancho Llano Seco staff access through the area for maintenance activities on adjacent federal lands.

California Department of Transportation Right-of-Way - Caltrans holds a right-of-way on both sides of State Highway 162. Projects located within this right-of-way may require Caltrans' approval and/or an encroachment permit. Projects here generally include placing signs along the highway to inform the public where to access the wildlife area.

PG&E Easement - PG&E holds easements throughout the UBBWA units to allow for routine maintenance and placement of transmission lines and natural gas lines. Routine maintenance includes pruning trees under power lines and replacing old poles. Management activities located within PG&E easements area may require PG&E approval.

Flood Plain Issues - The UBBWA is located within the Butte Basin flood plain. The COE and the Reclamation Board have jurisdiction over activities in the flood plain, including habitat improvements which may impede or divert flows.

Department of Water Resources - DWR maintains an easement for accessing a half mile of levee on the west side of Butte Creek at the northern boundary to Howard Slough. DWR conducts routine inspections on this levee and maintains the west side of the Butte Creek Levee on the HS Unit. South of this levee, Butte Creek enters the Butte Basin flood plain.

Existing Infrastructure - Existing infrastructure within the UBBWA includes water delivery and management facilities, roads, levees, utilities, a house, an office, check stations, dams, maintenance shops, and storage structures. A discussion of each of these infrastructure components is provided below.

Water management - Water delivery and management in the UBBWA is largely dictated by existing water districts and their boundaries, water rights agreements, delivery and easement agreements, and infrastructure. A complex system of canals, low lift pumps, deep wells and various other water control structures must be maintained and used in order to flood and drain wetlands within the original UBBWA units according to established prescriptions and practices. Flooding and drainage regimes are designed to generally mimic the natural flooding and drainage chronology (i.e. intensity and duration) that once occurred in the Butte Basin.

All of the Water Districts that serve the UBBWA have senior water rights to the State Water Project (SWP), Feather River, and Central Valley Project (CVP), Sacramento River. For those Districts taking water from the SWP these "Senior" water rights are acknowledged in the 1969 Settlement Agreements between the State of California Department of Water Resources (DWR) and the "Joint Water Board" (DWR 1969 Settlement Agreement). The Joint Water Board is comprised of four water districts, Richvale, Biggs West Gridley, Butte and Sutter. Water for these Districts is diverted from the SWP's Thermalito Afterbay per the "Water Diversion Agreement" between DWR and the Joint Board (May 27, 1969). The western Canal Water District has its own agreement with DWR for both water entitlement and diversions (DWR 1969 Settlement Agreement).

Water allocations within the Districts are based on a seniority system. The Senior or Primary Lands are those lands that originally made up the Districts. The "historic water rights" to the Districts are tied to these primary lands. Secondary lands are those lands that were annexed into the Districts in the 1970's and 80's. Third party or Tertiary Lands are those lands annexed after 1990. As with all water in California, the most senior water rights are served first; and then, if water is available the secondary and tertiary water rights holders. During drought or critically dry years, Primary lands are entitled to all of the water, allocated to their District, prior to any being delivered to the Secondary or tertiary land holders (Schohr Ranch Decision).

Managing the use of water to support the artificial seasonal wetlands on the UBBWA is exceedingly complex and varies for each unit. This schedule is driven by water availability and cost, vegetation management needs, wildlife needs, and vector control requirements. Because of annual variations in precipitation and flooding, damages or changes to delivery infrastructure, variable water availability from different sources, and changes in water costs, it is impossible to establish a fixed water management plan. Managing these resources effectively and efficiently requires knowledge of local conditions, water rights, and water quality issues.

Little Dry Creek - The LDC Unit has a secondary water right under its annexation agreement with the Richvale Irrigation District (Richvale Irrigation District 1989). It receives gravity deliveries through the 100 Drain, the Crocker Canal, and low lift pump deliveries from the Cherokee Canal (Forsberg 2004, Blake per. comm.). There are 6 wells in the unit with the best producer (5,000 gallons per minute and 500 feet deep) at the northern end of the unit (Butte Creek Watershed Project 1998, Forsberg 2004). Summer water usage between April 1 and September 15 requires 7,000-10,000 acre feet (AF) at a 2006 cost of approximately $30,000. The period between September 15 and November 1 requires the purchase of 1,500 AF of out of district water at a 2007 cost of approximately $11,000. Winter water usage between November 1 and April 1 is approximately 8,000 AF at a 2007 cost of approximately $35,000. There is an additional

annual standby fee of $25,547.73 for all members of the Richvale Irrigation District. One chronic management problem caused by the secondary water right status is that there is no policing of the use of the flows within the secondary rights area and flows purchased for the LDC Unit have sometimes been diverted before they reach the unit. The Department assumed a number of access easements and water management agreements when it purchased the LDC Unit (Federal Land Bank of Sacramento 1987; Trust for Public Land 1989).

Howard Slough – All of the lands within the HS Unit are considered "Primary Lands" within the Western Canal Water District (Forsberg 2004, Western Canal Water District). Approximately 1,175 acres of this unit are used for rice production and it is difficult to exactly apportion the water requirements of the seasonal wetlands from those of rice production. Approximately 6,000 AF are required for rice production and 12,000 AF are required solely for the seasonal wetlands. Approximately 13,000 AF of summer water and 5,000 AF of winter water are available. The 2006 cost of summer water ranges from $3 per AF for metered to $15 per AF unmetered water. Winter 2006 water costs were approximately $6 per AF. There are 5 wells in the unit with the best producer (5,000 gallons per minute which draws form a depth 500 feet) at the northern end of the unit. Water may be distributed by gravity to the northern half of the lands north of Highway 162 and by low lift pumps over the remainder of the lands. Under an agreement, which the Department assumed when it purchased the HS Unit, the Department is required to maintain the 501 and 502 drainage ditches so that drain water from the adjoining property flows freely (McGowan Brothers 1952).

Llano Seco - The LS Unit is not within an irrigation district. However, it has a contractual right to receive water from the Parrott Ranch diversion on the Sacramento River, but this source is currently unavailable due to the recent destruction of a siphon by winter flooding (Forsberg 2004, Blake per. comm.). One hundred acres of this unit were used for rice production in 2006. Approximately 5,750 AF of water are used in this unit. Water is currently being purchased from the Western Canal Water District and moved onto the unit using a low lift pump. There is one deep well (5,000 gallons per minute which draws form a depth of 500 feet) at the northern end of the unit. Parrott Ranch holds a maintenance easement to keep both ditches (excavated in uplands) and drains (excavated in natural drainage features) clear (Parrott Investment Company 1991). Parrott Ranch also maintains an earthen dam just southeast of the unit to return water back to the ranch. This dam was damaged during recent flooding and has not been rebuilt.

Water Rights - The Department's purchase of both LDC and HS included water rights. The Department has elected to exercise those rights by leaving the water available for appropriation in Butte Creek to maintain in stream flows for warm water fish species and to improve water conditions for Butte Creek salmonids. The Department was instrumental in the removal of ten of the fourteen dams within Butte Creek, four of which were used in the delivery of water to the HS Unit. Additionally, all of the pumps that were used to exercise UBBWA's appropriated water rights out of Butte Creek for irrigation and wetland flood-up have been removed or abandoned.

Roads - The Department maintains thirty three miles of gravel roads and approximately one hundred-ten miles of dirt roads on the three units of the wildlife area. Roughly six miles of primary access roads provide for entrance to the wildlife area and associated parking lots. These are the only

roads with authorized public access on the wildlife area. All other roads are used by area staff for area maintenance, habitat work, and to access water control structures, lift pumps and other infrastructure.

Levees - The Department holds an easement at the LDC unit which allows for access to the Cherokee Canal levee. This provides access to lift pumps the Department uses to provide irrigation water from the Richvale Irrigation District to LDC. There are levees along Butte Creek at both the LDC and HS units which define the main creek channel. During flood events the potential exists for these levees to be completely inundated. When the levees were constructed in the 1950's, the eastern levee on the LDC unit was designed by the U.S. Army Corps of Engineers to be six inches higher than the western levee. This design feature forces water westward during the initial phases of flooding. In large flood events both levees are inundated.

Utilities - There are numerous power lines throughout the UBBWA. Electrical power is needed to run lift pumps, deep wells, and power the office and shop buildings, check stations and residence. There are also underground natural gas lines along the south side of the LDC unit and an underground fiber optic cable adjacent to State Highway 162 on the HS Unit.

Houses and Other Structures - There are a number of structures on UBBWA. On the LDC Unit there is a hunter check station which is accessible from the south boundary on the Colusa-Gridley Highway. At LS there is a hunter check station which is accessible from the east boundary off of Seven-Mile Lane. At HS there is a hunter check station accessible off of ZZ Road along the western boundary north of State Highway 162. The wildlife area headquarters is located on the HS Unit. Headquarters are located approximately one mile west of Butte Creek off of State Highway 162. At the headquarters there is one residence and associated outbuildings including a garage, an office, shop, barn, storage sheds, rice drier and grain storage bins. In addition to facilities dedicated to the wildlife area, there are two shops plus storage areas for fisheries program equipment.

E. Property Boundaries and Adjacent Land Use

The boundaries and topographic locations of each of the three management units are illustrated in Figures 3-5. Adjacent lands are privately held and are generally managed for rice production, waterfowl habitat, and private hunting clubs. Additionally, there are extensive networks of water delivery and drainage canals and ditches both off and on the UBBWA. USFWS's National Wildlife Refuges are located to the north and west of the UBBWA and the Department's Gray Lodge Wildlife Area lies to the south.

F. Management Setting

The current management of the UBBWA operates under several legal constraints and existing agreements. Several agreements were accepted when the Department took ownership of UBBWA. These agreements are referenced in this document and are either provided within Appendix B, or available for review at UBBWA headquarters. Additionally, there are stipulations associated with

North American Wetland Conservation Act (NAWCA) grants pertaining to the ongoing management of these restoration projects.

The following agreements are recognized by the Department and relate to ongoing management at UBBWA:

Schohr Ranch Agreement (Butte County #88-6000 2/24/88) - In general, this agreement assigns water allocations, facility maintenance responsibilities, facility sharing criteria, and sets the cost distribution and management of the pumping stations, irrigators, access easements, and delineates how Hoodoo Island is managed.

Trust for Public Land (Butte County # 89-030558 8/15/89 and addendum #1, #88-6001 2/24/88) - These documents tie the LDC Unit to the Schohr Ranch agreement.

Hidden Mallard Duck Club Agreement - This agreement pertains to the LS Unit and allows water to flow through the ditch along the southern boundary of the LS Unit from the Western Canal Water District to the Hidden Mallard Duck Club, which is located west of the LS Unit.

In-lieu fees - The Department supports payment of County in-lieu fees (F&G Code Section 1504). Payment of in-lieu fees is subject to Legislative appropriation and approval by the Executive Branch. Payments will be made to affected Counties upon appropriation of funds.

Navigable Rivers Act - The public's use of, and legal access to, inundated portions of the wildlife area during flood events are unresolved legal issues and subject to further evaluation. Public trust law allows the public use of navigable waters, defined as waters subject to tidal influence and waterways used for commerce. As flood waters rise outside of banks and levees on navigable waters (streams, rivers, lakes), and flow over otherwise private property, or regulated public lands, public use on these water becomes unclear. Pending further adjudication of this issue, the Department will post the property boundaries in a manner sufficient to clearly define public trust access versus regulated access.

Butte County Mosquito and Vector Control District - Portions of the UBBWA lie within the jurisdictional boundaries and sphere of influence of the Butte County Mosquito and Vector Control District (BCMVCD). The BCMVCD is responsible for mosquito abatement and control of other vectors within its sphere of influence. The Department and BCMVCD actively coordinate regarding management activities on UBBWA. The Department and the BCMVCD have coordinated in the development and implementation of best management practices (BMPs) for the wildlife area, which includes design and operations criteria. In consultation with BCMVCD, the Department implements a mosquito control plan that applies these and other BMPs including water management practices, vegetation management practices, wetland infrastructure maintenance, wetland restoration and enhancement features, and biological controls (Kwasny et al. 2004). In addition, BCMVCD coordinates with CDFW regarding treatments and other activities that occur on the UBBWA. CDFW informs BCMVCD of all water management activities with irrigation and flooding schedules. Further discussion on mosquito control and management is provided in Chapter III, "Habitat and Species Descriptions," and Chapter V, "Management Goals."

Farm Service Agency - The USDA Farm Service Agency (FSA) administers farm commodity and conservation programs for farmers and makes and guarantees farm emergency, ownership, and operating loans. FSA's responsibilities are organized into five areas: farm credit, farm programs, commodity operations, management, and State operations. Currently there are 1,270 acres leased by UBBWA for farming that are included in the FSA program.

CHAPTER III
Habitat and Species Descriptions

This section discusses common and sensitive biological resources, including vegetation, wildlife, and fisheries resources that occur or have the potential to occur in the UBBWA.

The following text was developed through a review of scientific literature, existing data sources, online data review, and UBBWA staff information. These sources provided information on documented occurrences, regional distributions, and habitat associations of key plant, wildlife, and fish species.

A. Habitat Management Background

Protection and active management of wetland and upland communities and agricultural lands at the UBBWA provides vital, high-quality habitat for hundreds of wetland, upland, and riparian dependent wildlife species. California has lost approximately 95 percent of the original acreages of both wetland and riparian habitats due to reclamation efforts, reservoir construction, levee and channelization projects, livestock grazing, timber harvest, water pollution, introduction of nonnative invasive plant species, gravel and gold mining, and clearing for agricultural, residential, and industrial uses over the past 150 years (Riparian Habitat Joint Venture 2000). The restoration of wetland and riparian woodland communities at the UBBWA are providing important habitat for numerous species. 241 terrestrial vertebrate species are known to use the UBBWA at some point during their annual life cycles, over 95 of which are known to breed within the UBBWA. The UBBWA also provides suitable habitat for 23 additional species that may occur on site but have not yet been observed. The UBBWA is also known to support 17 special status wildlife species (Table 3.5-3), and many more that are locally rare or have specialized habitat requirements which the area provides. The wildlife area also provides seasonal or permanent aquatic habitat for 31 species of fish, two of which are special status species (Table 3.5-5). Hundreds of invertebrate species also inhabit the wildlife area, including four special status invertebrates (Table 3.5-3). Under the ecosystem approach, management of the UBBWA is intended to maximize benefits for the full suite of these species as opposed to single-species management.

Flooding is an important factor in determining habitat composition at UBBWA. Butte Creek frequently tops its banks during the winter and early spring as the result of persistent and heavy rainfall on the Sacramento Valley floor and in the Butte Creek watershed. The timing, area, volume, and duration of flooding can have lasting effects on the UBBWA after the waters have receded. Flood waters deposit silt and other debris across the wildlife area with the heavier debris deposited adjacent to the creek. Over time this has created high ground adjacent to the creek. Flood water

also carves holes in levees, berms and roads as the water meanders toward the Sacramento River. This flooding has profound impacts on the vegetative and animal community adjacent to the creek. During flood events large wading birds are attracted to the floodwaters to prey upon small mammals, reptiles, and amphibians seeking refuge from the high waters. In the long term floods are known to decrease small mammal and associated predator populations due to drowning and relocation. It is presumed that resident reptiles and amphibians experience similar impacts. Floods also destroy early-season bird nests, food sources, and important residual nesting cover. Upland habitat quality is also affected due to vegetation shifts because winter germinated species can be drowned out and replaced by less desirable species which germinate later in the spring such as cocklebur and dock. Late floods can even delay or eliminate opportunities to plant wildlife forage crops such as safflower, milo, sunflower, and rice. These habitat changes are also known to delay and ultimately reduce nesting efforts by ground nesting birds, such as waterfowl, ring-necked pheasant, and California quail.

B. Vegetation Resources

Vegetation Communities

Common vegetation communities found within the UBBWA are discussed below. Wildlife habitat characteristics are included in this discussion with additional description of wildlife guilds provided under Section 3.5.2, "Wildlife Resources." A crosswalk among community types and other common vegetation community classifications is provided in Table 3.5-1. Land cover types for each of the units are shown in Figures 6, 7, and 8.

Seasonal and Permanent Wetlands

Wetlands have evolved as dynamic ecosystems, constantly changing due to the physical and chemical processes associated with floods, drought, and fire. Today, the majority of seasonal wetland habitats throughout the State are enclosed by levees or berms, and flooded with water from irrigation conveyance systems. Whereas natural wetland hydrology is very dynamic, flooding cycles now used for wetlands are predictable due to strategic and innovative management. It is the task of the UBBWA management to emulate natural hydrology and re-create a dynamic, productive wetland system through the use of the existing anthropocentric waterways and conveyance systems. With only an estimated five percent of the Central Valley's original wetlands remaining, it is also imperative that the remaining wetlands are managed such that they support the maximum abundance and diversity of wildlife (*"A Guide to Wetland Habitat Management in the Central Valley"* California Department of Fish and Game 1995). The UBBWA, geographically positioned in the heart of the Pacific Flyway in the Sacramento Valley, supports an extremely large concentration of wintering waterfowl, thus management has an enormous responsibility to provide optimum habitat. Furthermore, wetland management at the wildlife area can be conducted in such a manner that shorebirds, wading birds, breeding waterfowl, and other wetland-dependent wildlife also realize maximum benefits (California Department of Fish and Game 1995).

Habitat management activities are evaluated annually by the Department's Wildlife Area Habitat Committee (WAHC). The WAHC was established in 1991 to develop acreage and quality guidelines for wetland and upland habitats occurring on the Department's 14 major wetland wildlife areas. A habitat management work plan is prepared each year and assessed by the WAHC. A site visit occurs during the summer months to monitor habitat conditions, develop recommendations for future efforts, and evaluate the success of planned field work. Currently, the WAHC has been suspended due to budgetary constraints.

TABLE 3.5-1
CROSSWALK BETWEEN UBBWA COMMUNITY TYPES AND OTHER VEGETATION CLASSIFICATIONS AT UBBWA

UBBWA Community Types	CALFED MSCS NCCP Habitat Types[1]	Department Holland Habitat Types[2]	Related Sawyer/Keeler-Wolf Habitat Species[3]
Managed Seasonal and Permanent Wetland	Managed Seasonal Wetland, Seasonally flooded agricultural land	Coastal valley freshwater marsh	None
Natural Seasonal Wetland	Natural Seasonal Wetland	Vernal marsh (52500), Coastal and valley freshwater marsh (52410), Cismontane alkali marsh (52310)	Bulrush-cattail series, Saltgrass series, Sedge series, Spikerush series
Natural Perennial Wetland	Non-tidal freshwater permanent emergent	Coastal and valley freshwater marsh (52410)	Bulrush series
Riparian Woodland	Valley/foothill riparian	Great Valley willow scrub (63410), Great Valley cottonwood riparian forest (61410), Great Valley mixed riparian forest (61420), Great Valley valley oak riparian forest (61430), Elderberry savanna (63430)	Mixed willow series, Black willow series, Fremont cottonwood series, Mexican elderberry series, Narrowleaf willow series, Sandbar willow series, Valley oak series
Vernal Pool and Swale	Natural seasonal wetland	Northern claypan vernal pool (44120)	Northern claypan vernal pool series
Ditch	Seasonally flooded agricultural land	None	Mosquito fern series
Annual Grassland	Grassland	Non-native grassland (42200), Valley needlegrass grassland (42110), Valley wildrye grassland (42140)	California annual grassland series, Purple needlegrass series, Creeping ryegrass series

NOTES:
1. CALFED Multi-Species Conservation Strategy – Natural Community Conservation Plan (CALFED Bay-Delta Program 2000b)
2. Holland 1986
3. Sawyer and Keeler-Wolf 1995

Managed Seasonal Wetlands

Managed seasonal wetlands at the UBBWA are located on all three units. Fall ponding occurs in stages with the first ponds flooded in mid-August to provide habitat for early arriving pintails. Flooding is continued through the middle of November when roughly 90 percent of the seasonal wetlands are flooded and water levels maintained until spring. The last 10 percent of the seasonal wetlands are flooded in mid to late December to provide large quantities of seed and invertebrate food sources.

The target species for managed seasonal wetlands at the UBBWA are watergrass (*Echinocloa crus-galli*), smartweed (*Polygonum lapathifolium*), and swamp timothy (*Crypsis vaginaflora*) because they provide high carbohydrate food stuffs during the fall, and winter and abundant and diverse invertebrate forage in the late winter and early spring. The seeds of these species are all in the seed bank and can be germinated and grown by the timing of water drawdown and irrigation. These plants, and many other species, are among a group of plant species wetland managers call "moist-soil plants." These plants produce seeds that are important foods for waterfowl and other wetland-dependent wildlife. There are a whole host of additional vegetative species that will germinate as well when the target species are attempting to grow.

Diversity is an important concept in wetland management and can be achieved in a wide variety of ways. At UBBWA wetland restoration efforts have emphasized topographic variability within ponds to achieve this diversity. Pond bottoms are very uneven and have swales, submerged islands, islands, and shallow side slopes. This unevenness provides a wide variety of germinating conditions so many plant species can coexist within the same pond. When water is drawn off around the edges of ponds in March, species like smartweed germinate and compete well with the other plants that germinate at that time. As the water in the deeper portions of the pond is drawn off, species such as watergrass that germinate in warmer conditions develop and thrive. Generally, the species that are located in the deeper portions of the pond also need multiple irrigations to develop large numbers of seeds while those around the edge can usually develop sufficient seeds with a single or no irrigation.

Equally important to moist-soil plants are those plants which provide structure, typically these species are either cat-tail or tall rank bulrush species. These plants provide cover to help birds thermoregulate and get out of the wind. These plants may also provide concealment from predators. Fortunately, these species respond well to moist-soil management practices and can grow and develop in ponds managed for moist-soil plants. As stated earlier, a primary objective of moist-soil management is to provide an abundance and diversity of seeds, aquatic invertebrates, and other moist-soil foods for wintering waterfowl and other wildlife. Many agricultural crops lack the vitamins, minerals, and proteins essential for survival and subsequent reproductive success (Euliss and Harris 1987; Chabreck et al. 1989; Combs and Fredrickson 1996). The seeds of moist-soil plants provide waterfowl with the essential nutritional balance lacking in grains. Invertebrates are protein rich by-products of moist-soil management that serve as an important food source during critical life cycle stages of wetland birds such as molting during fall and spring, and preparing for the energetic demands of egg development in late winter and spring (California Department of Fish and Game 1995).

Managed Permanent and Seasonal Wetlands

Diets of wintering waterfowl are diverse and include aquatic invertebrates, moist-soil plant seeds, and agricultural grains (Euliss and Harris 1987; Chabreck et al. 1989; Combs and Fredrickson 1996). Research in waterfowl nutrition has recognized variability in value among foods (Petrie et al. 1998), whereas studies of waterfowl food habits (Miller 1987; Combs and Fredrickson 1996) and foraging ecology (Euliss and Harris 1987; Euliss et al. 1991) have focused primarily on

differences in abundance among foods. Winter diet restriction in waterfowl can affect timing of molt (Richardson and Kaminski 1992), body mass, mortality, pair formation (Demarest et al. 1997), and nest initiation date (Dubovsky and Kaminski 1994). Studies also have shown that food quality can affect egg production (Krapu 1979) and timing of molt (Richardson and Kaminski 1992). Canvasbacks (*Athya valisineria*) have been documented to quickly regain lost body mass when fed a nutritionally balanced diet following short-term food deprivation, but continue to lose mass when fed unbalanced diets (Jorde et al. 1995). Thus, diet quality is important not only in maintaining the conditions of wintering birds, but also in mitigating physiological effects of short-term food deprivation, such as periods immediately after long distance migrations. Given the maintenance and anabolic costs of migrating and wintering birds, wetland management prescriptions at the UBBWA that promote the production of nutritionally balanced foods is a primary objective.

The wildlife value of a moist-soil plant species is generally based on its seed production capability, the nutritional quality of its seeds, and the invertebrate habitat the plant community provides. Management practices at the UBBWA promote a diversity of highly valuable moist-soil plants, many of which are non-native species. Swamp timothy, watergrass, and smartweed are the most important moist-soil plants in the Central Valley. Seeds of these three plants, in aggregate and combined with agricultural and wildlife forage crops, provide waterfowl and other seed-eating wildlife with a nutritionally balanced diet. A variety of other wetland plants including sweet clover (*Melilotus alba* and *Melilotus indica*), and the emergent cattails and bulrushes, are also needed to provide additional nutrition, cover, and thermal protection. Some moist-soil plants are poor seed producers, or produce seeds with modest nutritional value, but they have a complex leaf structure and harbor rich invertebrate communities, thus are also valuable to wildlife in the area (California Department of Fish and Game 1995).

Other species that may be found in managed seasonal wetlands that are less desirable for wildlife include non-native plants such as dock (*Rumex* spp.), native plants like gumweed *(Grindelia camporum* var. *camporum*), joint grass (*Paspalus distichum*), cocklebur (*Xanthium strumarium*), and non-native invasive plants like perennial pepperweed (*Lepidium latifolium*).

Seasonal wetlands are important production areas for invertebrates that provide a food source for birds both during their aquatic stages and as adults. Larger predatory invertebrate larvae such as dragonfly nymphs help control undesirable invertebrate species such as mosquitoes. They are large enough to be eaten by herons and egrets. Midge (*Chironomidae*) larvae are a critical component of the invertebrate community. Indeed, midge larvae provide much of the protein needed by waterfowl in the late winter and spring and by shorebirds throughout the year.

Topography within Seasonal Wetlands

As stated earlier, wetland managers strive to provide an array of microhabitats to promote variation among vegetation assemblages. This is achieved by designing features such as swales, islands, berms, submerged islands, and shallow side slopes around the perimeter of seasonal wetlands. This allows the wetland manager to passively select for a wide array of plant species when

employing a single wetland management strategy. Along the perimeter of the pond, species such as shorebirds can forage in relatively shallow water while species which prefer deeper water can utilize the swales. This allows migratory waterfowl species which are typically found in different habitat types to utilize the same pond during the course of the fall, winter, and spring. Consequently, the area can provide adequate habitat to support large numbers of wintering waterfowl. UBBWA typically has peak waterfowl counts totaling over 600,000 birds between late November and February. The relative abundance of those species, from highest to lowest, is: mallards, northern pintail, American wigeon, gadwall, northern shovelers, and green-winged teal.

Bare islands are scattered throughout the wetland to provide loafing habitat for waterfowl and forage sites for shorebirds. These islands are either mowed or disced prior to fall ponding to remove the vegetation and improve the attractiveness for waterfowl and shorebirds. When devoid of vegetation these islands are used by large numbers of waterfowl to rest, preen and loaf. Shorebirds also can be found in large numbers on these islands.

The deeper swales meander through the wetlands and serve several functions. The primary function is to facilitate movement of water during flood up or irrigation. Additional benefits include providing open water without the need for a tractor to manipulate vegetation upon initial flood up in the fall. Swales provide deeper water habitat for diving ducks, pelicans, cormorants, and grebes, and deeper swales can be flooded while the rest of the pond bottom is dry.

Shallow side slopes are also an important design feature in wetlands. Since these areas flood frequently, it's important that the slopes around the perimeter of the pond are gradual. The shallow side slopes are much less prone to the erosive effects of flood waters because the flood waters tend to roll over the top of the slopes and cannot form eddies on the backside of the levee. Eddies will erode the backside of levees and ultimately cut through them during floods. Also, shallow side slopes do not provide suitable burrowing habitat for species such as muskrats. Muskrat burrows are major contributors to weakening levees and ultimately lead to levee failure. Finally, the shallow side slopes promote vegetation diversity around the perimeter of the pond.

Water Drawdown and Soil Disturbance

Important moist-soil waterfowl food plants such as swamp timothy, smartweed, and watergrass are propagated on seasonal wetlands in the UBBWA. The primary factors that affect the type and abundance of moist-soil plants are the timing and duration of flooding and previous disturbances of the soil. The seeds of these target plant species germinate best at a specific soil temperature under specific successional conditions. Therefore, as plants compete for dominance, prescribed wetland management can favor specific plants (or groups of plants) by timing drawdowns to coincide with optimum germination conditions (primarily soil temperature), and discing periodically to maintain the successional stage required by the target vegetation (California Department of Fish and Game 1995). Seasonal wetlands are usually drawn down slowly between March and May depending upon the target species desired.

The rate of water drawdown affects moist-soil plant composition, seed production, and the duration of food availability to waterbird species. Slow drawdowns over 2 to 3 weeks in duration cause invertebrates to become concentrated in the shallow water and allow waterfowl and shorebirds optimum foraging conditions for a prolonged period. This presents an ideal foraging opportunity for these birds prior to their northern migration in the spring. These drawdowns may also concentrate fish that were captured during the winter floods, presenting a productive feeding opportunity for resident wading birds. Slow drawdowns also may enhance seed production. Rapid drawdowns (i.e. 2 to 3 days) may produce extensive stands of waterfowl food plants if timed correctly, but lose the extended shallow water habitat associated with slow drawdowns. Rapid drawdowns late in the growing season are preferably followed by a summer irrigation to ensure a good seed crop. Although slow drawdowns are generally better for wildlife, there is no right or wrong way to drain a seasonal wetland. The rate of drawdown at UBBWA is based on site-specific circumstances and may vary year to year. For example, during a warm spring it may be preferable to drawdown faster in order to avoid the production of large numbers of mosquitoes.

Irrigation

Spring and summer irrigations are important tools for seasonal wetland management. Most waterfowl food plants in California will not attain maximum seed production without at least one irrigation period. Swamp timothy is a waterfowl food plant that can be grown successfully without an irrigation; however, irrigations enhance biomass and seed production if timed correctly and may stimulate an overstory of watergrass. Summer irrigation of swamp timothy also tends to concentrate grasshoppers and rodents to the edge of the waterline, providing forage opportunities for raptors and wading birds such as Swainson's hawks, white-faced ibis, egrets and herons. Irrigation schedules at the UBBWA for smartweed and watergrass may vary depending on annual weather patterns (California Department of Fish and Game 1995).

Summer Water

Migratory shorebirds begin arriving in the Central Valley during the last week of June, peaking in mid-July to early August. Some of these birds stop for a short stay before moving to points further south while others remain for the duration of the winter. These birds need high protein forage in the form of invertebrates and roosting habitat. This habitat is available in several units which are maintained as summer water or in fields being irrigated. This habitat also provides local nesting waterfowl with brood habitat and molting water.

Fall Flooding

The timing of fall flooding is based on many factors. Early fall flooding (i.e. August and September) is particularly important for shorebirds, local nesting waterfowl such as mallards, gadwall, cinnamon teal, and wood ducks, and early migrant pintails. It also provides excellent forage opportunities for wading birds, and raptors. Generally, this process begins in mid-August and is completed by

mid-November. Many factors affect this time table including water availability and constraints associated with mosquito abatement. Mosquito abatement will be further discussed below.

Water Depth

Water depth is an important component of wetland management. Dabbling ducks (mallards, pintails, and green-winged teal) cannot effectively feed on the seeds and invertebrates in water greater than 12 inches deep. Since the majority of waterfowl found in the Sacramento Valley are dabbling ducks it is important that the habitat provided for them be optimal. Ponds are generally designed to provide a variety of water depths to promote vegetation diversity and conditions usable by many species. The higher portions of the ponds are generally located closer to the intake and the lower portions are located closer to the drain. This is generally referred to as "fall" - the difference, or fall, in elevation between the high and low points of the field. Generally, ponds are designed so that between 12 and 18 inches of fall occurs between the high side of the field and the low side. This will allow for water depths (excluding swales) ranging from six inches to two feet when the pond is filled. Additionally, fall allows for effective drainage provided the swales are connected to the drain, intake and all low portions of the pond. Shorebirds are particularly dependent on shallow water and seldom use habitats in which the water is deeper than 6 inches (California Department of Fish and Game 1995). Water depths of one inch or less are valuable for smaller shorebirds such as Least and Western sandpipers. Deeper water is important for diving ducks, cormorants, grebes, and pelicans.

Managed Semi-permanent/Permanent Wetlands

Many of the UBBWA's resident wildlife species are highly dependent on semi-permanent and permanent wetlands during the late spring and summer when seasonal wetlands are dry. Generally, the two primary habitat requirements of wetland wildlife during this time period are sufficient cover and protection from predators, and an abundant food supply of aquatic invertebrates. Such invertebrates are the primary source of dietary protein for ducks and other wetland-dependent birds during the breeding season. Breeding ducks and shorebirds eat invertebrates almost exclusively, but herons eat other direct consumers of invertebrates such as fish and amphibians.

Managed Semi-Permanent Wetlands

Commonly referred to as "brood ponds," semi-permanent wetlands are flooded during the spring and summer, but may experience a 2–6 month dry period each year. Semi-permanent wetlands in the UBBWA provide breeding birds and other wetland wildlife protection from predators as well as abundant invertebrate food supplies. Water depths of 6–12 inches are necessary to allow wildlife access to invertebrate forage; however, permanent deeper and larger areas are also important in that they provide open water.

Both managed semi-permanent and permanent wetlands provide ample protection from predators; however, semi-permanent wetlands can supply a much greater abundance of invertebrates. Invertebrate populations decline with prolonged flooding, thus a dry period of approximately

two months each year is essential for maintaining abundant populations of invertebrates (California Department of Fish and Game 1995). During this dry period, excess vegetation is cut or burned and worked back into the soil to provide large amounts of organic matter to fuel the production of invertebrates in successive years.

Permanent Wetlands

Permanent wetlands remain flooded throughout the year. Due to year-round flooding, permanent wetlands support a diverse, but usually not abundant, population of invertebrates. However, submerged aquatic vegetation such as pondweed (*Potomogeton* spp.) and arrowhead (*Sagittaria* spp.) may occur if adequate water clarity exists. The leaves and/or nutlets of these aquatic plants are commonly consumed by waterfowl, particularly gadwalls and canvasbacks. Other aquatic plants including water primrose (*Ludwigia peploides*) and parrot's feather (*Myriophyllum aquaticum*) are potentially invasive and can grow until they fill the water column and impede water movement if located in the water conveyance systems. Permanent wetlands are ultimately dominated by emergent plants such as cattail (*Typha* sp.) and bulrush (*Scirpus* sp.) which must periodically be thinned out in managed wetlands.

Habitat Values of Permanent Wetlands

Managed wetlands as wildlife habitat lie at the core of the wildlife area's focus. Permanent wetlands provide important deep water habitat for diving ducks such as ruddy ducks, scaup, and goldeneye, as well as other aquatic species including pied-billed grebes, coots, and moorhens. The dense emergent cover commonly found on the edges of permanent wetlands are often the preferred breeding grounds for marsh wrens and red-winged blackbirds, and roosting areas for black-crowned night herons, white-faced ibis and egrets. Islands created in the permanent wetlands are the preferred nesting areas for many waterfowl and shorebirds. Muskrats and beaver utilize the tules as building material for their domed homes. Fish trapped in the permanent ponds following the winter floods live throughout the year in these ponds.

Permanent wetlands provide important brood habitat for resident waterfowl including mallard, cinnamon teal and gadwall. Waterfowl will nest within one mile of water, so with this in mind, permanent wetlands are situated less than one mile apart from each other. In late spring and early summer months these wetlands provide the only brood and rearing habitat on the wildlife area. In late summer these same areas provide safe and secure molting habitat because the dense cover provides protection from predators (California Department of Fish and Game 1995).

Young willows and cottonwoods growing around the perimeter of these wetlands provide important habitat for yellowthroats, song sparrows and northern orioles.

Seasonal and Permanent Wetland Habitat Diversity

Wetland habitat diversity including variations in topography, water depths, and vegetation patterns are valuable in supporting a wide variety of wildlife species and can also more effectively resist the potentially adverse effects of plant diseases, mosquito production, and bird depredation. Diversified habitats also provide a variety of foraging opportunities throughout the fall and winter for a variety of target species. Even though some moist-soil plants are poor seed producers they may support excellent assemblages of invertebrates when flooded. Waterfowl also utilize other plants (e.g. cattails and tules) for cover. An ideal seasonal wetland is dominated by waterfowl food plants, contains other moist-soil plants, and provides waterfowl, shorebirds, and wading birds with substantial cover.

UBBWA habitat improvements were initiated in 1999 and were designed to provide such habitat diversity. These enhancements were federally funded by the North American Wetland Conservation Act (NAWCA). To date, over 4,200 acres have been restored or enhanced to a mosaic of seasonal wetland and riparian habitat. NAWCA funded improvements have been completed on all three units of UBBWA and have added topographic variation within ponds, increased connectivity between intakes and drains, and increased independent flooding and drainage capabilities between wetlands. Through the expertise of the Department, California Waterfowl Association, and Ducks Unlimited, these wetland restoration efforts improved manageability of the wetlands. This has allowed the Department to more effectively meet obligations to manage wetlands that are compatible with mosquito abatement considerations and still provide high quality wildlife habitat. The end result is individually managed seasonal wetlands with meandering channels, deep pockets, sculptured islands, and shallow benches growing stands of lush moist soil food plants. This complex diversity in topography and associated vegetation works to meet the specific seasonal and life-stage requirements of a wide assortment of wildlife species.

Vegetation Control

As discussed above, wetland management techniques in the UBBWA are built upon the prescriptions as described in *"A Guide to Wetland Habitat Management in the Central Valley"* (California Department of Fish and Game 1995) and the management techniques have been adapted to specific environmental conditions within the Sacramento Valley.

Some plants can reduce the value of a wetland to waterfowl if the plants become overly abundant. Tules and/or cattails can eventually fill a pond and eliminate open water. When tules or cattails begin to cover more than 50% of a pond the use by migrant waterfowl tends to decrease. Consequently, the pond needs to have plant succession returned to an earlier stage through vegetation control. While species such as white-faced ibis, marsh wren, and black-crowned night herons may benefit from increased tule and cattail cover, the primary goal of the wildlife area is to provide high quality habitat for migratory waterfowl as well as provide habitat diversity consistent with the purpose of acquisition. The tools for tule/cattail control at the UBBWA are discing, mowing, and prescribed burns. Mowing can be most effective when followed by discing and 2–3 months of exposure to the sun, which is necessary in order to dry out and kill the tubers and

rhizomes. Discing tules and cattails also disturbs the soil and provides favorable conditions for invasion by valuable moist-soil waterfowl food plants such as smartweed (California Department of Fish and Game 1995). Ideally, discing of emergent vegetation is preceded by burning, grazing, or mowing to remove the heavy overstory of decadent vegetation and allow for the disc to make good contact with the soil. The effectiveness of discing is reduced if the overstory is not removed because the disc blades will frequently ride on top of the old vegetation and not turn the soil over. An additional benefit for burning or mowing before discing is that important nutrients are quickly made available to growing plants and invertebrates when the pond is reflooded. Additionally, to ensure better control of tules and cattail after discing, the wetland manager can apply a broad spectrum herbicide to kill the rhizomes and tubers before the discing operation, based on the Department's Pesticide Use procedures.

Before discing can begin, the wetland manager must completely drain the pond and allow the soil to dry. This is required so that when the tractor and disc are driven into the field they will not get stuck. An additional benefit of letting the area de-water for an extended period of time is that it allows mobile wetland dependent wildlife an opportunity to leave the area before the heavy equipment begins working. This is a USFWS required avoidance measure for giant garter snakes. Guidelines and measures endorsed by the Service and the Department for other special status species are adhered to for all wildlife. Two types of discs, either a "stubble disc" or a "finish disc", are used. The depth of discing varies with soil structure, soil moisture, implement weight, tractor size, and tractor speed. Most stubble discs have blades that range from 26–36 inches in diameter; these blades make cuts that are 7 to 14 inches deep. Stubble discs are necessary for most types of pond-bottom discing, however, a finish disc and ring-roller can be used afterward to break up dirt clods to create a better seed bed and make walking easier under subsequent flooded conditions (California Department of Fish and Game 1995).

Finish discs, which typically have blades that range from 18–24 inches in diameter, usually make cuts that are 4–6 inches deep. Finish discs often suffice for discing low-growing vegetation such as pricklegrass and swamp timothy, but are less effective for controlling cattails, tules, and other robust wetland plants (California Department of Fish and Game 1995).

Prescribed burns can be used to mimic natural systems, reduce fuel loading, and remove and or control unwanted vegetation for the benefit of wildlife and/or to alleviate human health issues. Section 15307, Chapter 3 (CEQA Guidelines), Title 14, California Code of Regulations (CCR), provides for what is called a Class 7 Exemption which *"consists of actions taken by regulatory agencies as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment. Examples include, but are not limited to wildlife preservation activities of the Department of Fish and Game..."*. Any and all prescribed burns occurring on the UBBWA will be coordinated through and assisted by the California Department of Forestry and Fire Protection (CAL FIRE).

The use and control of prescribed burns on the UBBWA is dependent on the management strategy one is trying to accomplish. Winter and early spring burns can be used to reduce fuel loads in and around sensitive areas such as riparian areas; to reduce mosquito production through the removal of dense stands of joint, salt or crab grass. Late fall and summer burns can be used to completely

set-back habitat succession and/or reduce the amount of mechanical efforts needed to remove rank vegetation from uplands and wetlands units.

Wetland Management and Mosquito Control

With the arrival of the West Nile virus, public health concerns about mosquito production in wetlands, rice fields, or other rural sources have elevated substantially. Seasonal and permanent wetlands at the UBBWA are managed in coordination with the BCMVCD and with BMPs included in the CVHJV's *Technical Guide to Best Management Practices for Mosquito Control in Managed Wetlands* (Kwasny et al. 2004). The term BMPs is used to describe habitat management strategies that are generally defined as a practice or combination of practices determined to be an effective and practical means for reducing mosquito populations, production rates, or the timing of hatch. BMPs can be effectively classified into the following five categories:

- Water Management Practices
- Vegetation Management Practices
- Wetland Infrastructure Maintenance
- Wetland Restoration and Enhancement Features
- Biological Controls

A full discussion on BMPs that are used to reduce mosquito production in managed wetlands at the UBBWA can be found online at: http://www.centralvalleyjointventure.org/assets/pdf/CVJV-Mosquito-BMP.pdf (Kwasny et al. 2004). The Department, in partnership with the BCMVCD, was able to fund a mosquito BMP implementation project with funds made available through Senate Bill 1982. This project focused on improving water control and controlling vegetation that traditionally produced large quantities of mosquitoes on the wildlife area.

Continuous communication and coordination between Wildlife Area and BCMVCD staff regarding water level management, spraying operations, public use scheduling, and planning and design of future wetlands are vital components of management at the UBBWA. The goals of both wetland managers and mosquito vector interests seek effective management of water in wetlands that do not result in significantly increased mosquito numbers.

Even with this close coordination with the BCMVCD, mosquito abatement costs have increased over the last 5 to 7 years. In response to rising costs, the Department has altered how water irrigations are conducted and when fall flood up starts and ends in the various habitat units. Since mosquitoes are hatched when fields are flooded and can mature from egg to adult, under the right conditions, in four days, the Department must strive to complete irrigations (flood up to complete drainage) within four days to avoid mosquito production and concomitant abatement action (treatment).

Recently, fall flood up over a greater portion of the area has been delayed until as late as November 1st to reduce the likelihood of producing significant numbers of mosquitoes. It is thought that cooler temperatures and the possibility of a hard freeze will kill mosquitoes hatched after November 1st. Even with flooding occurring after November 1st mosquito production continues to be a concern

and monitoring and abatement actions often continue well into December. The flooding delay over much of the area makes those wetlands habitats which are flooded early more valuable because they have to support larger numbers of birds over a longer period of time. Management must also consider the increased potential for large outbreaks of avian botulism and avian cholera to result from having large numbers of birds crowded onto small areas.

Pond design had been altered as well. Since irrigation cycles need to be completed within a four day period of time, it is very important that intakes and drains are hydrologically connected and intake and drain capacities are maximized. Wetland restoration efforts are now developing smaller ponds. These adjustments in pond design appear to have undesirable consequences resulting in more edge effect disturbances and overall increased maintenance of added levees, berms, and water control structures. The trade-offs between efforts to control or reduce mosquito production for public health and nuisance abatement purposes and the effects to habitat quality for wildlife will eventually equilibrate as techniques and approaches become refined and more effort is directed at finding workable solutions to this evolving management dilemma.

Annual Grassland

Grasslands are found on all three units of UBBWA. They are scattered throughout the areas to provide habitat for a wide variety of wildlife species. The annual grassland is dominated by a variety of naturalized, nonnative grasses and forbs. Species composition in this community varies widely in response to a variety of micro-scale factors such as soil moisture, soil fertility, disturbance (e.g. gopher mounds), and soil depth. Common species in these grasslands include Italian (annual) rye grass (*Lolium multiflorum Lam*.), medusa head (*Taeniatherum caput-medusae*), soft chess (*Bromus hordeaceus*), filaree (*Erodium botrys*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneum*), slender wild oats (*Avena barbata*), ripgut brome (*Bromus diandrus*), and rose clover (*Trifolium hirtum*).

The importance of the grassland community habitats at the UBBWA is heightened due to its relative scarcity in the region, a result of habitat to agriculture conversions over the past 50 plus years. Moreover, these habitats continue to provide important breeding and foraging habitat to numerous species. These habitats support grassland-associated wildlife species such as northern harrier, California horned lark (*Eremophila alpestris actia*), and western meadowlark (*Sturnella neglecta*). Grasslands also provide important breeding and foraging habitat for upland game birds such as mourning dove and ring-necked pheasant, as well as nesting habitat for resident waterfowl such as mallard, cinnamon teal, and gadwall. Grasslands also support abundant small mammals such as California ground squirrel (*Spermophilus beecheyi*), which in turn attract many avian, mammalian, and reptilian predators such as Swainson's hawk, coyote (*Canis latrans*), and gopher snake (*Pituophis melanoleucus*).

Vernal Pond and Swale

Vernal pools are a unique, rare, and rapidly declining community in California. Because of the limited distribution of this community in the state and its continued decline due to land

conversion for development and other uses, many vernal pool-associated wildlife species receive state or federal protection or are considered species of concern. In addition to these species which are restricted to vernal pools and swales, a variety of more generalist wildlife forage and breed in these habitats as well, such as Pacific chorus frog, wetland-associated insects, shorebirds, and waterfowl.

In the classification scheme of Sawyer and Keeler-Wolf (1995) the habitat type to which the vernal pond/swale habitat type seems to have the closest affinity is the Northern claypan vernal pool series, which is also a CNDDB "high priority" habitat type. On UBBWA this plant community occurs in the vernal pool swales in field 312 in the Llano Seco Unit. Potential species to occur in these vernal pool swales include: vernal pool tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp.

Riparian Woodland

Riparian woodland was probably a dominant habitat type along Butte Creek and the sloughs in the vicinity of UBBWA. Riparian scrub is a shrub-dominated community found typically found along stream margins and within the streambed on gravel bars and similar formations. This community is typically dominated by phreatophytes (water-loving plants) representative of early to mid successional stage vegetation communities within riparian areas in California's Central Valley. Typical species include native plants such as California rose (*Rosa californica*), sandbar willow (*Salix exigua*), buttonbush (*Cephalanthus occidentalis* var. *californicus*), and arroyo willow (*Salix lasiolepis*), along with nonnative invasive species like Himalayan blackberry (*Rubus discolor*). Native trees such as cottonwood (*Populus fremontii*), alder (*Alnus rhombifolia*), and Oregon ash (*Fraxinus latifolia*) are occasionally found overtopping the shrub layer. Riparian woodland is a tree-dominated community found adjacent to riparian scrub on older river terraces where flooding frequency and duration is less. Common native overstory species in riparian communities include cottonwood, alder, valley oak (*Quercus lobata*), Oregon ash, black willow (*Salix gooddingii*), California sycamore (*Plantanus racemosa*), and box elder (*Acer negundo*). The understory is typically sparse in this community although native species such as California rose, California grape (*Vitis californica*), Santa Barbara sedge (*Carex barbarae*), mulefat (*Baccharis salicifolia*), California barley (*Hordeum brachyantherum* ssp. *californicum*), creeping wild rye and potentially blue elderberry (*Sambucus mexicana*), occur in tree canopy openings.

The riparian habitat at UBBWA is extensive and expanding. A major focus of area staff is expanding the width of current stands of riparian habitat and developing a riparian corridor along the 13 miles of Butte Creek currently owned by the Department. This habitat is important to a number of wildlife species, many of which are restricted to riparian communities. Riparian communities in California currently cover only a small fraction of their historic range, due to the widespread conversion of river floodplain to agriculture. As such, the riparian communities at the UBBWA provide important foraging habitat for many migrating and wintering birds in the Pacific Flyway, as well as breeding individuals from a variety of taxa. Cavity nesting species such as tree swallow, wood duck, and several woodpecker species benefit from the presence of riparian habitat. Wildlife species known to occur in the riparian habitat at UBBWA include California Blacktail deer, (*Odocoileus spp.*), Cooper's hawk (*Accipter cooperii*), sharp-shinned hawk (*Accipiter striatus*),

red-shouldered hawk, western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), kingfisher, yellow warbler, willow flycatcher (*Empidonax traillii*), western grey squirrel (*Sciurus griseus*), and western aquatic garter snake.

Ditch

Ditches are found throughout most management units within the UBBWA. They typically contain a mixture of weedy herbaceous wetland and upland generalist plants. If frequently cleared, ditch banks may be largely unvegetated and contain only scattered upland weeds or conversely, if unmaintained, they may be densely vegetated. A non-native species commonly found within ditches at the UBBWA is water primrose, a species that can eventually form dense stands that fill the water column, slow down the flow of water, and increase the rate of siltation. When this happens area staff employs control measures which range from mechanical removal to herbicide application. Ditches that are not maintained and hold water for long periods during the growing season may contain a mix of species more commonly found in perennial wetlands or freshwater marshes described above. Ditches serve as corridors, hydrologically connecting land management units.

Wildlife use of the ditches on the wildlife area varies depending upon its location and proximity to other habitats. Ditches that remain inundated throughout the summer months and are connected to rice fields or permanent wetlands can provide important movement corridors between habitats. These ditches are used by giant garter snakes for travel, forage, and basking. These ditches also support species such as western aquatic garter snake, Pacific chorus frog, bullfrog, pond turtles, and various waterfowl and other waterbirds. Ditches are considered lower quality habitat for these species than perennial ponds, however.

Ditches that remain dry through most of the year and contain abundant vegetation may support foraging upland wildlife such as song sparrow (*Melospiza melodia*), white-crowned sparrow (*Zonotrichia leucophrys*), and American goldfinch (*Carduelis tristis*).

Agricultural Crops

Agricultural fields are found on all three units of UBBWA. Rice is the primary agricultural crop, and is the only one grown commercially on the Wildlife Area. Other crops include corn, safflower, milo, and Sudan grass. These crops are grown specifically to provide food and cover for resident and migratory wildlife species. The corn is grown to provide forage for sandhill cranes; however, it is utilized by a wide variety of mammals and birds throughout the summer, winter, and fall. The corn is not harvested and the stalks are allowed to fall over a two year period. This provides residual nesting cover for ground nesting birds over two nesting seasons. The third spring the area is replanted to corn and the cycle starts again.

Safflower is planted in late March or early April once the ground is sufficiently dry to prepare the field for planting. The safflower is dry land farmed, meaning it is not irrigated, other than to initiate germination of the seed. The safflower is mowed in late July or early August to provide forage for mourning dove. Ring-necked pheasants and blackbirds forage on the scattered seeds throughout the fall and winter.

Milo is planted in the spring as well. This is planted to provide thermal and escape cover for upland game birds such as ring-necked pheasant. Additionally, this can be flooded in December to provide excellent waterfowl food.

Special Status Species

Special status plants are those plants listed as threatened or endangered under either the Federal or California Endangered Species Acts (ESA/CESA). The California Native Plant Society (CNPS) also maintains a list of rare and endangered plants; however, these plants carry no formal regulatory status, except for those plants also listed as threatened or endangered by the federal government or State of California. Based on queries of the USFWS, Department, and the CNPS databases of threatened and endangered species in the geographic where UBBWA is situated, there are no plant species listed as either endangered or threatened in the vicinity or on UBBWA. The CNPS lists 11 species which may occur in the region; however, only three species have been documented on the UBBWA (Table 3.5-2). A discussion on the habitat requirements for each of these species and their potential for occurrence within the UBBWA is provided below.

Figure 6 Land Cover – Little Dry Creek Unit

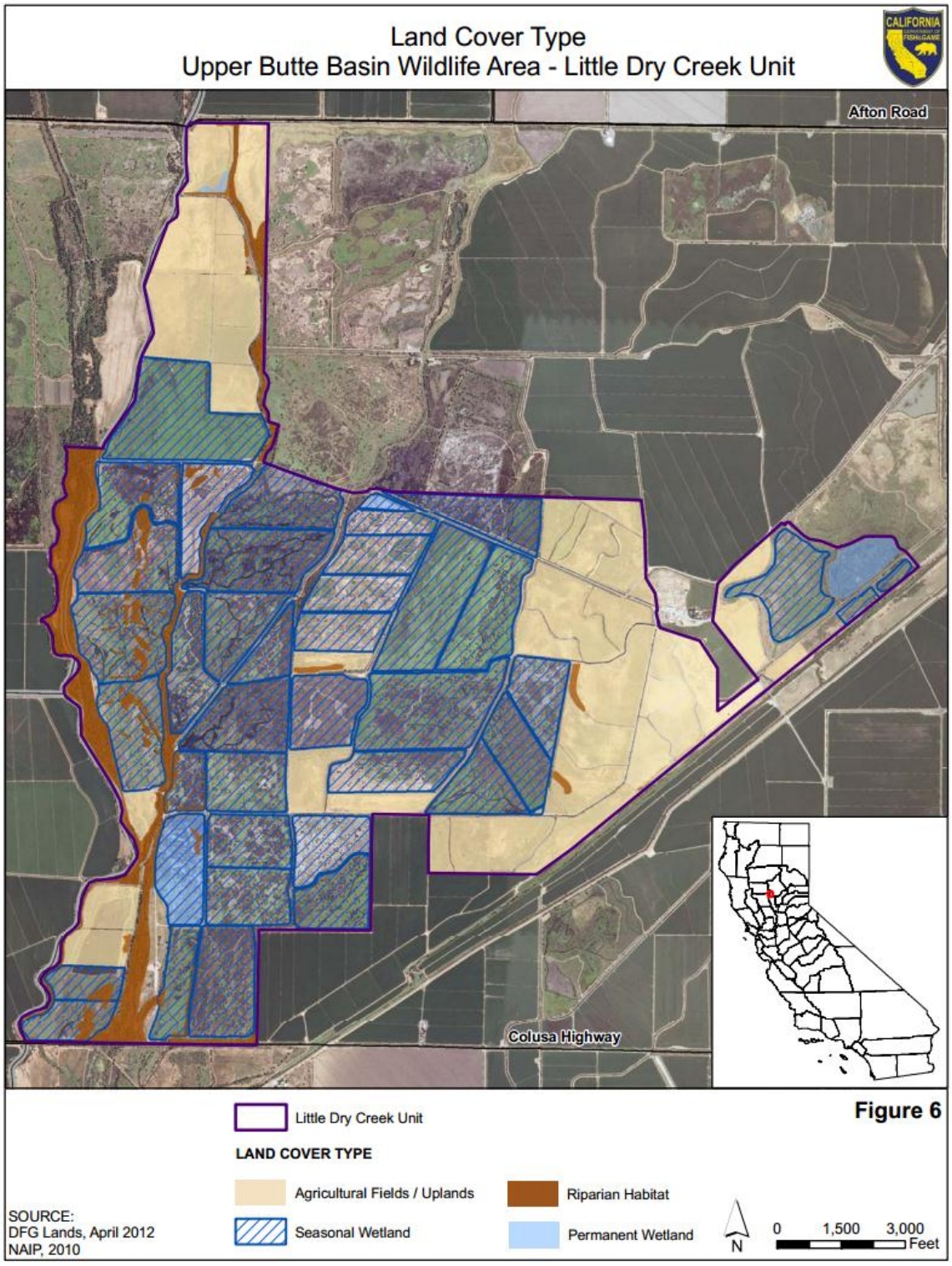


Figure 7 Land Cover – Howard Slough Unit

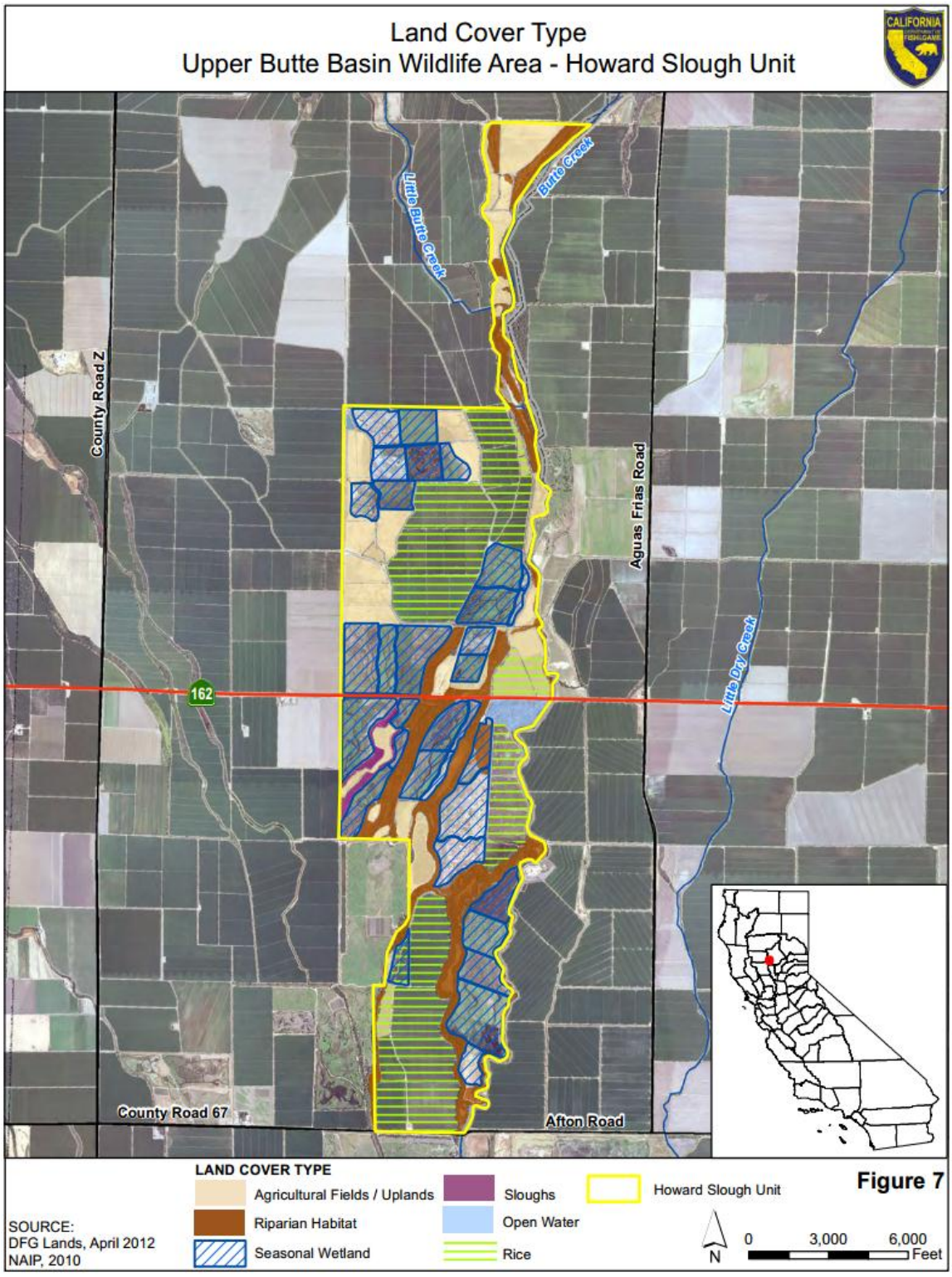


Figure 8 Land Cover – Llano Seco Unit

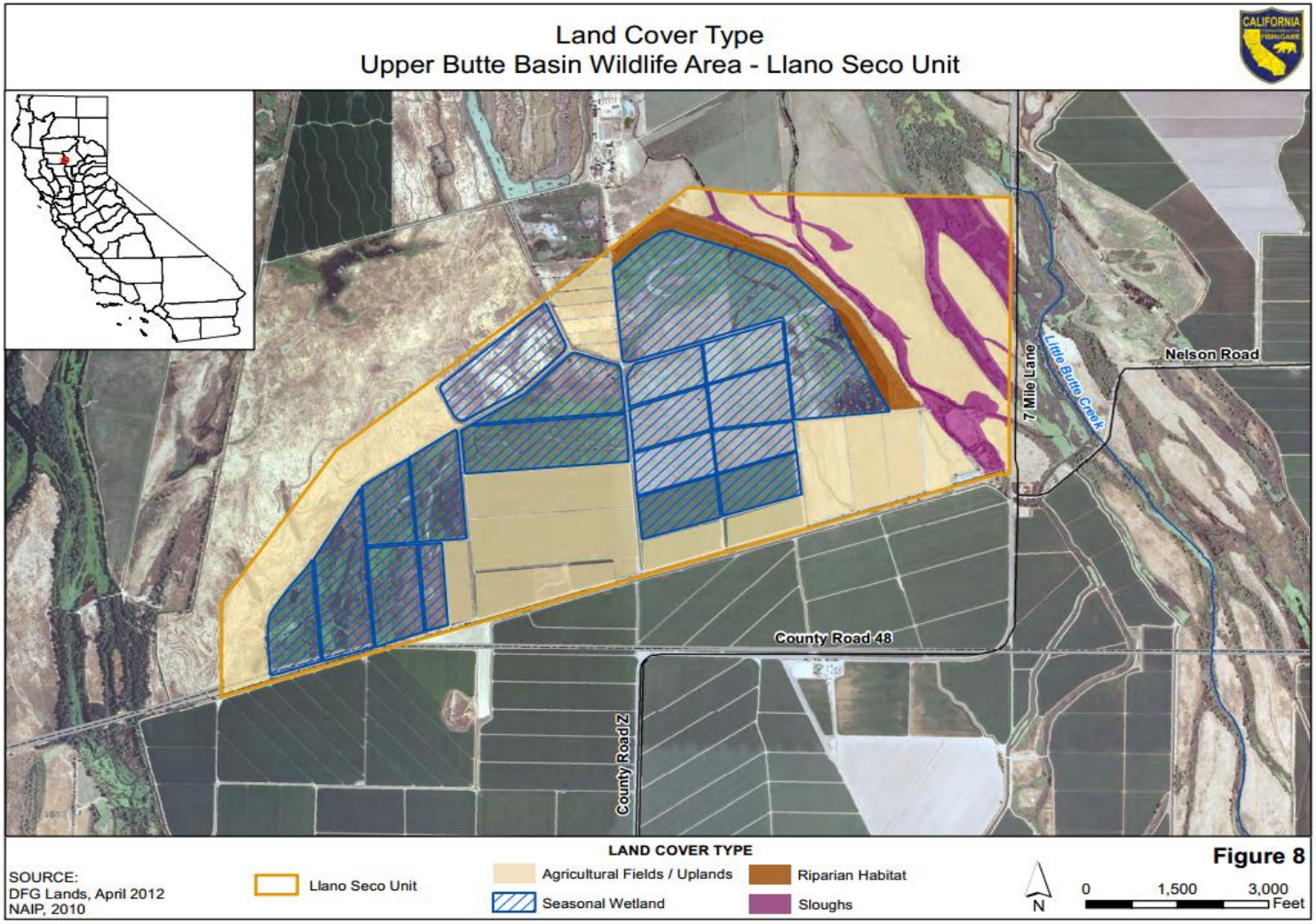


TABLE 3.5-2
CNPS SPECIAL STATUS PLANTS WHICH OCCUR ON OR IN THE VICINITY OF UBBWA

Species	Status 1			Habitat and Blooming Period	Potential for Occurrence
	USFWS	CDFW	CNPS		
Ferris' milkvetch *Astragalus tener* var. *ferrisiae*	FSC	--	1B	Meadows, valley and foothill grassland, subalkaline flats on overflow land in the Central Valley; usually seen on dry, adobe soil, 5 to 75 meters in elevation. Blooms April – May	Documented in Field 103 at Little Dry Creek in 1993. Surveys have been conducted subsequent to initial finding; however, not seen again.
Heartscale *Atriplex cordulata*	FSC	--	1B	Alkaline flats and scalds in the Central Valley, sandy soils in Chenopod scrub, valley and foothill grassland, meadows, from 1 to 375 (600) meters in elevation. Blooms April – October	No suitable habitat occurs on any of the three units of UBBWA. The observation for this species is located on the Pennington USGS quad map.
Lesser saltscale *Atriplex minuscula*	--	--	1	Annual herb occurring in chenopod scrub, playas, and valley and foothill grasslands with sandy soil and alkali substrate Blooms May – October	This species has never been observed and there does not appear to be suitable habitat for it to occur. The observation for this species is located on the Pennington USGS quad map.
Subtle orache *Atriplex subtilis*	--	--	1	Valley and foothill grassland up to 400 feet in elevation. Blooms May – October	This species has never been observed and there does not appear to be suitable habitat for it to occur. The observation for this species is located on the Pennington USGS quad map.
Fox sedge *Carex vulpinoidea*	--	--	2	Perennial herb occurring in freshwater marshes and swamps and in riparian woodland. Found at elevations 90-3000 feet. Blooms May – June	This species has never been seen at UBBWA although there may be suitable habitat. The observation for this species is located on the Llano Seco USGS quad map.
Pink creamsacs *Castilleja rubicundula* ssp. *Rubicundula*	--	--	1	Annual herb occurring in open areas of chaparral, in meadows and seeps on serpentinite substrate in valley and foothill grassland from 60 -2500 feet in elevation. Blooms April-June	No suitable habitat for this species. The observation for this species is located on the Pennington USGS quad map.
Pappose tarplant *Centrimadia parryi* ssp. *Parryi*	--	--	1	Vernally mesic, often alkaline sites in coastal prairies, meadows and seeps, coastal salt marshes, and valley and foothill grasslands. Blooms May to November	This species has never been seen at UBBWA although there may be suitable habitat. The observation for this species is located on the Pennington USGS quad map.
Recurved larkspur *Delphinium recurvatum*	--	--	1	Perennial herb occurring in chenopod scrub and in alkaline substrate in valley and foothill grassland. Found from 10 to 2200 feet elevation. Blooms March-May	This species has never been seen at UBBWA and the habitat is at best marginal. The observation for this species is located on the Nelson USGS quad map.

TABLE 3.5-2
CNPS SPECIAL STATUS PLANTS WHICH OCCUR ON OR IN THE VICINITY OF UBBWA

Species	Status 1			Habitat and Blooming Period	Potential for Occurrence
	USFWS	CDFW	CNPS		
Rose-mallow *Hibiscus lasiocarpus*	--	--	2	Freshwater marshes and swamps, generally found on wetted river banks and low peat islands in sloughs, known from the Sacramento-San Joaquin Delta watershed, from 0 to 120 meters in elevation Blooms June – September	CNDDB documents occurrences of this species at all three units UBBWA.
Baker's navarretia *Navarretia leucocephala* ssp. *Bakeri*	FSC	--	1B	Vernal pools, swales, meadows and seeps in cismontane woodland, lower montane coniferous forest, and valley and foothill grassland, on adobe or alkaline soils, from 5 to 1,740 meters in elevation. Blooms April – July	This species has never been seen at UBBWA and the habitat is at best marginal. The observation for this species is located on the Pennington USGS quad map.
Brazilian watermeal *Wolffia brasiliensis*	--	--	2	Shallow freshwater marshes. Blooms April – December	This species has been documented at the Llano Seco Unit.

Legal Status Definitions

U.S. Fish and Wildlife Service (USFWS)
E Endangered
T Threatened
FSC Federal Species of Concern

California Department of Fish and Wildlife (CDFW)
E Endangered
T Threatened
R Rare

California Native Plant Society (CNPS) Categories
1A Plants presumed extinct in California
1B Plant species considered rare, threatened, or endangered in California and elsewhere
2 Plant species considered rare, threatened, or endangered in California but more common elsewhere
3 Plants about which we need more information – a review list
4 Plants of limited distribution – a watch list

Astragalus tener var. ferrisiae – Ferris' milk-vetch

Ferris's milk-vetch is an annual herb in the legume family (*Fabaceae*) that grows to heights of approximately 10 inches and flowers in April and May. Historically this species has been known to occur in a variety of habitats including vernally mesic grasslands, marshes, drainage edges, and fallow rice fields. The species requires alkaline soils that are fairly level and vernally moist, and it typically grows on Capay-Clear Lake and Pescadero clay soils. Ferris' milk-vetch is known to grow in association with smooth goldfields (*Lasthenia glabrata*), annual ryegrass (*Lolium multiflorum*), and Sacramento mesamint (*Pogogyne zizyphoroides*). In 1989 this species was found in a fallow rice field in the Lower Dry Creek Unit but was not relocated in subsequent surveys. As discussed in the Historic Land Use section above, this area of the Little Dry Creek Unit was upland in the past and did not possess vernal pools. There are only three known extant occurrences of this species: one occurrence is in the Yolo Bypass Wildlife Area in Yolo County, in the Gray Lodge Waterfowl Management Area in Butte County, and at the Sacramento National Wildlife Refuge in Glenn County. Ferris' milk-vetch is a CNPS List 1B.1 species, but has no Federal or State status.

Atriplex cordulata - heartscale

Heartscale is a 4 to 20-inch tall annual herb in the goosefoot family (*Chenopodeaceae*) that blooms from April to October. This plant occurs in chenopod scrub, alkali seasonal wetlands, and grassland, meadows and playas. CNDDB does not record any occurrences of this species within UBBWA. Heartscale is a CNPS List 1B.1 species with no state or federal status.

Atriplex depressa – brittlescale

Brittlescale is a less than 20-inch tall annual herb in the goosefoot family (*Chenopodeaceae*) that blooms from May to October. This plant occurs in Chenopod scrub, alkali seasonal wetlands, and grassland. CNDDB does not record any occurrences of this species within UBBWA. Brittlescale is a CNPS List 1B.2 species with no state or federal status.

Atriplex minuscula – lesser saltscale

Lesser saltscale is a less than 16-inch tall annual herb in the goosefoot family (*Chenopodiaceae*) that blooms from May to October. This plant occurs in chenopod scrub, playas, and in valley and foothill grassland with sandy, alkaline substrate. CNDDB does not record any occurrences of this species within UBBWA. Lesser saltscale is a CNPS List 1B.1 species with no state or federal status.

Carex vulpinoidea - Fox sedge

Fox sedge is a perennial herb in the sedge family (*Cyperaceae*) that blooms from May to June. This plant is uncommon in freshwater marshes and swamps and riparian woodlands. This species is known from the northern Sacramento Valley and the Cascade/Klamath Ranges. CNDDB does not record any occurrences of this species within UBBWA. Fox sedge is a CNPS List 2.2 species with no state or federal status.

Centromadia parryi spp. parryi - Pappose tarplant

Pappose tarplant is a 4 to 27-inch tall annual herb in the sunflower family (*Asteraceae*) that blooms from May to November. This plant occurs in seasonally wet, fresh, saline, or alkaline marshes. CNDDB does not record any occurrences of this species within UBBWA. Pappose tarplant is a CNPS List 1B.2 species with no state or federal status.

Wolffia brasiliensis - Brazilian watermeal

Brazilian watermeal is a very small perennial floating aquatic herb in the duckweed family (*Lemnaceae*). Shoots are spheric to cylindric floating bodies (0.04 in) with funnel-shaped budding pouches, produce no roots, and blooms from April through December. It typically occurs in shallow freshwater marshes and slow-moving water bodies, and is associated with duckweed and other watermeal species. It is known from the Sacramento Valley and CNDDB records occurrences of this species from the Llano Seco Unit. Brazilian watermeal is a CNPS List 2.3 species with no state or federal status.

Three different special status species in the genus *Atriplex* are known from the vicinity of the UBBWA. These three species are: heartscale (*A. cordulata*), lesser saltscale (*A. minuscula)*, and subtle orache (*A. subtilis*). All are annuals in the amaranth (Amaranthaceae) family (formerly considered part of Chenopodiaceae) and distributed throughout the Central Valley and Bay Area in saline or alkaline habitats. *Atriplex cordulata* and *A. joaquiniana* both grow up to 18 inches in height or taller and may be found in a variety of vernally mesic saline or alkaline habitats including salt scalds, grasslands, and alkali flats. *A. depressa* and *A. persistens* are both low growing, rarely exceeding 8 inches in height. *A. depressa* shares similar habitat requirements with *A. cordulata* and *A. joaquinana* and may frequently be found growing in association with these species; *A. persistens* is more commonly found growing on the drying bottoms of large, alkaline vernal pools. Although none of these species have been found in the UBBWA, all have the potential for occurrence. All three species are federal species of concern and have been placed on List 1B by CNPS.

Hibiscus lasiocarpus – California hibiscus

California hibiscus (*Hibiscus lasiocarpus*) is a robust, shrub-like perennial in the mallow (*Malvaceae*) family. It grows alongside creeks, streams, rivers, and marshes in California's Central valley from Butte County south to San Joaquin County (as well as similar habitats in the central, southern, and southeastern United States). This species is abundant on all three units of the UBBWA and may be found along the Butte Creek, sloughs, and irrigation canals. California hibiscus has been placed on List 2 by CNPS.

Sagittaria sanfordii – Sandford's arrowhead

Sanford's arrowhead (*Sagittaria sanfordii*) is an aquatic perennial in the water plantain (*Altismataceae*) family. It grows in shallow, slow-moving streams, drainage canals, ditches, and pond or lake margins throughout the Central Valley as well as scattered localities on the north and central California coast where it can form large, mono-specific clumps of plants or be interspersed

with a variety of other similar vegetation such as common water plantain (*Alisma plantago-aquatica*). It may be found in suitable habitats throughout most management units within the UBBWA. Sanford's arrowhead is a federal species of concern and has been placed on List 1B by CNPS.

C. Wildlife Resources

The UBBWA supports a diverse assemblage of communities that provide valuable wildlife habitat for a variety of species guilds. These communities are previously described in the "Vegetation Resources" Section. Primary species guilds and key wildlife species that utilize each of the communities are discussed below.

Species Guilds

The UBBWA lies within a central portion of the Pacific Flyway, the major pathway for migratory bird species on the West Coast. Many of the species that inhabit the wildlife area are there during the fall and winter months, when the Central Valley becomes home to an abundance of birds. The most conspicuous groups of wintering birds include waterfowl, shorebirds and wading birds, and raptors. Other groups that utilize UBBWA include upland game species, cavity-nesting birds, and neo-tropical migratory birds.

Waterfowl

A significant feature of the UBBWA is the abundance and variety of wintering waterfowl that migrate down the Pacific Flyway each year. Large numbers of ducks, geese, and swans winter in the wildlife area after migrating from northern breeding areas. Waterfowl populations are a highly valued and diversified biological resource. They are of high interest to a variety of recreational users of the wildlife area, including both hunters and bird watchers. Species that occur in high abundance include northern pintail (*Anas acuta*), northern shoveler (*Anas clypeata*), mallard (*Anas platyrhynchos*), gadwall (*Anas strepera*), American wigeon (*Anas americana*), cinnamon and green-winged teal (*Anas cyanoptera* and *A. crecca*), ring-necked ducks (*Aythya collaris*), tundra swan (*Cygnus columbianus*), snow goose (*Chen caerulescens*), and white-fronted goose (*Anser albifrons*). Some species, such as mallard, gadwall, and Canada goose (*Branta canadensis*) are year-round residents and breed locally in wetlands and nearby uplands.

Natural wetland areas have declined by approximately 95% in California and as a result, waterfowl breeding and wintering populations have declined from historical levels. Therefore, the wildlife area is a critical link in the chain of wetlands that make up the Pacific Flyway, contributing to the preservation of wintering and breeding waterfowl populations.

The first migrant birds appear in early to mid-August when northern pintail arrive. The numbers of birds increase through December when peak numbers are recorded, and then the numbers decrease through February. Peak counts frequently exceed 600,000 birds. They are attracted to the

seasonally flooded wetlands and sanctuaries offered by closed zones which restrict human entrance and disturbance. The most common nesting waterfowl on UBBWA are mallards, gadwall, cinnamon teal, and wood ducks. Upland fields are planted to provide optimal nesting cover and ditches and swales are flooded to facilitate brood movement between nesting and rearing habitat.

Habitat management which targets the propagation of abundant high quality moist soil plants is the primary attractant used by area staff to attract large numbers of waterfowl each fall and winter. The mixture of grains such as rice and corn supplement the natural food plants grown throughout the wildlife area and are actively used by ducks, geese, swans, and cranes throughout the winter months.

Shorebirds and Wading Birds

The managed seasonal wetland habitat at UBBWA provides high quality shorebird habitat for both spring and fall migrant shorebirds. The wetlands are managed to time the drawdown of wetlands in the spring to maximize the potential for shorebirds migrating north through the Sacramento Valley to forage in the shallow water and mudflats. Additionally, summer irrigations are timed to provide wetland habitat when the shorebirds are migrating south toward their wintering grounds.

Shorebirds and wading birds that breed in or near the UBBWA include American avocet (*Recurvirostra americana)*, black-necked stilt (*Himantopus mexicanus)*, killdeer (*Charadrius vociferus*), Virginia rail (*Rallus limicola)*, white-faced ibis (*Plegadis chihi)*, black-crowned night heron (*Nycticorax nycticorax*), great blue heron (*Ardea herodias*), and snowy and great egret (*Egretta thula* and *Ardea alba*). In addition, large numbers of ibis, egrets, and black-crowned night herons from nesting colonies elsewhere in the region use the wildlife area during summer months, feeding primarily on crayfish, fish and amphibians. A considerable number of black-crowned night herons roost in scattered areas on both Howard Slough and Little Dry Creek in areas where there are dense stands of tules or willows.

Shorebird use of UBBWA occurs primarily during summer irrigations, throughout the winter, and during spring drawdown, when there is abundant habitat available. Species seen frequently during these timeframes include: western and least sandpiper (*Calidris maurim* and *minutilla*), long and short-billed dowitchers (*Limnodromus scolopaceus* and *griseus*), dunlin (*Calidris alpina*), greater and lesser yellowlegs (*Tringa melanoleuca* and *flavipes*), whimbrel (*Numenius phaeopus*), long-billed curlew (*Numenius americanus*), and Wilson's phalarope (*Phalaropus tricolor lobatus*).

Restoring and maintaining wetlands at UBBWA can increase habitat which may be utilized by shorebirds and the local wading birds. Expansion of riparian habitat may also provide future rookeries for many of the common wading birds at UBBWA.

Neo-tropical Migratory Birds

Many species of neo-tropical migratory birds migrate through or breed in the UBBWA. The neo-tropical migratory bird guild includes species that breed in North America and winter in Central and South America. Representative species that breed and/or migrate through the Wildlife Area include western kingbird (*Tyrannus verticalis*), western wood-pewee (*Contopus sordidulus*), tree swallow (*Tachycineta bicolor*), barn swallow (*Hirundo rustica*), Bullock's oriole (*Icterus bullockii*), Wilson's warbler (*Wilsonia pusilla*), yellow warbler (*Dendroica petechia*), and blue grosbeak (*Guiraca caerulea*).

Regionally, there have been substantial losses of historic habitat used by neo-tropical migratory species, and available information suggests that population levels for many of these species are declining. Continued management of existing habitat and restoration of additional suitable wetland, riparian, and grassland habitats in the UBBWA is important to maintaining healthy neo-tropical migrant bird populations. Opportunities to increase extent and density of riparian vegetation along Butte Creek, sloughs and irrigation ditches will also benefit species in this guild. Protection and restoration of nesting habitat helps reduce nest parasitism and predation for all species of birds that nest at UBBWA. Management of upland habitat to provide water and variations in height and density of vegetation and food crops, has proven to be beneficial to many neo-tropical migratory song birds.

Raptors

A wide variety of wintering and/or breeding raptors utilize the UBBWA, including red-tailed hawk (*Buteo jamaicensis*), white-tailed kite (*Elanus leucurus*), rough-legged hawk (*Buteo lagopus*), ferruginous hawk (*Buteo regalis*), prairie falcon (*Falco mexicanus*), peregrine falcon (*Falco peregrinus anatum*), kestrel (*Falco sparverius*), barn owl (*Tyto alba*), great horned owl (*Bubo virginianus*), short-eared owl (*Asio flammeus*), and northern harrier (*Circus cyaneus*). Of these, Swainson's hawk (*Buteo swainsoni*), red-tailed hawk, kestrel, white-tailed kite, barn owl, and great horned owl are known to nest in the wildlife area.

All of these raptor species can be seen foraging and hunting for prey in recently flooded wetlands, grasslands, and seasonal wetlands which are being mowed or disced. Management strategies for raptors include optimizing foraging opportunities by managing for a food base consisting of rodents and large insects. Rodent numbers are highly dependent on the timing, magnitude, and duration of flooding from Butte Creek. Maintaining high humidity in pond/wetland bottoms helps to develop high grasshopper numbers. Discing, mowing, and summer irrigations attract large numbers of Swainson's hawks feeding on grasshoppers. Fall preparation of agricultural fields also attracts wintering raptors and often provides important foraging opportunities for Swainson's hawks, shortly before their autumn journey to Mexico and Central America.

Cavity-nesting Birds

Cavity-nesting birds, such as kestrels, tree swallows, and wood ducks (*Aix sponsa*) can be seen throughout the wildlife area. Providing nesting boxes for these cavity-nesters benefits these species in the wildlife area, as shown by the success of a series of nest box projects.

Swallows are summer migrants, occurring in the wildlife area from late winter to early fall (February–October), with peak abundance generally in June and July. Swallows are particularly abundant around wetland and agricultural fields when flying insects are also abundant.

Upland Game Birds

The UBBWA provides habitat for several upland game birds of great interest to recreational hunters. The primary upland game bird species that utilize the wildlife area are mourning dove (*Zenaida macroura*) and ring-neck pheasant (*Phasianus colchicus*). Area staff plant safflower which is mowed to provide additional foraging prospects for these species. These management strategies have resulted in improved upland game bird hunting throughout the wildlife area. Late rains, winter and spring flood events can significantly reduce upland game populations by reducing adult carryover and reducing nesting cover, thereby reducing recruitment success and limiting populations in subsequent years.

Special Status Species

Special status species are legally protected or are otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. Special status wildlife species addressed in this section include:

- Species listed as threatened or endangered under the ESA/CESA
- Species fully protected in California under the California Fish and Game Code
- Species listed as species of special concern by the Department
- Species identified as priorities for recovery under CALFED's MSCS

Table 3.5-3 is a list of special status species. This list contains 21 special status species which may occur on UBBWA, fourteen of which have been documented and eleven occur regularly at UBBWA. The table also provides information on each species' regulatory status, habitat requirements, and potential for occurrence and each species is discussed further in the text that follows. Migratory birds described as "winter" visitors may occur in small numbers throughout the year, but do not breed in the area and are most common in winter.

TABLE 3.5-3
SPECIAL STATUS WILDLIFE KNOWN OR WITH POTENTIAL TO OCCUR AT UBBWA

Species	Status [1] USFWS	Department	MSCS	Habitat	Potential for Occurrence
Invertebrates					
Vernal pool tadpole shrimp *Lepidurus packardi*	E	--	m	Inhabit vernal pools and seasonal wetlands, which range from 2 m^2 to over 350,000 m^2.	Potential to occur in the vernal pool swales in field 312 at the Llano Seco Unit, which provide suitable habitat.
Vernal pool fairy shrimp *Branchinecta lynchi*	T	--	m	Typically inhabit vernal pools and seasonal wetlands less than 200 m^2 and less than 5 cm deep; they may also occur in larger, deeper pools.	Potential to occur in the vernal pool swales in field 312 at the Llano Seco Unit, which provide suitable habitat.
Conservancy fairy shrimp *Branchinecta conservatio*	E	--	m	Large vernal pools and seasonal wetlands, ~ 1 acre in size.	Potential to occur in the vernal pool swales in field 312 at the Llano Seco Unit, which provide suitable habitat.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T	--		Breeds and forages exclusively on elderberry shrubs (*Sambucus mexicana)* below 3,000 feet. Occurs in the central Valley of California.	Species has been observed at the Howard Slough Unit.
Reptiles					
Giant garter snake *Thamnophis gigas*	T	T	r	Inhabits slow-moving streams, sloughs, ponds, marshes, flooded rice fields, irrigation and drainage ditches, and adjacent upland areas.	Have been positively identified on both Llano Seco and Howard Slough. Several unconfirmed sightings at Little Dry Creek as well.
Northwestern Pond Turtle *Clemmys marmorata marmorata*	--	SSC		Inhabits slow-moving streams, sloughs, ponds, marshes, flooded rice fields, irrigation and drainage ditches, and adjacent upland areas.	This species is abundant on all three units of UBBWA. It is commonly seen in water delivery ditches and Butte Creek.
Amphibians					
California tiger salamander *Ambystoma californiense*	Populations in Santa Barbara and Sonoma counties are listed as endangered and the Central California population is listed as threatened.	Currently for listing as state threatened	m	In winter, breeds in vernal pools and seasonal wetlands with a minimum 10-week inundation period. In summer, aestivates in grassland habitat, primarily in rodent burrows.	There is some debate that California tiger salamanders have been extirpated from all of Butte and Glenn counties. Last record found in Butte County was in 1941.

TABLE 3.5-3
SPECIAL STATUS WILDLIFE KNOWN OR WITH POTENTIAL TO OCCUR AT UBBWA

Species	Status [1] USFWS	Department	MSCS	Habitat	Potential for Occurrence
California red-legged frog *Rana aurora draytonii*	T	--		Historically found throughout Sierra Nevada foothills and Coast Range mountains. Species is now known to occur in isolated localities in the Sierra Nevada, northern coast, and northern Transverse Ranges. Typically found along slow moving streams, ponds, or marshes with emergent vegetation.	Not likely present. Has not been identified at UBBWA and competition and predation by bullfrogs and non-native fish likely limit their potential for occurrence at UBBWA. There are not CNDDB records of any CRLF on any of the USGS quads where UBBWA is situated.
Birds					
Cackling goose (Aleutian Canada) *Branta hutchinsii leucopareia*	Delisted	--		When wintering in California, Aleutian Canada goose forages in agricultural fields consuming green shoots and the seeds of crops as well as seed of wild grasses and forbs.	This species has been observed at the Howard Slough Unit.
Bald eagle *Haliaeetus leucocephalus*	Delisted	FP	m	Winter visitor to the Central Valley floor. Forages primarily in fish-bearing waters, but also in open terrestrial habitats.	Frequently observed at all three units of UBBWA in the winter.
Swainson's hawk *Buteo swainsoni*	--	T	r	Nests in riparian woodlands and isolated trees; forages in grasslands, shrub lands and agricultural fields.	Known to nest and forage in open habitats throughout the sites, which provide suitable habitat. Nests have been found at both Little Dry Creek and Howard Slough.
American peregrine falcon *Falco peregrinus anatum*	Delisted	Delisted FP	m	Nonbreeding visitor to the Central Valley. Forages in a wide variety of habitats, but is most common near water, where shorebirds and waterfowl are abundant.	Known to hunt the abundant waterfowl and shorebirds on all three units of UBBWA. Present from mid-summer to late winter.
Greater sandhill crane *Grus canadensis tabida*	--	T FP	r	Winter visitor to the Central Valley. Forages primarily in moist croplands with rice or corn stubble; also frequents grasslands and emergent wetlands.	Known to forage in the agricultural habitats and wetlands throughout the site, which provide suitable winter foraging habitat.
Burrowing owl *Athene cunicularia*	--	SSC		Nests are generally found in the abandoned burrows of small mammals such as ground squirrels; however, it can dig its own burrows in soft soil and is also known to use culverts and other man-made structures. Burrowing owl forages on insects and small mammals and may also consume reptiles, birds, and carrion.	This species has been observed at both the Llano Seco and Little Dry Creek Units.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	PT	E		Nests in broad, dense riparian forests with a thick understory of willows. Generally, sites with a dominant cottonwood overstory are preferred for foraging and it may avoid Valley Oak Riparian habitats when scrub jays are abundant.	This species has been observed at both the Llano Seco and Howard Slough Units. Two nests have been observed at the Howard Slough Unit.
California Black Rail *Laterallus jamaicensis coturniculus*	--	T		Preferred nesting habitat has water that is about one inch deep year-round and short, dense vegetation. Foraging habitat is similar to nesting habitat.	This species was erroneously reported at the Little Dry Creek Unit. Although listed in the CNDDB, surveys for the species by Jerry Tecklin in 1999 determined there wasn't suitable habitat for the species.

TABLE 3.5-3
SPECIAL STATUS WILDLIFE KNOWN OR WITH POTENTIAL TO OCCUR AT UBBWA

Species	Status [1] USFWS	Department	MSCS	Habitat	Potential for Occurrence
Bank Swallow *Riparia riparia*	--	T		Nests in holes along streams, creeks, and rivers. Requires highly erodible soils. Generally, nests in large colonies. Forages on small flying insects such as mosquitoes and midges.	This species has been observed foraging over the Llano Seco unit. There isn't suitable habitat for this species to nest located on or near any of the three units of UBBWA.
Tri-colored blackbird *Agelaius tricolor*	--	SSC		Uses a variety of habitats, including freshwater marsh, riparian scrub, and other vegetation that provides dense cover for protection from predators. Forages in grasslands, pastures, and agricultural fields.	Breeding colonies have been observed at both the Howard Slough and Little Dry Creek Units.
Willow flycatcher *Empidonax traillii*	--	E	r	Migrates through the Central Valley during spring and fall. Forages in riparian willow scrub.	Known to forage in low numbers in riparian habitats at Llano Seco and Howard Slough Units.
Mammals					
American Badger *Taxidea taxus*	--	SSC		Inhabits dry scrub habitats and open herbaceous habitats. Strong digger and need friable soils for digging burrows.	A record of the badger exists from the Howard Slough unit. Numerous other observations reported for the topo quads around UBBWA.
Silver Haired Bat *Lasionycteris noctivagans*	--	SSC		Closely tied to forested habitats and generally forages less than 20 feet above forest streams, ponds, and open brushy areas. Roosts in hollow trees, snags, buildings, rock crevices, caves, or under bark.	This species is not known to occur at any of the three units of UBBWA

Legal Status Definitions

U.S. Fish and Wildlife Service (USFWS)
E Endangered
T Threatened
PFD Proposed for delisting

California Department of Fish and Wildlife (Department)
E Endangered
T Threatened
FP Fully Protected
SSC Species of Special Concern

CALFED Multi-Species Conservation Strategy (MSCS)
R Recovery: CALFED is expected to undertake all actions within the ERP ecological management zones and program scope necessary to recover the species so that its long-term survival in nature is assured.
r Contribute to recovery: CALFED will make specific contributions to the species' recovery; however, CALFED actions will have a limited effect on the species in a limited portion of its range.
m Maintain: CALFED will take actions to maintain the species by improving habitat conditions where practicable and by avoiding, minimizing, and compensating for any adverse effects. This designation is less rigorous than "contribute to recovery," and CALFED actions are expected to have minimal effects on the species.

SOURCE: EDAW 2005

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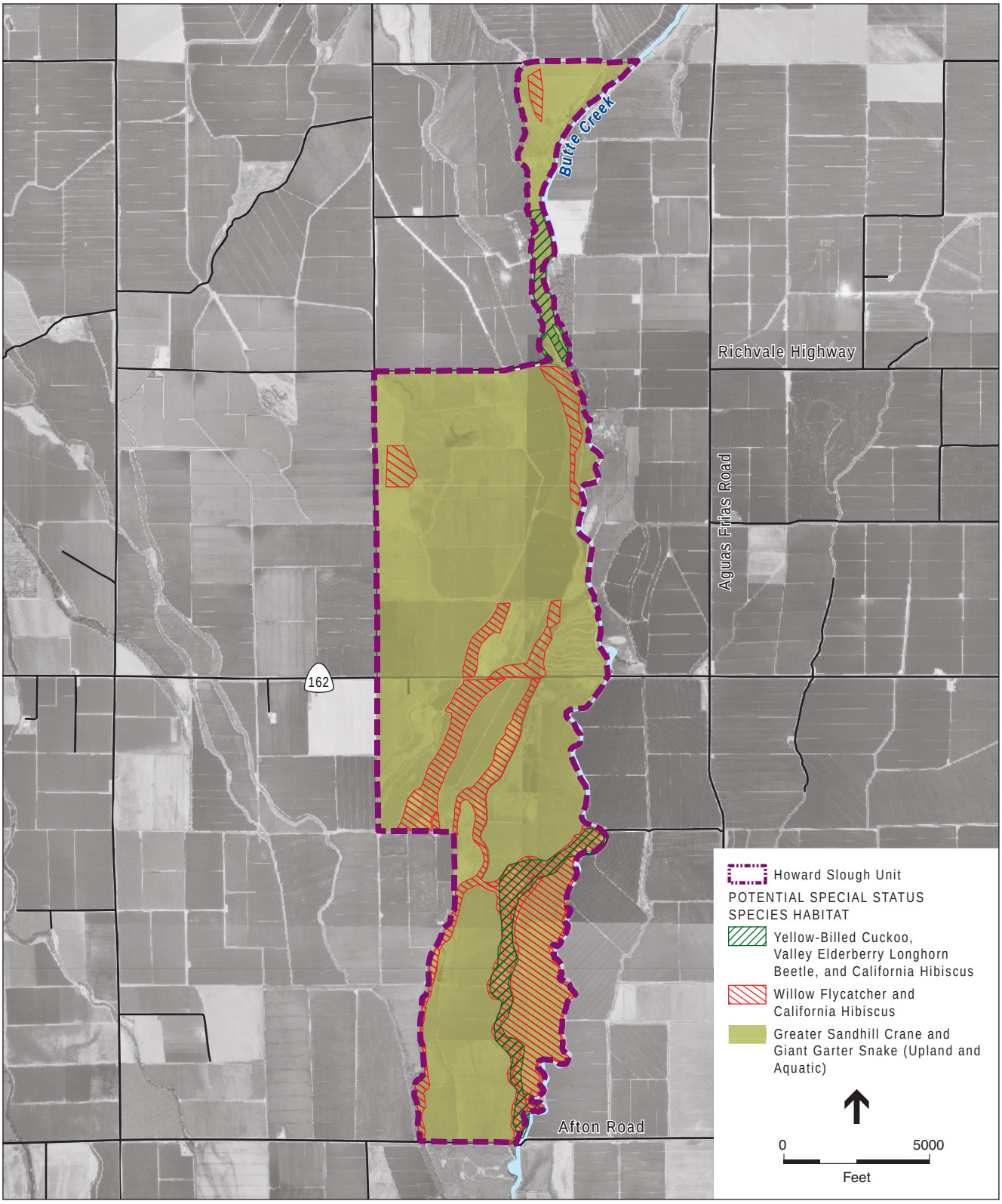


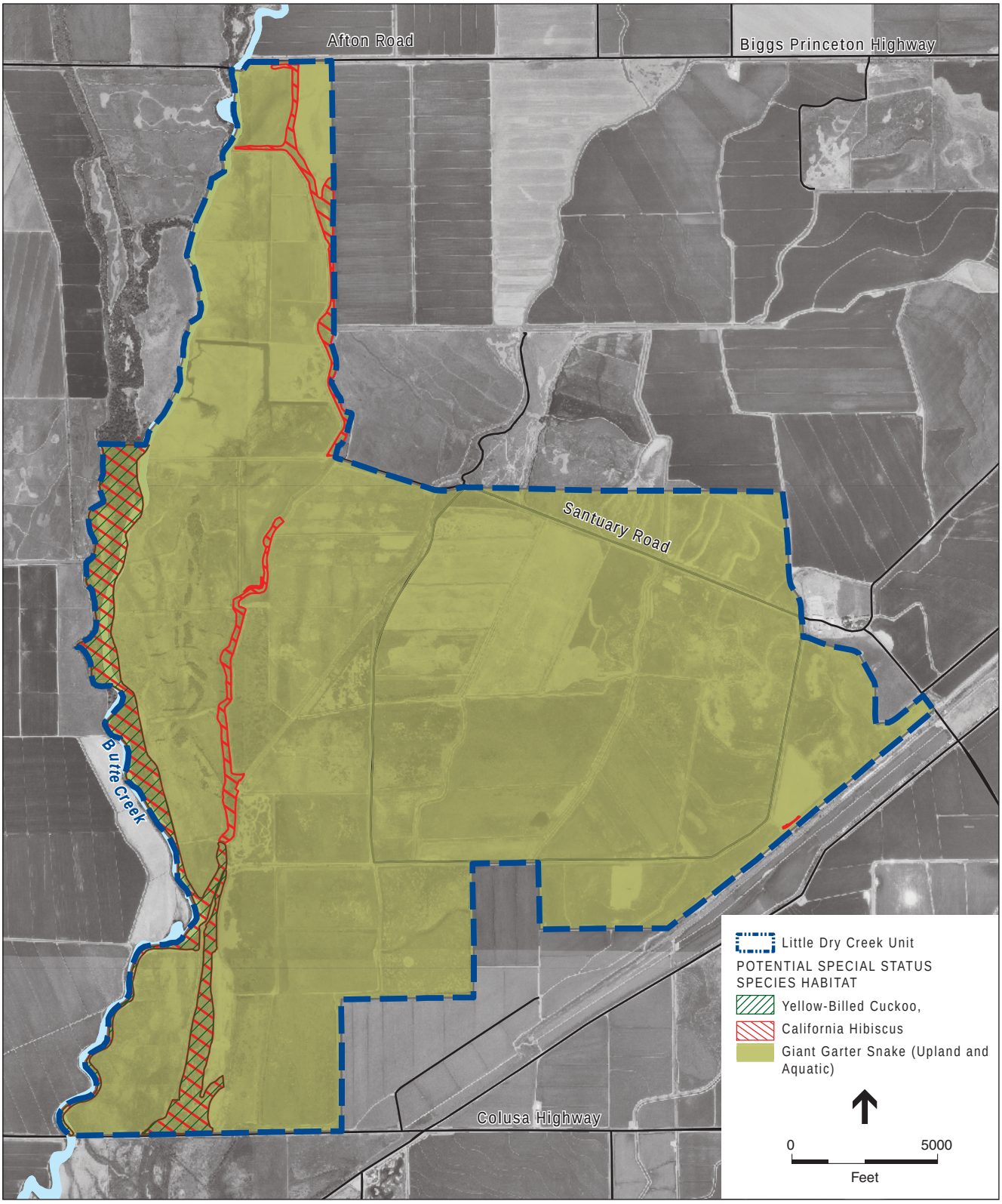
SOURCE: CaSil, 2001; CDFG, 2004; and ESA, 2006

Exhibit 3.5-3
Potential Special Status Species Habitat – Howard Slough Unit

SOURCE: CaSil, 2001; CDFG, 2004; and ESA, 2006

Upper Butte Basin Land Management Plan . 204412

Exhibit 3.5-4
Potential Special Status Species Habitat – Llano Seco Unit



SOURCE: CaSil, 2001; CDFG, 2004; and ESA, 2006

Exhibit 3.5-5
Potential Special Status Species Habitat –
Little Dry Creek Unit

Invertebrates

Vernal pool crustaceans

Vernal pool crustaceans are restricted to vernal pools, swales, and other seasonal pools. Eggs of these species lie dormant during most of the year in the form of cysts, which are capable of withstanding extreme environmental conditions, such as heat, cold, and prolonged desiccation. The cysts hatch when the pools fill with rainwater, and the young rapidly develop into sexually mature adults. Not all of the cysts hatch with the first rainfall; some remain dormant to hatch during subsequent events or in later years. Eggs are dispersed from one pool to another on the feet of birds and mammals, which move between the pools, and by sheetflow during high water events.

Reptiles

Giant garter snake

Giant garter snake (*Thamnophis gigas*) inhabits sloughs, marshes, low-gradient streams, flooded rice fields, ponds, irrigation and drainage ditches, and adjacent upland habitats. This snake forages primarily at the interface between open water and emergent aquatic vegetation, and is most often found in habitats with slow flowing or standing water, permanent summer water, mud bottoms, earthen banks, and an abundance of prey such as small fish, frogs and tadpoles. Giant garter snakes use upland habitat with grassy or shrubby banks for basking and thermoregulation. They also use upland burrows and soil or rock crevices as nighttime refugia, daytime escape cover, and winter aestivation sites. Giant garter snakes typically emerge from winter retreats from late March to early April and can remain active through October. The timing of their annual activities is subject to varying seasonal weather conditions. Cool winter months are spent in dormancy or periods of reduced activity. While this species is strongly associated with aquatic habitats, individuals have been noted using burrows as far as 165 feet from marsh edges during the active season and retreats more than 800 feet from the edge of wetland habitats while overwintering (Wylie et al. 1997, USFWS 1999). Giant garter snakes have been positively identified at both Llano Seco and Howard Slough. There are also numerous other observations of large garter snakes that haven't been positively identified as giant garter snakes on all three units of UBBWA. The giant garter snake is state and federally listed as threatened, and CALFED has pledged to contribute to the recovery of this species.

Northwestern Pond Turtle

Northwestern pond turtles are most commonly found in sloughs, ponds, marshes, creeks, and irrigation ditches. This species frequently basks out of the water on logs or other objects when water temperatures are low and air temperatures are greater than water temperatures. Mating typically occurs in late April or early May but may occur year-round. Nests are located in upland locations that may be up to 0.25 mile from an aquatic site. Hatchling turtles are thought to emerge from the nest and move to aquatic sites in the spring. CNDDB records pond turtles from the Little Dry Creek unit, and UBBWA staff has observed numerous individuals at both Howard Slough and Llano Seco as well. A graduate student from California State University, Chico, collected data on turtle movement and habitat utilization at Howard Slough in 1999 and 2000 (Lechner 2000). The northwestern pond turtle is listed as a species of concern by the Department.

Amphibians

California tiger salamander

California tiger salamander (*Ambystoma californiense*) breed in vernal pools during wet winter conditions, and aestivate in adjacent grassland habitat after the pools have dried. Although vernal pools are the preferred habitat for these species, other aquatic habitats may be used, provided that they are free of predatory fish and hold water long enough to sustain reproduction. California tiger salamanders require pools that are large enough to retain water during the ten weeks required for larval development and metamorphosis (Jennings and Hayes 1994). Other seasonal wetlands throughout the wildlife area may also be used by these species, provided that their habitat requirements are met.

California Red-Legged Frog

Red-legged frogs are generally found in dense, shrubby riparian vegetation associated with deep (0.7 m), still or slow-moving water (Jennings 1988b; Hayes and Jennings 1988). The shrubby riparian vegetation that structurally seems to be most suitable for California red-legged frogs is provided by arroyo willow (Salix lasiolepis), cattails (Typha sp.), and bulrushes (Scirpus sp.) (Jennings 1988b). Although California red-legged frogs can occur in ephemeral or permanent streams or ponds, populations probably cannot be maintained in ephemeral streams in which surface water disappears. Juvenile frogs seem to favor open, shallow aquatic habitats with dense submergents.

California red-legged frogs breed from late November to late April (Storer 1925; Hayes and Jennings 1986), likely because their eggs cannot survive when temperature begins to warm (Hayes and Jennings 1986). Males appear at breeding sites two to four weeks before females and form small mobile groups of three to seven individuals that attract females (Storer 1925). Following amplexus, females move to the site of oviposition and attach egg masses containing 2,000 to 6,000 moderate-sized (2.0-2.8 mm in diameter), dark reddish brown eggs to an emergent vegetation brace (Storer 1925). Embryos hatch 6-14 days after fertilization, and larvae require 4-5 months to attain metamorphosis (Storer 1925). Sexual maturity is reached in 2 years for males and 3 years for females (Jennings and Hayes 1985); however, it is believed that both sexes may not reproduce until 3 and 4 years of age, respectively. Females are significantly larger than males (138 mm vs. 116 mm; Hayes and Miyamoto 1984). No data are available on the longevity of California red-legged frogs.

Historically, California red-legged frogs were heavily commercially exploited for food, a situation that led to the species becoming severely depleted by the turn of the century (Jennings and Hayes 1985). Continued exploitation of depleted populations and the prior and subsequent establishment of a diverse exotic aquatic predator fauna that includes bullfrogs, crayfish, and a diverse array of fishes likely contributed to the decline of the California red-legged frog (Hayes and Jennings 1986).

Birds

Non-breeding Water birds

The wildlife area provides important foraging habitat for water birds, including several special status species, although no special status waterbirds are known to nest on site. The special status waterbird in this section include some species that only occur in the Central Valley during winter and the fall and spring migrations. Other included species are present during the late spring and summer breeding season and may nest elsewhere in the Central Valley, but do not breed on site due to lack of suitable habitat.

Non-breeding residents

Greater sandhill crane

Greater sandhill cranes (*Grus canadensis tabida*) are winter visitors to the Central Valley that forage primarily in moist croplands with rice or corn stubble, as well as grasslands and emergent wetlands. These birds arrive in early September and depart in late February or early March. They are found on all three units of UBBWA and are known to roost at both Howard Slough and Little Dry Creek.

Breeding Raptors

The wildlife area provides high-quality habitat for three special status raptors and provides suitable nesting habitat for one species. Section 3503.5 of the California Fish and Game Code provides protection for all raptor nests, including those of the species below. The nests are also protected by the Migratory Bird Treaty Act.

Swainson's hawk

This species nests in large and medium-sized trees such as oak and cottonwood, and forages primarily in grasslands, seasonal wetlands and agricultural fields. Portions of Butte, Glenn, and Colusa have suitable nesting habitat, however the majority of suitable nesting habitat is found in Yolo, Sacramento, and San Joaquin counties. Typical nesting habitat contains scattered trees, riparian strips, open fields and manipulated agricultural fields that are mowed, irrigated and disked on a somewhat regular basis (Estep 2003). Swainson's hawk nests and foraging activity have been observed on both the Howard Slough and Little Dry Creek units of UBBWA. This species is particularly noticeable when disking and mowing, or during the initial fall flood in August when they pursue small mammals exposed by discing or mowing operations. Swainson's hawk is state listed as threatened and is a federal species of concern; it is estimated that the 700 to 1,000 breeding pairs in California represent less than 10% of the historical population. CALFED has pledged to contribute to the recovery of this species.

Non-breeding Raptors

The UBBWA provides important winter foraging habitat for a variety of birds of prey. The raptors in this section include some species that only occur in the Central Valley during winter and during

fall and spring migrations. Other included species are present during the late spring and summer breeding season and may nest elsewhere in the Central Valley, but do not breed on site due to lack of suitable habitat.

Winter visitors

Bald eagle

Bald eagles (*Haliaeetus leucocephalus*) are a winter visitor to the Central Valley floor. This species forages primarily over open water and occurs regularly at the UBBWA during the winter months. Bald eagles were federally listed as threatened but have now been delisted. The Bald eagle remains state listed as endangered, is a fully protected species under the California Fish and Game Code, is federally protected by the Bald Eagle Protection Act of 1940, and is listed as a species to be maintained under CALFED's MSCS.

Merlin, American peregrine falcon, and prairie falcon

These three falcons are primarily winter visitors to the Central Valley, and are known to forage in the UBBWA. Merlins (*Falco columbarius*) forage in a variety of habitats and feed primarily on small shorebirds and passerines. The American peregrine falcon (*Falco peregrinus anatum*) forages primarily in mudflats and open water where it preys upon waterfowl and shorebirds, and hence also occurs on-site from mid summer through spring, a time period corresponding with the presence of migratory shorebirds. Prairie falcons (*Falco mexicanus*) forage in upland habitats, where they prey upon small mammals, and less frequently birds. Although the American peregrine falcon has been delisted as state endangered it is a fully protected species under the California Fish and Game Code. American peregrine falcon is also listed as a species to be maintained under CALFED's MSCS.

Non-breeding Songbirds

The wildlife area provides important foraging habitat for many songbird species that do not nest on site. The songbirds in this section include species that are only known to pass through the area during migration and one summer resident that nests elsewhere in the Central Valley but does not breed on site due to lack of suitable habitat.

Non-breeding resident

Bank swallow

The bank swallow (*Riparia riparia*) is a neo-tropical migrant that nests in vertical banks and cliffs near water, and forages for insects over water. The wildlife area does not contain vertical banks for bank swallow nesting, and the nearest nesting colonies are located along the Sacramento River. A few individuals from these colonies may forage over one of the units of UBBWA after cessation of breeding in late summer. The bank swallow is state listed as threatened and CALFED has pledged to undertake all actions within the ERP ecological management zones and program scope necessary to recover this species.

Migratory visitors

Willow flycatcher

Willow flycatchers (*Empidonax traillii*) nest in montane riparian willows and migrate through the Central Valley in spring and fall. During migration, this species is known to forage in the wildlife area's riparian communities. Willow flycatchers have been observed at the Howard Slough and Llano Seco units. There is no record of breeding for this species at UBBWA and its occurrence is believed to be observations of individuals migrating through the region. Willow flycatcher is state listed as endangered and CALFED has pledged to contribute to the recovery of this species.

D. Fisheries Resources

This section summarizes the current conditions for fisheries resources in UBBWA. It discusses native and nonnative fish use of the UBBWA, aquatic habitats, and special status fish species. The primary sources of information for this section were published reports on the fish, fisheries, ecology, and natural history of Butte Creek.

Butte Creek provides habitat for both warm water and cold water fish species. The warm water fish are year round residents and are found in Butte Creek, irrigation ditches, sloughs, and permanent wetlands in and around UBBWA. The cold water fish species are restricted to Butte Creek, except in periods of high flow when they may get washed out of the main channel of Butte Creek. These species are anadromous and use Butte Creek to pass from their spawning and rearing grounds far upstream down to and through the Sacramento-San Joaquin river delta and out to the Pacific Ocean.

Native anadromous species that occur or have the potential to occur in the UBBWA include spring, fall run, and late fall run Chinook salmon (*Oncorhynchus tshawytscha*), steelhead trout (*O. mykiss*), and Pacific lamprey (*Lampetra tridentata*). Native resident species include, Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Catostomus occidentalis*), tule perch (*Hysterocarpus traski*), and hardhead (*Mylopharodon conocephalus*). Nonnative resident species include largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), white and black crappie (*Pomoxis annularis and P. nigromaculatus*), channel catfish (*Ictalurus punctatus*), white catfish (*Ameiurus catus*), brown bullhead (*Ictalurus nebulosus*), bluegill (*Lepomis macrochirus*), green sunfish (*Lepomois cyanellus*), and golden shiner (*Notemigonus crysoleucas*).

Throughout the Butte Basin the use of different aquatic habitats by various fish species is influenced by variations in permanent habitat conditions, seasonal inundation of the floodplain, and by the habitat requirements, life history, daily and seasonal movements, and behavior of each species. Historically, seasonal flooding covered various lands adjacent to Butte Creek and may have provided important spawning and rearing habitat for many fish species. In winter and spring, however, agricultural fields and wetland habitats throughout the UBBWA often flood during high flows and may be used by resident fish species to restock permanent wetland habitat on UBBWA, as well as by Chinook salmon and steelhead for rearing habitat on their way toward the ocean.

Aquatic Habitats

Primary aquatic habitats throughout the UBBWA include permanent wetlands, sloughs, irrigation ditches, and Butte Creek. General characteristics of each of these aquatic habitats are provided below.

TABLE 3.5-4
FISH SPECIES IN BUTTE CREEK AND THE UBBWA

Common Name	Scientific Name	Common Name	Scientific Name
Pacific Lamprey	*Lampetra tridentata*	Bluegill	*Lepomis macrochirus*
Pacific Brook Lamprey	*Lampetra pacifica*	Tule Perch	*Hysterocarpus traski*
Channel Catfish	*Ictalurus punctatus*	Green Sunfish	*Lepomois cyanellus*
Brown Bullhead	*Ameiurus nebulosus*	Redear Sunfish	*Lepomis microlophus*
Black Bullhead	*Ameiurus melas*	Inland Silverside	*Menidia beryllina*
Channel Catfish	*Ictalurus punctatus*	Hitch	*Lavinia exilicauda*
Black Crappie	*Pomoxis negromaculatus*	California Roach	*Hesperoleucus symmetricus*
White Crappie	*Pomoxis annularis*	Hardhead	*Mylopharodon conocephalus*
Chinook Salmon	*Oncorhynchus tshawytscha*	Sacramento Pikeminnow	*Ptychocheilus grandis*
Steelhead Trout	*Oncorhynchus mykiss*	Speckled Dace	*Rhinichthys osculus*
Brown Trout	*Salmo trutta*	Golden Shiner	*Notemigonus crysoleucas*
Brook Trout	*Salvelinus fontinalis*	Sacramento Sucker	*Catostomus occidentalis*
Common Carp	*Cyprinus carpio*	Western Mosquitofish	*Gambusia afinis*
Goldfish	*Carassius auratus*	Threespine Stickleback	*Gasterosteus aculeatus*
Largemouth Bass	*Micropterus salmoides*	Riffle Sculpin	*Cottus gulosus*
Smallmouth Bass	*Micropterus dolomieu*	Prickly Sculpin	*Cottus asper*
Spotted Bass	*Micropterus punctulatus*		

SOURCE: Moyle 1976; Brown 1992

Butte Creek

Butte Creek serves as the eastern boundary for the Howard Slough Unit and the western boundary of the Little Dry Creek Unit. Howard Slough and Little Dry Creek have their southern and northern boundaries at Afton Road. As a result, the Department owns 13 miles of property that border Butte Creek. Historically, 13 dams across the creek were used to impound water for urban or agricultural uses. In the 1990's there was a significant effort to reduce the number of dams and improve passage at the remaining dams for anadromous fish using Butte Creek. The Department was instrumental in that effort and removed two dams that were located within the 13 miles it owned. A major goal of area staff is to create an unbroken 13 mile long corridor of riparian habitat to facilitate movement of riparian dependant species through the Valley floor. This is being accomplished by expanding the width of existing riparian habitat and developing riparian habitat between disjunct patches of habitat.

With the acquisition of the property the Department also acquired riparian water rights. The Department has elected to use those water rights to maintain in stream flow for the native and anadromous fish that use Butte Creek.

The Department has demonstrated its desire to improve the fisheries habitat in Butte Creek by removing three dams in Butte Creek, utilizing the Department's riparian water rights to maintain in stream flow for native and anadromous fish species found in Butte Creek, and by increasing the quantity and quality of riparian habitat adjacent to Butte Creek.

Permanent Wetlands

Permanent wetlands in the UBBWA provide perennial aquatic habitat for a diverse assemblage of fish species. The species observed in some of the permanent ponds, slough, and irrigation ditches include carp, large mouth bass, bluegill, green sunfish, brown bullheads, and mosquito fish. These species provide forage for a wide variety of wading and diving birds as well as mammals such as otters and raccoons.

Special Status Species

Special status species are legally protected or are otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. Special status fish species addressed in this section include:

- Species listed as threatened or endangered under the state or federal Endangered Species Acts
- Species identified by USFWS, NMFS, or Department as species of special concern
- Species fully protected in California under the California Fish and Game Code
- Species identified as priorities for recovery under CALFED's MSCS

Two special status fish species occur in Butte Creek and are described below. Three additional species are listed as potentially occurring; however, those species do not occur in Butte Creek. These species are the winter-run chinook salmon, delta smelt, and green sturgeon. The winter-run chinook salmon are restricted to the Sacramento River and the Delta smelt have never been reported this far upstream from Sacramento and have never been observed in Butte Creek. The green sturgeon has never been observed in Butte Creek.

Steelhead

The Central Valley steelhead ESU (*Oncoryhnchus mykiss*) is a federally threatened species. The Central Valley steelhead includes all naturally spawned populations of steelhead in the Sacramento and San Joaquin rivers and their tributaries (USBR and DWR 2003). Steelhead has a complex life history, including the capability to be anadromous or resident (called rainbow trout) (Moyle 2002). Anadromous species spend most or a portion of their adult life in the ocean and then migrate back into freshwater to reproduce. Spawning and rearing habitat for steelhead typically occurs in perennial streams with clear, cool to cold, fast-flowing water with a high dissolved oxygen content and abundant gravels and riffles (Bovee 1978 as cited in USBR and CDWR 2003). After spending 1–4

years in the ocean, adult steelhead return to their home streams to spawn (Moyle 2002). Migration into freshwater begins in August and peaks in September–October, after which the steelhead hold until flows are sufficiently high to enable migration into tributaries (Moyle 2002). Spawning begins in late December and peaks in February–March (Busby et al. 1996). Steelhead eggs hatch in 3–4 weeks (at 50–59°F), and fry emerge from the gravel 2–3 weeks later (Moyle 2002). After steelhead fry emerge from spawning gravels, they continue to grow and mature in freshwater for 1–3 years before emigrating to the ocean (Moyle 2002). Unlike salmon, steelhead do not necessarily die after spawning and can spawn more than one time. In central California, most spawning steelhead are 3 years old, with one year spent in the ocean (Busby et al. 1996).

Chinook salmon

Threatened or endangered Chinook salmon with potential to occur in the UBBWA consist of two ESUs, the fall-run and spring-run Chinook. Chinook are relatively common within the Sacramento–San Joaquin River system. Spring-run Chinook salmon is listed as a threatened species under CESA and ESA (50 FR 50394). Designated critical habitat was proposed for spring-run Chinook in December 2004 with a final determination September 2005. Spring-run Chinook salmon enter the Sacramento River system between March and September and move upstream into the headwaters, where they hold in pools until they spawn between August and October (Moyle 2002). Juveniles typically emigrate from the tributaries from mid-November through June; however, some juveniles spend a year in the streams and emigrate as yearlings the following October (Moyle 2002).

Fall-run Chinook salmon ESU is a federal species of concern. Fall-run Chinook salmon is the most widely distributed and most numerous run occurring in the Sacramento and San Joaquin rivers and their tributaries (USBR and DWR 2003). These populations enter the Sacramento and San Joaquin Rivers from July through April and spawn from October through February. After spawning, eggs generally hatch in 6–12 weeks, and newly emerged larvae remain in the gravel for another 2–4 weeks until the yolk is absorbed. Fall-run juveniles typically rear in fresh water for up to 5 months before migrating to sea.

TABLE 3.5-5
SPECIAL STATUS FISH SPECIES POTENTIALLY OCCURRING IN THE UBBWA

Species	Status: USFWS/ NMFS	Status: CDFW	Status: MSCS Goals	Habitat	Potential to Occur in the UBBWA
Central Valley steelhead *Oncorhyncus mykiss*	T	--	R	Requires cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, tributaries, and Delta.	Occurs in the Sacramento River and tributaries. This species has been observed in Butte Creek.
Sacramento winter-run Chinook salmon *Oncorhyncus tshawytscha*	E	E	R	Requires cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, tributaries, and Delta.	Occurs in the Sacramento River and tributaries. Not known to occur in Butte Creek.
Central Valley spring-run Chinook salmon *Oncorhyncus tshawytscha*	T	T	R	Requires cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, tributaries, and Delta.	Occurs in the Sacramento River and tributaries. The species is known to occur in Butte Creek.
Green sturgeon *Acipenser medirostris*	T	--	R	Requires cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, tributaries, and Delta.	Occurs in the Sacramento River and tributaries. Not known to occur in Butte Creek.
Delta smelt *Hypomesus transpacificus*	T	T	R	Spawns in tidally influenced freshwater wetlands and seasonally submerged uplands; rears seasonally inundated floodplains, tidal marsh, and Delta.	Occurs in the Sacramento River downstream of its confluence with the American River. Not known to occur in Butte Creek.

Legal Status Definitions

Federal Listing Categories (USFWS & NMFS)
- E Endangered (legally protected)
- T Threatened (legally protected)
- DT Recently delisted from threatened status
- SC Species of Concern

State Listing Categories (CDFW)
- E Endangered (legally protected)
- T Threatened (legally protected)
- FP Fully Protected (legally protected, no take allowed)
- CSC California Species of Concern (no formal protection)

Multi-Species Conservation Strategy Goals
- R Recovery. Recover species' populations within the MSCS focus area to levels that ensure the species' long-term survival in nature.
- r Contribute to recovery. Implement some of the actions deemed necessary to recover species' populations within the MSCS focus area.
- m Maintain. Ensure that any adverse effects on the species that could be associated with implementation of CALFED actions will be fully offset through implementation of actions beneficial to the species (CALFED 2000b).

SOURCE: Data compiled by EDAW in 2006

CHAPTER IV
Compatible Resource Management and Public Use

UBBWA is a living example of the successful melding of wildlife habitat management, agriculture operations, and public use programs to benefit wildlife. UBBWA was the first State wildlife area to use commercial agriculture to provide operating income and wildlife habitat. This philosophy provides income from the production of commercial rice which was used to improve and maintain wildlife habitat while also providing a valuable food source for wildlife. Rice grain that is lost through the harvest process or set aside specifically for wildlife provides a high carbohydrate food source. Later, when the rice straw decomposes it produces large numbers of invertebrates which are also an important wildlife food source. As with all management programs, maximum benefits are achieved by providing resources when they are most needed and in ways they can be easily exploited by wildlife.

The Department manages wildlife areas to protect and enhance aquatic and terrestrial habitats for plant, wildlife, and fish species and to provide the public with compatible recreational and educational uses. In the past decade the most common public uses at UBBWA included environmental education and interpretation, hunting, fishing, wildlife observation, and other uses such as photography and painting, and these uses are expected to remain popular. This chapter includes an evaluation of the compatibility of different resource management objectives with various existing and potential new public uses at UBBWA, and the potential of those public uses to adversely affect management of diverse habitat.

A. Evaluation of Resource Management and Public Use

The LMP planning process has included an evaluation of the public's interest for different uses of UBBWA. Compatibility of these uses with resource management activities including seasonal floodwater conveyance, protection, and enhancement of wildlife habitat, and continued agriculture is evaluated. This compatibility evaluation focused on four principal factors:

- the potential for conflicts between resource management activities and other objectives (i.e. flood control, vector control, and agriculture)
- the potential for public uses to unreasonably, adversely affect habitat and the fish and wildlife that inhabit the area

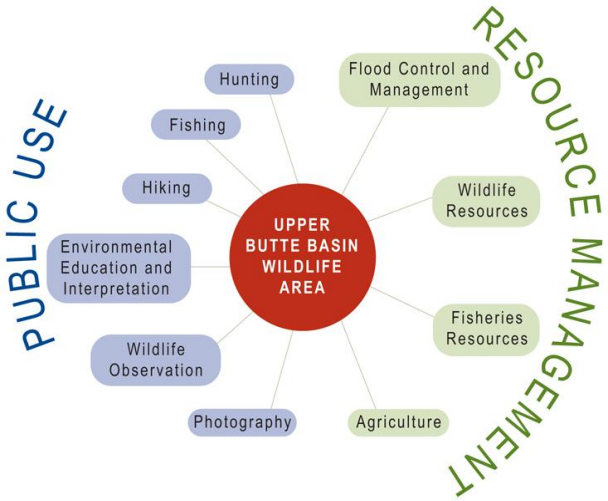
- the potential for resource management and public uses to adversely affect adjacent land uses
- the anticipated resources required by the Department to manage the resources and public uses

Information for the evaluation was obtained through analysis of existing data and through additional public surveys. The information-gathering process for this LMP involved interviews and meetings with representatives of various interest groups, agricultural representatives, and recreational users.

The mission of the Department and function of UBBWA are focused on natural resource management. In addition, UBBWA is in a low-lying area that is subject to frequent flooding. All public uses must be balanced against these two factors to determine what an appropriate use might be. For example, the Department recognized that infrastructure at UBBWA would be subject to frequent flooding. Consequently, all permanent buildings are on high ground or protected by levees. The same precautions would need to be considered for any planned public use(s) and associated facilities. Other public uses, such as traditional team sports, are not consistent with the Department mission and functions of UBBWA and are not allowed.

Possible public uses of the UBBWA are also affected by the limited access to many of the management units. Roads on UBBWA are either gravel or dirt, and when wet they can be impassible or unsafe to use. Consequently, they are only available for use when dry. Access is further limited by the presence of sensitive habitats (i.e. wetlands), agricultural activities that occur seasonally throughout UBBWA, and use restrictions that may limit the type and/or timing of recreation activities. Management of various public activities is intended to minimize conflicts between users, such as those involved in nature observation and hunting. Another factor that limits access for all uses is the availability of Department staff to maintain roads, open gates, collect trash, provide directions, and enforce Area regulations.

As depicted in below, four (4) resource management and six (6) primary public-use activities were determined to be compatible uses that could be supported in the management of UBBWA.



Compatible resource management activities in UBBWA include flood control and management, protection and enhancement of wildlife resources, protection and enhancement of fisheries resources, and agriculture. Primary public uses include hunting, fishing, environmental education and interpretation, hiking, wildlife viewing, and photography. Existing beneficial uses and site improvements, including investments in infrastructure, were also considered in the evaluation.

B. Resource Management

Flooding and Management Activities

UBBWA sits within the floodplains of the Sacramento River, Feather River and Butte Creek. It acts as a surge basin for flood waters from all of these watersheds. The combined natural and human controlled environment affects many of the activities on the wildlife area and occur generally during peak waterfowl use periods. Flood control activities include temporary and seasonal road closures, limiting or denying access to all or portions of the area, and restricting certain activities, and can be instituted without notice by the Area Manager for public safety or resource protection purposes.

Flooding Effects on Recreational Activities

Flooding has the potential to affect recreational activities. Significant flooding during the hunting season (i.e. mid-October to mid-January) requires UBBWA to discontinue access to these areas, resulting in lost hunting time. When the wildlife area is closed as a result of flooding, all public uses are prohibited for human safety and resource protection.

Flooding Effects on Wildlife Resources

Flooding of the area can affect management operations and thus, related wildlife resources. Floods damage infrastructure, requiring repairs and additional maintenance. Damage includes sediment deposit within ditches and canals which reduces flow capacity, debris deposited in fields or on roads, erosion of field levees and water control structures, and disabling of pumps. Permanent structures, such as pump stands can also be damaged by high water. Floods and their timing can adversely affect plant species composition (i.e. promotes growth of undesirable plant species like cocklebur), which may adversely affect waterfowl, pheasants, and other nesting birds.

Protection and Enhancement of Wildlife Resources

UBBWA provides important staging and wintering habitat for numerous species of waterfowl, shorebirds, and other birds migrating along the Pacific Flyway. These species are associated primarily with shallow flooded fields, ponds, wetlands, and mudflats. They are most abundant at UBBWA in fall and winter, when managed wetlands are flooded for waterfowl and other wetland associated species (Page et al. 1992).

UBBWA also supports numerous species of raptors (including northern harrier, red shouldered hawk, red-tailed hawk, kestrel, great-horned owl, and screech owl), songbirds (such as oriole, towhee, and bluebird), and mammals (including otter, raccoon, skunk, beaver, deer, mountain lion, and gray fox).

UBBWA is a key component of the habitat restoration planned as part of the CALFED ERP, and is a vital element of the CVHJV's habitat restoration goals associated with implementation of the NAWMP. Millions of dollars in grant funding from the NAWCA have been invested in creating the infrastructure to manage wetland ecosystems at UBBWA. NAWCA was passed, in part, to support activities under the NAWMP. Accordingly, these grants are intended to support the conservation of wetlands and associated upland habitats needed by waterfowl and other migratory birds in North America. Importantly for UBBWA land use considerations, the wetlands restored or created with NAWCA funds must be managed in perpetuity.

The stated purpose for the land acquisition for UBBWA was "to allow for the preservation of historic wetlands, wintering habitat for waterfowl, shorebirds, threatened and endangered species and other wetland associated species". Managing for fish and wildlife and their associated habitats on which they depend, as well as compatible public uses, will be an ongoing priority for UBBWA.

Agriculture

Agriculture, including rice and row crops, is an important component of the management of UBBWA. Agricultural operations provide important wildlife habitat benefits and critical income for Wildlife Area operations. They also maintain vegetation in a desired and compatible state and contribute toward the local farming economy. Since the acquisition of the HS Unit, Wildlife Area Staff has creatively incorporated agriculture into the management of the area to the benefit of wildlife. Agricultural operations are expected to continue to have a significant presence at UBBWA.

Flooding Effects on Agricultural Operations

Late spring flooding can have a substantial detrimental effect on farming operations. Floods affect crops in a variety of ways. Floods in April and May can damage or destroy crops planted during dry periods in March–May. When this flooding happens, it may be too late to replant. If the ground remains too wet to work until May or June, the shortened season results in limited crop options and decreased yields. Decreased yields provide less forage for migratory waterfowl and delays when agricultural fields can be made available for wildlife.

Flooding Effects on Infrastructure

In addition to the flood damage to wildlife resources discussed above, maintenance of infrastructure, including roads, canals, drainage ditches, diversion structures, pumps, and wells, is done on an as-needed basis, often in response to flood damage. Roads are sometimes eroded and require grading or rebuilding. Some canals and ditches fill with sediment deposited from floods and

require periodic excavation to maintain necessary flow capacity. East-west trending canals and ditches often create eddies and other hydraulic disturbances that can cause erosion and deposition of sediments and deposition of flood debris, such as tree limbs, agricultural vegetation, and irrigation pipes in fields and canals. Such debris conditions can necessitate extensive cleanup efforts and places demands on staff and funding.

C. Public Use

The following public activities are considered compatible with the ecosystem restoration goals of UBBWA.

Hunting

Hunting has historically occurred at UBBWA. Approximately 5,000 acres are currently open seasonally for hunting; with the principal game species consisting of several species of ducks and geese, ring-necked pheasants, deer, and mourning doves. The public hunting program includes ADA accessible hunting facilities, a junior pheasant hunt, a family pheasant hunt, and a junior deer hunt. Hunting is allowed during the open season as established each year by the Fish and Game Commission [Section 551 (q) Title 14], begins with the opening of dove season on September 1st and extends through the close of waterfowl season in late January or early February after the youth waterfowl hunt.

UBBWA provides a variety of hunting opportunities and faces many challenges due to the success, interest, and popularity of its hunting programs. The goal of the hunting programs is to create a positive and memorable hunting experience through intensive habitat management, effective dispersal of hunters throughout the hunt area, and equal opportunity to premium hunting sites within the area. To achieve these goals, the UBBWA offers a variety of hunting options to accommodate the varied hunting styles of the public. The LS Unit offers a mixture of free roam, spaced blinds, and assigned fields. There is also an ADA accessible blind for mobility impaired hunters. At HS there is a mixture of free roam, spaced blinds, an ADA accessible blind, and six spaced blinds provided for junior hunters. In the junior blinds, the adult accompanying the junior hunter may also hunt. The LDC Unit provides free roam, spaced blinds, and three ADA accessible hunting sites. The LDC Unit is the only unit which participates in the youth waterfowl hunt after the end of the general waterfowl season. The amount of area dedicated to any one hunting style (free roam, spaced blinds, or assigned fields) is intended to provide all hunters with equal access to use and enjoy the area. The Department continually evaluates the hunting program at UBBWA to determine whether its operation is consistent with the goals of the area and whether it is meeting the needs of the public. The Department has to consider several issues when evaluating the hunting program including:

- Ensuring public safety
- Providing a quality hunting opportunity
- Providing equal access to the area for all hunters
- Maintaining quality habitat and healthy game populations

Much of UBBWA is closed to all non-hunting purposes from two weeks before waterfowl season to one week after waterfowl season. Travel is restricted to designated roads and parking lots. Roads may not be passable for large vehicles such as motor homes, and such vehicles are not permitted beyond the check station parking lot. Hunting dogs are allowed in the hunting areas during hunting season.

Fishing

Fishing in UBBWA occurs primarily on Butte Creek and Howard Slough. This is a warm water fishery with small mouth bass, black bass, bluegill, green sunfish, and catfish the primary species. There are limited opportunities for access; consequently, the majority of "walk-in" fishing occurs on Butte Creek. Fishing access will continue to be improved.

Environmental Education and Interpretation

There is a limited budget for this activity; however, the Department provides guided tours for colleges and universities. These tours are designed to showcase the Department's wetland management and restoration successes. Academic research has been conducted on UBBWA and is encouraged whenever possible.

Hiking

Hiking opportunities are present at UBBWA; however, this recreational activity is not conducted regularly. Dirt, gravel roads, and levees are all potential hiking opportunities when not otherwise closed for management purposes. Closed roads and levee trails are posted to help enforce entry restrictions. Dogs are not allowed at the wildlife area except during the hunting seasons. The lack of terrain makes disorientation highly possible. Other factors influencing this activity include the abundance of mosquitoes, the distance of the area from population centers, and the lack of drinking water on the area.

Wildlife Viewing

The opportunity for wildlife viewing is substantial. The rich environment of seasonal and permanent wetlands, agricultural fields, upland grasslands, and riparian forest supports a wide range of wildlife species. The potential for bird watching is especially great due to the wide variety and abundance of avian species that seasonally frequent the area. Opportunities to expand and create new wildlife viewing areas and expand wildlife observation options at UBBWA should continue to be considered. It is important to provide areas accessible for wildlife viewing to the mobility impaired and to provide non-hunters viewing opportunities during the hunting season if conflicts between user groups and wildlife management goals and objectives are not compromised.

Photography

UBBWA offers opportunities for photography of wildlife species and the general environment. The expansive mosaic of habitats and abundant wildlife provides a substantial and diverse range of photographic possibilities. The potential exists to develop photographic blinds for public use.

Other Public Uses

Other public use options were evaluated as part of the planning process but were determined to be incompatible with UBBWA for various reasons. These included:

- Off-road vehicle use –potentially detrimental to the unique and sensitive habitat and the wildlife resource.
- Buildings - not physically suitable to the frequently flooded environment.
- Equestrian and bicycle use – potentially detrimental to the unique and sensitive habitat and their associated wildlife.
- Dog trials & training –incompatible with wildlife area's purpose.

D. Wildlife Area Regulations

The regulations guiding public use of UBBWA are provided in Title 14 ('Natural Resources') of the California Code of Regulations. Title 14, Division 1 includes regulations that have been formally adopted by the California Fish and Game Commission, reviewed and approved by the Office of Administrative Law, and filed with the Secretary of State. The current regulations applicable to UBBWA include Regulations for General Public Use Activities (Section 550), which are applicable to all wildlife areas. They also include Hunting, Firearms, and Archery Equipment and Permit Requirements (Section 551), which contain hunting regulations that relate to all wildlife areas as well as use regulations that apply specifically to UBBWA. In addition, standard hunting and fishing regulations apply to UBBWA.

Although the regulations that govern public use of UBBWA are expected to change over time, a summary of the current regulations is provided to inform the reader about the current situation. The following summary of the regulations that apply to UBBWA does not reflect all requirements in detail. The most current and complete regulations should be consulted for any determination related to the use of UBBWA.

E. General Public-Use Activities

These general requirements set basic standards for protection of all wildlife areas and protection of public safety. California public nuisance laws and public safety laws also cover the wildlife areas. The Regional Manager has authority to establish additional regulations for wildlife areas that are not otherwise provided in Sections 550 and 551 for the protection of resources or public

safety. The following regulations for general public use activities are currently applicable to all wildlife areas, including UBBWA. Where regulations require a specific action by the Department to be applicable, the status of any such action is noted in italics.

The Department may specify entry locations, limit entry, or close wildlife areas to protect resources or public safety. Specified public notice is required of such entry limitations or closure. Entry locations, limitations, and closures have been established and may vary depending on seasonal management activities and flood control/management conditions.

- Use permits are required for organized events or gatherings
- Motor-driven vehicles are not permitted except on public roads, parking areas, or other routes designated by the Department
- Trailers are not permitted on UBBWA past the check station parking lot
- Drivers must comply with all posted traffic signs

The Department may restrict the use and operations of boats on UBBWA.

Certain activities are not permitted for the protection of UBBWA and protection of public safety. These prohibited uses include:

- damage or removal of property owned by others
- deposit of litter, rubbish, toxic substances, or other materials
- damage to plant materials
- removal of soil, sand, gravel, rock, etc.
- collection, disturbance, or removal of bottles or other artifacts
- livestock grazing, except by lease; existing leases for farming have been maintained
- commercial activities must have written approval from the Department

Hunting and fishing are permitted subject to regular open seasons and regulations and the special provisions of Section 551.

- Dogs are allowed only for hunting or only when under immediate control
- The Department may eject a person from UBBWA for specified reasons
- Users are responsible for knowing area-specific regulations in Section 550
- Access to UBBWA is closed between sunset and sunrise during the non hunting season
- Access to the wildlife area is closed when the area is flooding.

F. Hunting, Firearms, and Archery Equipment and Permit Requirements

This section contains general regulations related to hunting and firearms that apply to wildlife areas in general. It also contains specific regulations that apply to the UBBWA. These specific

regulations are in addition to the other requirements of Sections 550 and 551. They are intended to respond to the unique characteristics of UBBWA. The general regulations applicable to all wildlife areas include:

Possession and use of firearms and archery equipment is permitted only for hunting purposes.

Hunting Regulations for Waterfowl, Upland Game, and State and Federal Areas that apply to UBBWA can be obtained from:

California Fish and Game Commission
1416 Ninth Street
Sacramento, California 95814
Online at: http://www.fgc.ca.gov/regulations/current/regs.asp

As previously noted, it is anticipated that the current regulations will change in the future as the Department continues to monitor the public use of UBBWA and proposes appropriate responses to changed circumstances.

G. Support of Resource Enhancement and Public Use

As the population of California in general and Glenn, Butte and Sutter Counties specifically, continues to increase, the demands for public recreation opportunities will continue to grow. With increased access and use, stresses placed on natural resources, including those at UBBWA will also increase. This LMP attempts to anticipate the opportunities and constraints that exist or will exist in the future, in terms of increased public use and fewer or diminishing resources, and tries to identify management actions that will address them adequately. A complete list of goals and tasks are contained in Chapter V, "Management Goals."

H. Regulation Adjustments

As circumstances surrounding UBBWA change over time, adjustment to the regulations that govern public uses may be required. The revision of these regulations requires approval of the California Fish and Game Commission. A review of the regulations by UBBWA management staff every three years coincides with the review cycle of the Fish and Game Commission and is appropriate to ensure that regulations remain current. In addition, the Fish and Game Commission adopted CCR, Title 14, Section 550 (b) (1) allowing the regional manager the ability to regulate public use: "The regional manager shall have the authority to regulate public use of State wildlife areas where such use is not provided for in these regulations or in sections 551 and 552 of this title.".

I. Public Information

A common theme raised during the public outreach process for this LMP was the desire for additional information sharing to enable people to make better use of UBBWA for compatible recreation purposes. Stakeholders felt the Department had a difficult time reaching diverse user-groups and addressing or incorporating their input in a meaningful way. A continued effort will be made to

improve communication with our stakeholders. UBBWA staff will participate in and hold periodic working group meetings to solicit input on management activities and their associated public use programs.

J. Cooperation with Stakeholders

During the public outreach component of the planning process, stakeholders expressed concerns that management of UBBWA could affect adjoining lands. Chapter V includes strategies to help mitigate these types of concerns. In summary, these strategies will include direct communication with neighbors, continued communication through Working Groups, signage throughout UBBWA, access controls, and coordinated management of existing lands and future restoration projects.

CHAPTER V
Management Goals

The goals in this chapter provide guidance for management and are accompanied by practical tasks intended to achieve the goals. This LMP uses an ecosystem approach for the management of the diverse habitat communities and their associated species that occur on the UBBWA. These goals were developed by evaluating the previous LMP and information generated through this planning process. It is important to note that there are at least three major influences which directly affect attainment of these goals. The first is facilities maintenance and development. Efficient delivery and movement of water is essential to provide for conditions that allow for management strategies that replace and/or mimic the natural processes that protect and enhance the biotic communities that occur on the area. The second issue is staffing and operational funding. Without adequate staff and associated operations and maintenance funds, it is impossible to achieve the goals outlined in this LMP. The third issue is water supply. An adequate water supply is essential to meet the needs of resources. Personnel needed to accomplish the elements, goals and tasks outlined in this chapter are described in Chapter VI, "Operations and Maintenance."

The management goals and tasks described in this chapter were evaluated for their potential impact on the environment in accordance with the provisions of CEQA. An Initial Study was prepared in accordance with the State CEQA Guidelines, which is included as Appendix C. The Initial Study (IS) concluded that this LMP, as proposed, would not have a potentially significant impact on the environment. Accordingly, a proposed Negative Declaration (ND) finding that the project will not have a potentially significant impact on the environment has been prepared.

The Initial Study analyzes impacts resulting from the programmatic implementation of this LMP. The details of specific projects that may be developed consistently with this LMP are not yet known. Any future projects that may involve environmental effects will need to be evaluated in light of the IS/ND to determine if additional project specific CEQA analysis is necessary. The type of additional CEQA review completed would be determined based on CEQA Guidelines Sections 15162-15164. Additional permits, consultations and/or approval actions may also be required to approve specific future projects. Examples of potential future permit requirements include the following:

- U.S. Fish and Wildlife Service – Federal Endangered Species Act (ESA) consultation and issuance of take authorization
- National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) – Federal Endangered Species Act consultation and issuance of take authorization

- U.S. Army Corps of Engineers (COE) – Section 404 Clean Water Act (CWA) permit for discharge or fill of waters of the U.S., Section 10 Rivers and Harbors Act permit for work in navigable waters of the U.S., approval of modification of USACE levees
- California Department of Fish and Wildlife – internal consultation regarding California Endangered Species Act (CESA) compliance and streambed alteration agreement (Section 1602 of DFG Code)
- California Department of Water Resources (State Reclamation Board) – encroachment permit to work on or adjacent to levees and in designated floodways, approval/authorization of new or restored levees
- California State Lands Commission – consultation/permit regarding possible secondary impacts to surrounding lands underlying rivers and streams
- Regional Water Quality Control Board – National Pollutant Discharge Elimination System construction storm water permit (Notice of Intent to proceed under the statewide General Construction Permit), potential discharge permit for wastewater, general order for dewatering, CWA Section 401 clean water certification if Clean Water Act (CWA) Section 404 permit is required or if isolated wetlands subject to the Porter-Cologne Act will be affected

Prior to ground disturbance in areas that have not experienced development and/or disturbance an assessment will be conducted. If hazardous materials and/or cultural resources are detected, the appropriate agencies or companies will be consulted to ensure all is handled in a proper legal fashion.

A. Definition of Terms Used In This Plan

This LMP has been developed in accordance with the Department's Guide and Annotated Outline for Writing Land Management Plans (California Department of Fish and Game 2003). The guide organizes management information and guidelines into elements, goals, and tasks, establishing a hierarchy of management direction for the UBBWA. Elements relate to the broad categories of consideration, goals define objectives within the elements, and tasks establish specific actions to attain the goals. Goals are based on the Fish and Game Code, policies of the Department, and the goals and objectives of the CALFED ERP (for which the Department is an implementing agency). In addition, it is the policy of the Department to protect and preserve all native species diversity including those species experiencing a significant decline that, if not halted, would lead to their designation as threatened or endangered. Similarly, the goals of the CALFED ERP include achieving the recovery of at-risk native species that depend on the Delta and reversing downward population trends of native species that are not listed. Together these elements, goals, and tasks express the policy direction that will guide the management of the UBBWA.

A terminology for describing management is part of the Department's standardized format for management plans. The terms defined below are used throughout this LMP to describe the current and planned management of the UBBWA.

Elements

- An **element** is any biological unit, public-use activity, facility maintenance program, or management coordination program (as defined below) for which goals have been prepared and presented within this LMP.
- The **biological element** refers to ecosystems for which specific management goals have been developed within this LMP.
- The **agricultural resources element** refers to agricultural activities.
- The **public-use element** refers to recreational and other public uses.
- The **cultural resources element** refers to preservation of cultural resources.
- The **facility maintenance element** refers to the program of maintenance and administrative tasks that supports the attainment of goals for the biological and public-use elements.
- The **scientific research and monitoring element** refers to scientific research and monitoring that supports the attainment of goals for the biological and public-use elements.
- The **fire management element** refers to the planning and implementation of fire management that supports the attainment of the goals for the biological and public use elements.
- The **management coordination element** refers to coordination with management programs that are supportive of and compatible with the activities of other public agencies.

Goals

- A **biological goal** is a statement describing management and its intended long-term results for a biological element.
- An **agricultural resources goal** is a statement describing management and the resulting type and level of agricultural activities for the agricultural element.
- A **public-use goal** is a statement describing management and the resulting type and level of public use (which is intended to be compatible with the goals for biological elements).
- A **cultural goal** is a statement describing management and its intended results for a cultural resources element.
- A **facility maintenance goal** is a statement describing management and the resulting type and level of facility maintenance (which is intended to support attainment of the goals for the biological and public-use elements).
- A **scientific research and monitoring goal** is a statement describing management of procedures for or types of scientific research and monitoring conducted at the UBBWA.
- A **fire management goal** is a statement describing a desired component of fire management planning and coordination of activities occurring before, during, or after fires.
- A **management coordination goal** is a statement describing the desired type and level of management coordination activities that are required to achieve the biological element and public use goals previously specified within this LMP.

Tasks and Adaptive Management

- **Tasks** are individual projects or work elements that implement the goals and are useful in planning operation and maintenance budgets.
- **Adaptive management** is a dynamic strategy in which management efforts are monitored regularly to assess their status and effectiveness. Monitoring results are then evaluated and used to update management goals and implementation strategies (i.e. tasks). An adaptive management strategy has been applied to all elements within this LMP.

B. Goals and Tasks for Elements

Elements, goals and tasks are described here in detail. The accompanying analysis of assigned staff hours necessary to complete these tasks are described in Chapter VI, Table 6.1.

One of the Department's basic tenets is that it manages from an ecosystems perspective where appropriate, rather than that of the species level. This approach allows the Department to protect and enhance the various habitat communities and associated species in a given area. This chapter will focus on ecosystem level issues first, then proceed through species guilds, special status species, invasive species, agricultural resources, cultural resources, public uses, facility management, administration, and finally coordination.

A more general discussion of the natural communities of the UBBWA has been grouped into five ecosystem sub-elements: wetlands, riparian, grasslands, aquatic, and fire management. Each of these sub-elements has its own set of goals and tasks that can be intertwined with each other. These goals and tasks are not focused on a particular species of plants and/or animals, but instead are more broadly focused on achieving ecosystem benefits. More specifically, the goals are intended to create, maintain and enhance wetlands, agricultural lands, riparian areas, grasslands and uplands, and aquatic ecosystems to sustain habitats for native plants and animals and provide other desired ecosystem services. Chapter III, "Habitat and Species Descriptions," contains additional information regarding biological resources within UBBWA.

The biological elements of the UBBWA include management for species guilds and natural communities. The species guilds have been grouped into eight sub-elements: waterfowl, shorebirds and wading birds, upland game species, raptors, cavity-nesting birds, neo-tropical birds, other waterbird species, and mammals. Separate goals were set up for special status species and invasive species.

Opportunities for management include maintenance, enhancement, protection, and/or restoration of communities for use by:

- Wintering waterfowl through propagation of a wide variety of moist soil plants. These plants produce abundant and diverse food sources when managed properly.
- Breeding waterfowl by providing essential components needed for reproduction, including nesting cover, food, water, and appropriately spaced brood water.

- Shorebirds and wading birds, including both migratory and resident species, by propagating adequate invertebrate food supply, and providing appropriate water depths for foraging activities in coordination with wetland irrigations and fall flooding.
- Breeding shorebirds and wading birds including avocets, stilts, phalaropes, killdeer, rails, ibis, black crowned night herons, moorhens, great blue herons, and snowy and great white egrets by providing appropriate nesting habitat.
- A variety of other resident and migratory species including raptors, grebes, rails, and songbirds.
- Ground nesting birds such as meadowlark, short-eared owls, harriers, and terns by providing adequate cover and prey base.
- Cavity-nesting birds, such as kestrels, tree swallows, and wood ducks by providing large trees for nesting or nest boxes.
- Neo-tropical migratory birds by providing riparian habitat and developing a continuous riparian corridor on UBBWA.
- variety of resident and migrant mammalian species including, mountain lions, deer, ring-tail and numerous microtene rodent species.
- Special status species and their habitats which can be improved through ecosystem management.

The following management goals and criteria will be considered when managing the various ecosystems;

- Manage seasonal and permanent wetlands, and agricultural lands to minimize mercury methylation as prescribed by the most current research - monitoring of mercury levels within wetland units will judge effectiveness and direct adaptive management.
- Manage and maintain infrastructure following the most current guidelines and procedures, established and approved by the USFWS, to conserve special status species and other wildlife.
- Manage seasonal and permanent wetlands and agricultural lands to minimize mosquito populations through implementation of agreed upon BMPs as described by Kwasny et al (2004).
- Manage agricultural lands to generate critical income for the operation of UBBWA while utilizing agriculture as a wildlife management tool and providing important wildlife habitat values.
- Maintain, enhance, and/or restore seasonal and permanent wetlands, vernal pools, grasslands, and riparian communities.
- Manage to support vernal pool species including special-status plant species. Management activities will follow accepted scientific principles and may include appropriate grazing practices and the ecological use of fire. Translocation of plants or their introduction to UBBWA will follow scientific precepts and hypothesis testing.
- Manage to support special-status and priority wildlife and fish species identified in the CALFED MSCS. Special-status wildlife occurring in or adjacent to the UBBWA are giant garter snake, northwestern pond turtle, Swainson's hawk, burrowing owl, tri-colored blackbird, American white pelican, Chinook salmon, and steelhead.

- Enhance habitats through removal and management of nonnative invasive species that do not benefit wildlife species or that impact special status plants. These species include but are not limited to: perennial pepperweed, arundo, verbenia, joint grass, Himalayan blackberry, water primrose, and yellow star thistle.

There are also a number of important constraints on the management of the UBBWA's biological element. These constraints include:

- Seasonal flooding resulting from the overflow from the Sacramento River, Feather River and Butte Creek
- Availability of staff and funding
- Biological resource management activities and maintenance of the existing infrastructure to ensure water delivery
- Biological resource management activities and their role in determining the timing and location of compatible public uses
- Vector management (i.e. mosquito control) requirements
- Adverse effects of spring flooding on management and operations, wildlife nesting, and farming
- Potentially inadequate water quantity or quality available for summer irrigation and/or fall flooding
- Methylation of mercury in wetlands and agricultural lands
- Potential management conflicts between agricultural practices and wildlife management activities and the ecological requirements of special status plant and animal species
- Potential management conflicts with the avoidance and minimization measures for various special status species

Chapter III, "Habitat and Species Descriptions," contains additional information regarding biological resources within the UBBWA.

C. Ecosystems Goals (EG)

Ecosystem Approach for Wetland Communities

Wetlands were once one of the dominant community types within California's Central Valley. Wetlands on the UBBWA can be divided into two separate groups: those that are actively managed to achieve maximum benefit to wildlife and those that are natural or are passively managed. The UBBWA is unique in that it preserves a large, contiguous block of land with representative examples of each wetland type. UBBWA is further unique in that these wetland types are interspersed among one another, creating a diverse habitat matrix of various wetland types.

Actively managed wetlands on UBBWA were reconstructed from rice fields, and are intensively managed by the Department via a complex system of pumps, canals, and water control structures to flood and drain wetlands according to established prescriptions. Additionally, vegetation

succession is achieved through mowing, disking, fire, or water management in order to maximize the habitat value of these lands.

Passively managed wetlands on the UBBWA include natural flood channels that have been isolated yet couldn't be economically leveled for rice production by the previous owner. These areas are less intensely managed although usually some water control is still required to impound water and provide drainage. These areas provide dense emergent vegetation and collect shallow ground water and seepage from adjacent fields.

EG-1 Restore and Enhance Wetlands to Conditions That Provide Desired Ecological Functions

EG-1.1 Manage and enhance wetland units

1. Maintain and enhance water and levee systems.
2. Drawdown flooded seasonal wetlands in the spring to grow various moist soil plants. Drawdown in mid-March favor smartweed, April for swamp timothy, and May for water-grass.
3. Include summer irrigation (as necessary) throughout most of the seasonal wetlands in order to increase seed yield and provide foraging opportunities for raptors and shorebirds. This activity has to be coordinated with BCMAVC to minimize mosquito production. Summer irrigation will be evaluated to determine effects on native plants adapted to winter rainfall.
4. Disc, mow, burn, and/or graze vegetation as necessary to promote desirable species, eliminate species not valuable for wildlife (e.g. cocklebur), promote a higher quality seed bed for the following year and to maintain ratios of open water and emergent vegetation after fall flood up. Wetland species of highest value are pioneer species and vegetative succession must be manipulated by disturbance to maintain productivity. In the northern Sacramento Valley this vegetation succession takes between 5-7 years depending on the efficiency of water management before climax communities of round stem bullrush and cattails dominate the unit.
5. Begin fall flood up in mid-August to provide habitat for and attract early migrating waterfowl and maintain traditional use sites.
6. Flood rice fields as early as possible, usually early to mid-November, after harvest is completed to attract migratory waterfowl.
7. Disc islands in seasonal wetlands prior to flood up in order to provide loafing areas for waterfowl and shorebirds.
8. Construct linear islands with disc ridger prior to flood up in order to increase loafing areas for waterfowl and shorebirds.
9. Maintain permanent ponds and other brood water at no more than one mile intervals to promote increased juvenile waterfowl survival at UBBWA.
10. Maintain established brood water ponds around nesting habitat to improve juvenile waterfowl survival.
11. Develop and maintain Diversified Upland Habitat Units (DUHU) where appropriate in upland swales to increase brood water and provide for movement between appropriate wetland habitats for juvenile waterfowl.
12. Coordinate with vector control districts to address health and nuisance issues.

EG-1.2 Identify, design, and develop potential restoration projects and appropriate funding

Wetland communities are in a constant state of flux and need to occasionally be restored to achieve their original goals of optimizing the potential growth of moist soil plants for migrant waterfowl while minimizing cost associated with water and mosquito abatement. In addition, UBBWA still has the potential to convert rice fields back to seasonal wetland habitats.

1. Evaluate opportunities, constraints, and benefits of feasible wetland restoration projects. Potential restoration project sites may include fields 107,110, 119, 125, 214, 225, 226, 302, and 309.
2. Pursue funding and develop plans for identified restoration projects that include goals, techniques, costs, monitoring, an adaptive management process, and a schedule. Funding programs to pursue may include the following:
    - North American Wetlands Conservation Act
    - State Duck Stamp Program
    - Upland Game Stamp Program
    - U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Farm Bill Programs
    - USFWS State Wildlife Grant Program, Federal Aid in Wildlife Restoration Program
    - Central Valley Project, Wildlife Habitat Augmentation Plan
    - Neo-tropical Migratory Bird Conservation Act Grants Program
    - Riparian Joint Venture
    - Ducks Unlimited, Wetland Restoration Program
    - Department of Fish and Wildlife Minor/Major Capital Outlay proposals
    - CDFW Comprehensive Wetlands Program, Duck Stamp Program
    - Wildlife Conservation Board Inland Wetlands Conservation Program
    - Other programs authorized under future bond acts
    - DWR grants available for mitigation of water projects and levee maintenance activities
    - Funding from grant programs administered by U.S. Environmental Protection Agency
    - Funding from grant programs administered by National Oceanic and Atmospheric Administration
    - Funding from grant programs administered by the National Fish and Wildlife Foundation
    - Funding from grant programs administered by US Bureau of Reclamation

EG-1.3 Coordinate with other government agencies and NGO's on implementation of regional plans and goals

While this LMP is important for the maintenance and operation of UBBWA, it is also part of a larger goal of increasing wetland habitat in support of the CVHJV and the NAWMP. Consequently, it is important to coordinate with other governmental agencies and non-governmental organizations (NGO's).

1. Coordinate habitat restoration acreages with goals developed for the Butte Basin component of the Central Valley Joint Venture.
2. Cooperate in the development and implementation of existing restoration plans for wetland ecosystems by the CALFED ERP, NAWMP, Partners in Flight, United States Shorebird Conservation Plan, Waterbird Conservation for the Americas, and other programs that are consistent with the goals of this LMP.

EG-1.4 Monitor and evaluate management strategies

Monitoring is an essential part of adaptive management programs. Monitoring allows us to evaluate the effectiveness of management strategies in meeting our desired goals.

1. Conduct monthly surveys of waterfowl numbers.
2. Acquire survey data collected by USFWS during annual mid-winter surveys.
3. Conduct annual surveys of representative upland areas for nesting waterfowl.
4. Implement adaptive management.

Maintain and enhance Riparian communities

As with seasonal and permanent wetlands, riparian communities were once extensive in California's Central Valley. Historically, riparian areas occurred in broad bands within the floodplains of the streams and rivers draining from the Coast Ranges, Sierra Nevada, and Cascades. These rivers and streams flowed into the Sacramento and San Joaquin Rivers, which supported even broader bands of riparian communities. The vast majority of this community in the Central Valley has been lost to flood control projects, agriculture, and urban development. The riparian communities that remain are often restricted to the immediate stream border and are frequently less diverse due to the alteration of flood regimes, river flows, and the disturbance processes that create new riparian habitat and permit the succession of immature riparian communities into mature communities.

Within UBBWA, riparian communities are expanding and maturing under state ownership both through intensive plantings and natural reproduction. Riparian areas provide valuable wildlife habitat, particularly given their close proximity to grasslands, wetlands, and other communities within UBBWA. As with many other riparian areas in the Central Valley, these communities are threatened by invasive plants, such as pepperweed and arundo and alteration of hydrologic regimes.

A diverse assemblage of native species inhabits the riparian communities on UBBWA. Several special status species have been recorded using riparian communities at the UBBWA including Swainson's hawks, Western yellow-billed cuckoos, willow flycatchers, osprey, ringtail, and mountain lions.

One of the goals of UBBWA is to connect and expand existing riparian habitat scattered along Butte Creek, Howard Slough, Little Dry Creek, and Little Butte Creek with the goal of having continuous riparian habitat through the LDC and HS Units totaling more than 13 miles. At the same time the existing riparian habitat is being connected it is also being widened to make it a viable migration corridor. These actions were started under the initial management plan and will continue until the task is completed.

EG-2 Maintain and enhance riparian communities

EG-2.1 Manage and enhance riparian units

The UBBWA has large areas of riparian vegetation that provide essential habitat for a variety of species including threatened and endangered species. It is a primary goal of the Department to maintain and protect this important habitat.

1. Protect existing riparian habitat from destruction by fire.
2. Enhance existing riparian habitat by irrigations to ensure survival of newly planted areas.
3. Control noxious weeds where appropriate by mechanical, chemical, and manual means.

EG-2.2 Identify, design, and develop potential restoration projects and appropriate funding

It is the goal of the Department to develop and maintain continuous riparian habitat for roughly 13 miles long from the Gridley-Colusa Highway in the south up to the north end of Howard Slough. This riparian habitat will provide a migration corridor along Butte Creek from the Butte Sink in the south to orchards to the north.

1. Develop a continuous riparian corridor from the Gridley Colusa Highway to the north end of Howard Slough following the existing riparian units.
2. Pursue funding and develop plans for identified restoration projects that include goals, techniques, costs, monitoring, an adaptive management process, and a schedule of implementation.

EG-2.3 Coordinate with other government agencies and NGOs on implementation of regional plans and goals

As with wetlands, one of the reasons for the acquisition of UBBWA was the extensive riparian units existing at both LDC and HS that could be enhanced and developed. The Department believes this will also help achieve other local and regional goals.

1. Cooperate with development and implementation of restoration plans for riparian ecosystems by the CALFED ERP and other programs that are consistent with the goals of this LMP.

EG-2.4 Monitor and evaluate management strategies

1. Monitor and evaluate our strategies and techniques to be sure that our desired goals are met.
2. Conduct presence-absence surveys every five years to determine what species are utilizing the habitat and provide a description of the vegetative species found within the riparian communities. The highest priority is to survey for special-status animals and plants that could be present in riparian ecosystems at UBBWA. It is also important to survey for other special status species known to occur in riparian ecosystems.
    - Monitor populations of special status species periodically to assess overall habitat integrity, detect changes in distribution and abundance, and detect positive and adverse effects of management activities, human use, and/or nonnative species.
    - Implement adaptive management.

EG-3 Maintain and Enhance Grassland and Upland Communities

Grasslands across the Central Valley and other parts of California have been drastically altered over the last 300 years. During this timeframe the native grassland flora, which consisted of a

variety of perennial grasses, bulbs, and annual wildflowers, has been replaced by nonnative annual grasses and forbs of Eurasian origins. The shift from perennial to annual grasses as the dominant component of the grassland community has modified grassland community structure from a comparatively open and structurally diverse community to one characterized by dense vegetation with fairly homogenous structure. The UBBWA has not escaped this shift, with its grasslands dominated by the proliferation of annual rye grass.

The Grassland and Upland Ecosystems sub-element includes goals for management to maintain or enhance grassland species abundance and diversity and to restore and enhance degraded communities to provide desired ecological functions.

EG-3.1 Manage and Enhance Grassland and Upland units

Due to the invasion of non-native species and the agricultural development of the UBBWA before the Department acquired the property the grassland and upland components of this ecosystem were severely degraded, leaving only scattered remnants of this ecosystem. This will be a difficult ecosystem to restore because native species are poor competitors with the non-native invasive species.

1. Enhance grasslands and uplands through native grass plantings and other management techniques.
2. Improve habitat for special-status species in the grassland ecosystems at UBBWA through adaptive management, limited herbicide application, and other management techniques.
3. Ensure that actions comply with the federal and California Endangered Species Acts and other regulations aimed at the protection of special-status species.
4. Manage vernal pool grasslands using techniques such as grazing and fire to minimize invasive species populations and to encourage native plant and invertebrate populations.

EG-3.2 Identify, design, and develop potential restoration projects and appropriate funding

There are grassland areas within the UBBWA that have the potential to be restored to function as a native community.

1. Evaluate opportunities, constraints, and potential restoration benefits and identify feasible grassland and upland restoration projects.
2. Pursue funding and develop plans for identified restoration projects that include goals, techniques, costs, monitoring, an adaptive management process, and an implementation schedule.

EG-3.3 Coordinate with other government agencies and NGOs on implementation of regional plans and goals

1. Cooperate with development and implementation of restoration plans for grassland and upland ecosystems by the CALFED ERP and other programs that are consistent with the goals of this LMP.

EG-3.4 Monitor and evaluate management strategies

Monitoring and evaluation of strategies and techniques are needed to be sure desired goals are met.

1. Conduct biological surveys in grassland and upland communities. The highest priority is to survey for special status animals and plants that could be present in grassland and upland

communities at UBBWA. Those species would include Ferris' milk-vetch, burrowing owl, and California horned lark.

2. Monitor populations of special status species periodically to assess overall habitat integrity, detect changes in distribution and abundance, and detect positive and adverse effects of management activities, human use, and/or non-native species.
3. Implement adaptive management.

EG-4 Maintain and Enhance Riverine and Lacustrine Ecosytems

The Upper Butte Basin provides vital fish spawning, rearing, and/or migratory habitat for a diverse assemblage of anadromous and resident fishes. Both native and non-native species are common; however, as with most other aquatic habitats in California, non-native species frequently dominate and compete with native fishes for spawning, rearing, and feeding habitat. Additionally, non-native fishes frequently prey upon native fishes, particularly juveniles which are susceptible to predation by higher level predators including black bass, striped bass, and other nonnative fish. However, many non-native fishes provide significant angling opportunities, and the potential ecological impacts of non-native fishes must be weighed against their value as a popular recreational resource.

Historically floodplains were common in the Central Valley and Delta and provided important spawning and rearing habitat for many native fishes. Non-native fish are less likely to make use of floodplain habitats because the spawning season for most non-native fishes does not coincide with floodplain availability (i.e. inundation) and because floodplains are ephemeral in nature, thereby preventing the establishment of resident populations of non-native fish.

The riverine and lacustrine ecosystems management goals are to maintain or enhance aquatic species abundance and diversity (including game species and special status species), to maintain or enhance game species populations, and to restore and enhance degraded habitats to provide desired ecological functions.

The CESA (Chapter 1.5 of the Fish and Game Code) declares that all state agencies shall seek to conserve threatened and endangered species. It is the policy of the Department to protect and preserve all native species experiencing a significant decline that, if not halted, would lead to their designation as threatened or endangered. The Department is also guided by the understanding that it is the desire of the State of California to recover salmon and anadromous trout populations to self-sustaining levels. Similarly, the goals of the CALFED ERP include achieving the recovery of at-risk native species dependent on the Delta and reversing downward population trends of native species that are not listed.

It is the policy of the California Fish and Game Commission that CDFW shall emphasize programs that ensure continued sport fishing opportunities, enhance such opportunities, and prevent their loss. It is also Commission policy that the Department works toward stabilizing and then restoring the declining native fishery of the Delta. The enhancement of fisheries for white sturgeon and the maintenance of fisheries for striped bass and nonnative warm water fish are objectives of the CALFED ERP.

Substantial achievements have been made to restore habitat and improve flow regimes throughout the Butte Creek watershed. These efforts have resulted in the removal of four dams and installation of new fish ladders on others. Water flows have been increased through interagency cooperation and agreements. These actions have resulted in the historic return of Chinook salmon spawning runs which in recent years have exceeded 10,000 adult fish in Butte Creek. Continued efforts are ongoing to address remaining limiting factors through additional collaborative restoration planning and implementation. The Department supports the continued restoration efforts in the Butte Creek watershed. The tasks listed below will help meet the objectives of this LMP.

EG-4.1 Manage and enhance riverine and lacustrine habitats

Riverine and lacustrine habitat types exist on the UBBWA and the Department does not actively manage within these habitat types. The Department works to ensure sufficient water within Butte Creek and other waterways to maintain these ecosystems.

1. Work to ensure that there is sufficient water in the Butte Creek system to allow for fish passage through the area.
2. Ensure that the riparian water rights deeded to the Department upon purchase of the parcels which comprise UBBWA be utilized and codified as instream flow.
3. Improve habitat structure in permanent wetlands for the benefit of game fish species.

EG-4.2 Identify, design, develop, and implement restoration projects and appropriate funding

1. Evaluate access points, angling use, and regulations periodically; recommend changes as warranted to maintain and enhance aquatic habitats and populations of game species.
2. Pursue funding from the Wildlife Conservation Board to develop and improve fishing access along Butte Creek and permanent wetland habitat scattered throughout UBBWA.

EG-4.3 Coordinate with other government agencies and NGOs on implementation of regional plans and goals

1. Identify opportunities to restore riverine and lacustrine ecosystems at the UBBWA. Cooperate in the development and implementation of restoration plans for ecosystems by the Department and other programs that are consistent with the goals of UBBWA and this LMP.

EG-4.4 Monitor and evaluate management strategies

There needs to be constant monitoring and evaluation of management strategies and techniques to be sure that desired goals are met.

1. Monitor use of riverine and lacustrine habitats at the UBBWA by special status fish species, other native fishes and implement adaptive management.
2. Monitor and assess management, human use, invasive nonnative species, and other effects on habitat for desired game species and implement adaptive management.

EG-5 Maintain the Department's commitment to use agriculture as part of the management of the Area and to contribute to the agricultural community

Agriculture has been an important land use in the Butte Basin since the seasonal wetlands, perennial marshes and riparian areas were first converted to farms in the mid-1800s. For many years, grazing was the primary use of agricultural lands in the Butte Basin; however, in the latter part of the 20th century, reclamation of lands in the name of flood control combined with highly developed irrigation systems and laser leveled fields has increased the acreages dedicated to the production of grain and tree crops. The local climate, soils, and nearly annual floods that occur in the Butte Basin severely limit the kinds of crops that can be grown. Orchards and winter crops are found in the sandy soils that dry out along the Sacramento River. Rice is the dominant crop in the basin as it is suited to the clay soils, winter flooding, and long hot summers.

Given the history and prevalence of agriculture within the UBBWA, many of the management units will continue to incorporate some form of agriculture as a management tool for the benefit of the Area and the wildlife species that inhabit it. In general, agricultural activities contribute to UBBWA goals. Listed below are several goals and tasks identified for the agricultural element. Several of these tasks may be redundant with those identified in other elements throughout this chapter because of the tightly interrelated and coordinated nature of agricultural activities with other management in the UBBWA. Revenues from agricultural leases provide valuable operating income for UBBWA. These revenues are vital for operation and management of UBBWA.

EC-5.1 Continue and Enhance Agricultural Leases

Integration of agriculture into the long term management of UBBWA contributes to achieving some of the goals outlined in this LMP. Continued commercial agricultural practices provide habitat for wildlife, a local farming interest on the area, and critical funding for operation of UBBWA.

1. Work with local farmers to grow agricultural crops that mutually benefit the tenant farmer, the agricultural community, and management of wildlife habitat at UBBWA.
2. Manage agricultural lands to provide an income source for CDFW management and operations of UBBWA.
3. Administer agricultural leases.
    - Annually plan agricultural activities throughout UBBWA including production fields and wildlife food plot(s).
    - Plan for administration of Farm Service Agency funds to lessee.
    - Periodically inspect agricultural activities.
    - Plan for the post harvest treatment of agricultural fields.
4. Maintain water management infrastructure including pumps, water control gates, and water distribution systems used by the Department, agricultural lease tenants, and contractors.
5. Maintain communication about regional agricultural issues with adjacent landowners and tenants as needed.
6. Work with the local agriculture community to provide information on wildlife friendly farming approaches used on UBBWA.

7. Collaborate with adjacent landowners and tenants regarding CDFW management activities that may affect their operations. Resolve potential issues by proactively working with adjacent landowners and tenants.

EG-5.2 Explore and develop agricultural techniques that provide mutual benefits to farmers and wildlife

CDFW wildlife areas commonly grow agricultural crops for the benefit of wildlife. The UBBWA utilizes agriculture to manage habitats while providing important income for the management and operation of the property. Innovative agricultural practices at UBBWA provide valuable habitat for a diverse assemblage of wildlife species. Rice is grown, harvested, and straw mowed, disced, or burned and then flooded to provide food for thousands of waterfowl. Corn fields are grown to provide forage for geese and cranes. Fields of milo, corn, and Sudan grass are grown specifically for wildlife forage and cover. Crops such as safflower are cultivated and mowed to provide seed for upland species such as ring-necked pheasant and mourning dove. Grassland habitat at the LS has the potential to be managed by cattle grazing to favor the production of native forbs.

1. Manage and control invasive non-native plant species through controlled flood-up and drawdown procedures, use of herbicides, and other conventional agricultural practices.
2. Enhance grasslands and uplands through by planting native grass and other management techniques (i.e. grazing and fire).
3. Improve habitat for special status species in the grassland ecosystems at UBBWA through the use of adaptive management, limited herbicide application, native grass plantings, and other management techniques (i.e. fire/grazing).
4. Manage for rodents and large insects to provide adequate prey items in order to benefit foraging raptor species.
5. Plant food plots that will not only provide food for birds, but rodents as well. Legumes and grain crops such as vetch, clovers, wheat, sunflower, milo, corn, and safflower are recommended.
6. Manage discing, mowing, and summer irrigation to attract large numbers of Swainson's hawks, which feed on grasshoppers.
7. Manage fall flooding of agricultural fields to attract wintering raptors.
8. Explore the possibility of developing a grazing lease at the LS unit.
9. Annually plant grain fields to provide foraging areas for upland game and hunting opportunities for upland game hunters.
10. Manage seasonal and permanent wetlands and other communities to provide habitat for resident waterfowl species.
11. Disc, mow, and burn vegetation as necessary to promote desirable species, eliminate species not valuable for wildlife (e.g. cocklebur), promote a higher quality seed bed for the following year and promote vegetative diversity.
12. Flood rice fields as early as possible after harvest is completed to attract migratory waterfowl.
13. Manage upland vegetation to provide desired nesting habitat.
14. Plant fields of wheat and vetch to provide high quality nesting habitat the following year.

EG-5.3 Work with local farmers to grow agricultural crops that benefit the tenant farmers and UBBWA

To maintain agriculture as a viable technique within the management of the UBBWA it is important to work with local farmers to encourage new management techniques and crops that can be economically grown and provide wildlife benefits.

EG-5.4 Participate in local districts

Maintain active working relationships with water districts, resource conservation districts, reclamation districts, and neighbors.

EG-6 Fire Management

Fires within the UBBWA are seasonal and are both natural and human caused. Human caused fires are primarily due to equipment failures or human error. Most of the fires are caught quickly; however, the potential for a fire to get out of control is significant. Within the riparian corridor along Butte Creek the potential fire load has increased under state ownership because of lack of burning, importation of debris from flooding, tree blow down, and vegetation growth. Fuel breaks are needed through the riparian corridor so that a wild fire could be controlled and a fuel load reduction program developed. Additionally, at UBBWA there are opportunities to employ fire as a habitat manipulation tool. Fires at UBBWA can have either beneficial or adverse effects on the goals outlined in this LMP. For example, fires can have benefits to native vegetation such as California hibiscus yet destroy wood duck nest boxes, but fires can also damage facilities, injure staff and visitors, and ultimately interfere with achieving goals for public use and facilities elements.

There are a number of constraints on fire management at UBBWA. These constraints include:

- Availability of staff and funding
- Potential adverse effects on air quality
- Public safety
- Facilities
- Public use

EG-6.1 Coordinate with CAL FIRE and other agencies in the development and implementation of a fire management plan for UBBWA

In 1994, the California State Board of Forestry and the Department adopted a Joint Policy on Pre, During, and Post-fire Activities and Wildlife Habitat (California State Board of Forestry and California Department of Fish and Game 1994). This joint policy describes multiple measures that both the CAL FIRE and the Department should undertake to protect lives and property with consideration of natural resources. These measures would be implemented before, during, and after fires to ensure the safety of life and property. The tasks listed below are intended to facilitate implementation of fire protection measures.

1. Meet biannually if necessary with CAL FIRE representatives to discuss fire-related issues relevant to the UBBWA, including vegetation management (prescribed burns), recent fires on the UBBWA, current contact information, and procedures.

2. Coordinate with CAL FIRE to develop a wildland fire response plan for UBBWA. This plan would give protection of life and property the highest priority during fire response, but would also give careful consideration to effects on the natural resources of UBBWA. This plan should identify fire suppression tactics that could have long-term effects on ecosystems (e.g. use of retardant). Those tactics should be avoided or modified whenever feasible to avoid or minimize long-term effects on the ecosystems of UBBWA. The plan should also identify critical areas where emergency revegetation or mechanical or structural measures may be contemplated to prevent excessive erosion or flooding after a fire. The impact of these practices upon special status species and the habitats they rely on should be considered.
3. Coordinate fire suppression activities and cooperate with local fire districts.
4. Design and implement vegetation management activities at fuel breaks along existing roads and parking lots.
5. Following a fire or fire suppression, implement emergency re-vegetation, mechanical, and structural measures within those previously defined critical areas that were affected to minimize long term ecosystem damage.

EG-6.2 Provide employees with appropriate training for response to fire events

1. Train appropriate personnel to participate in prescribed burn situations and serve the role of resource specialist or agency representative through the Incident Command System (ICS) on fires adjacent to and on State wildlife areas.
    - As part of the ICS, make available a local plant, wildlife, and fisheries specialist from the Department's staff to provide advice during fires and for post fire rehabilitation that threaten wildlife habitat at UBBWA.

EG-6.3 Monitor effects of fire on habitats

When a wildfire occurs, monitor its effects on the various habitats and develop management strategies to reduce any detrimental impacts.

D. Species Guild Goals

Management for Species Guilds

The UBBWA is a wintering, breeding and migratory stopover area for many species of birds along the Pacific Flyway. UBBWA supports vast numbers of birds on a year-round and seasonal basis. The broad diversity of species guilds supported by the UBBWA is tied, in part, to the diversity of habitats found within UBBWA and how these habitats intertwine with each other. These managed communities, which include seasonal and permanent wetlands, agricultural fields, riparian woodlands, and grasslands provide a diverse matrix of nesting and foraging habitats for several guilds and support a rich assemblage of food stuffs ranging from terrestrial and aquatic invertebrates to cultivated crops and natural vegetation for a wide variety of birds, reptiles, amphibians, and mammals.

As California's Central Valley continues to grow and natural areas are converted to housing and commercial developments, the importance of large, contiguous areas with a diverse variety of habitats such as the UBBWA will increase. To preserve these values, the UBBWA is managed

using an ecosystem approach to benefit the full suite of wildlife guilds utilizing the areas, as opposed to a management approach focused on a single species or single group of species.

The Species Guilds sub-element includes goals for management of multiple communities to provide habitat and benefit several guilds of bird species. These goals are based on the stated purpose of land acquisition by the WCB (Wildlife Conservation Board 2001), on the CVHJV's habitat restoration goals under the NAWMP, within the California Fish and Game Code, and the goals and objectives of the CALFED ERP (for which the Department is an implementing agency).

These tasks are based on experience adaptively managing these communities on UBBWA. Actions proposed must comply with the ESA, CESA and other regulations aimed at the protection of special status species and sensitive habitats. Tasks will be guided by the most recent BMPs for special status species. Best management practices can be found under Special Status Species in this chapter.

Wetland management techniques are built upon the prescriptions as described in A Guide to Wetland Habitat Management in the Central Valley (California Department of Fish and Game 1995) and has been adapted to specific environmental conditions within the UBBWA.

SG-1 Manage and maintain habitat communities for waterfowl species

A significant feature of the UBBWA is the abundance and variety of wintering waterfowl that migrate down the Pacific Flyway each year. Large numbers of ducks, geese, and swans winter at UBBWA after migrating from northern breeding areas. Abundant species include northern pintails, northern shovelers, mallards, gadwalls, American wigeons, cinnamon and green-winged teals, ring-necked ducks, snow geese, tundra swans, and white-fronted geese. Some species, such as mallards, cinnamon teal, gadwalls, and Canada geese, are also yearlong residents and breed locally in wetlands and nearby uplands. Waterfowl are a significant component of UBBWA and are of high interest to recreational hunters and bird watchers.

Peak waterfowl numbers are observed on UBBWA from December–February, when more than 600,000 birds can be counted. A second peak in the summer correlates to the presence of breeding ducks that nest throughout the region. These species are generally mallard, wood ducks, and cinnamon teal.

The propagation of beneficial plants and subsequent fall flooding of seasonal wetlands is the primary wetland management strategy in the UBBWA for migratory waterfowl. The post harvest flooding of agricultural crops, primarily rice, has effectively attracted hundreds of thousands of wintering waterfowl to the UBBWA and surrounding area. Upland cover plantings diversify upland habitat units, and the maintenance of properly spaced brood ponds is one strategy used for nesting waterfowl. In addition, agricultural activities provide high quality brood habitat and winter forage for species in this guild.

The tasks listed below identify specific management activities intended to benefit resident and migratory waterfowl species.

SG-1.1 Intensively manage seasonal and permanent wetlands and other communities to provide high quality habitat for resident waterfowl species

These activities are discussed under Ecosystem Goal (EG-1.1).

SG-1.2 Manage upland vegetation to provide desired nesting habitat

1. Plant fields of clovers, trefoil, wheat and vetch to provide high quality nesting habitat the following year.
2. Control invasive weeds such as perennial pepperweed, *Arundo*, verbena, joint grass and yellow star thistle.
3. Perform irrigations in swales through upland areas to increase humidity and subsequent invertebrate numbers for the benefit of ground nesting birds such as mallard and ring-necked pheasant. These irrigations must be conducted quickly and drained thoroughly to prevent production of large numbers of mosquitoes. (note: where appropriate to avoid impacts to vernal pools)
4. Continue to enhance upland areas with the construction of topographic features such as swales to create microhabitats and more effectively move water on and off the field.
5. Continue to protect and manage vernal pool grasslands to support native plant and invertebrates.

SG-1.3 Maintain sanctuary areas where public access is closely monitored in order to provide safe haven for migratory waterfowl

Sanctuary areas provide safe havens for waterfowl during waterfowl season and provide for much needed loafing areas throughout the year. These areas are managed to: 1) distribute waterfowl populations throughout a wider regional area than just the UBBWA; 2) to manipulate waterfowl concentrations to reduce the potential for disease outbreak; 3) and to provide some crop depredation relief.

1. Start flooding sanctuary areas in mid-August. This establishes imprinting, crop depredation relief, provides for waterfowl populations, and can reduce disease potential.
2. Maintain some permanent wetland sanctuaries without changing locations to provide a core area to manage from and provide a resident population of waterfowl.

SG-1.4 Monitor waterfowl populations periodically to assess management techniques and species response; apply adaptive management techniques as appropriate.

1. Conduct monthly surveys of waterfowl numbers.
2. Acquire and collate survey data collected by USFWS during annual mid-winter surveys.
3. Conduct annual surveys of representative upland areas for nesting waterfowl.

SG-1.5 Monitor wetland wildlife populations for disease and follow prescribed Department management techniques to contain disease outbreaks and reduce disease potential

Monitor and evaluate strategies and techniques to be sure that desired goals are met.

1. Gear disease monitoring to population densities and potential for disease increases.
2. Increase disease monitoring efforts using specific time and site potential criteria for specific diseases.
3. Train employees in the symptoms of common wildlife diseases.

4. Train employees in procedures for locating and handling diseased birds.
5. Report disease outbreaks as per Department policy.
6. Maintain safety equipment required to deal with disease outbreaks.

SG-2 Manipulate wetland habitat communities to provide habitat for shorebird and wading bird species

The UBBWA provides habitat for wintering shorebirds in the Central Valley. With managed seasonal wetlands providing shallow water, mud flats, and island mounds, thousands of shorebirds and wading birds annually migrate through UBBWA and spend the winter, with some nesting on the UBBWA. Some shorebird and wading bird species are year-round residents. Representative species of breeding shorebirds and wading birds include American avocets, black-necked stilts, killdeer, pied-billed grebe, sora and Virginia rail, great blue heron, common moorhen, great and snowy egret, and black-crowned night heron.

Common wintering species include greater yellowlegs, dowitchers, least sandpiper, and black-bellied plover. During the late winter, these species are joined by dunlin, western sandpiper, and long-billed curlew.

Habitat characteristics valuable for shorebirds when presented at the proper seasonal period and timing include:

- shallow open water with varied topography or a sloped pond bottom
- dense concentrations of invertebrate prey necessary to feed shorebirds
- bare islands for roosting and nesting

The tasks listed below identify specific seasonal management activities intended to benefit shorebird species.

SG-2.1 Manage seasonal wetlands for shorebird species

1. Spring: Drawdown some flooded seasonal wetlands in spring (April 1) to promote growth of swamp timothy while providing important mudflat habitat for migratory and resident shorebirds. Provide bare islands for nesting which become raised mounds upon drawdown. Water maintained in low lying swales will provide foraging areas for breeding shorebirds.
2. Summer: Provide mudflat habitat in July and August during the peak of shorebird migration. This coincides with irrigations that enhance smartweed and watergrass.
3. Drain permanent wetlands in midsummer. Permanent wetlands are periodically drained in midsummer on a 4-6 year cycle in order to perform important vegetation control activities. When drained, open areas will contain concentrated numbers of fish and invertebrates, which will be available for consumption for a large variety of water birds. Timing these draw downs with the arrival of migratory shorebirds in July will provide excellent shorebird foraging habitat.
4. Flood newly disced areas in July.
5. Shorebird habitat areas can be opened up through burning, mowing, or grazing, followed by discing and flooding for shorebird use.

6. Winter: Flood and maintain shallow water for shorebird foraging. Maintain bare islands for loafing.

SG-2.2 Monitor shorebird population and evaluate management techniques

1. Conduct surveys to quantify shorebird use at UBBWA.
2. Evaluate shorebird use in response to different management techniques and implement adaptive management.

SG-3 Maintain and enhance habitat for upland game species

Primary upland game bird species include mourning doves and ring-neck pheasants. Ring-necked pheasant numbers fluctuate in the UBBWA based on the severity of flooding, spring brood moisture, and the effectiveness of the management of diversified upland habitat units. The UBBWA has dedicated 12 Diversified Upland Habitat Unit management sites. In addition, fields are planted with safflower to provide forage for mourning dove and ring-necked pheasant. Safflower is mowed in early August to provide foraging opportunities for these wildlife species. These management strategies have resulted in improved upland game bird hunting throughout UBBWA.

Turkeys are a recent addition to the avifauna of the UBBWA. Found primarily moving up and down Butte Creek and adjacent fields, turkeys have become a prominent fixture at UBBWA and the potential for a fall turkey hunt could be considered for inclusion in an upland game hunting program. A spring turkey hunt would have to be evaluated for impact to other species.

California quail are occasionally seen along Butte Creek and Little Dry Creek; however, due to frequent flooding they are not expected to become common enough to include in an upland game hunting program.

The tasks listed below identify specific management activities intended to benefit upland game species.

SG-3.1 Dedicate 12 management units to provide diverse upland habitat within discreet areas in accordance with DUHU techniques being developed on the UBBWA and other state wildlife areas

This concept was originally developed for pheasant management and chick survival; however, it appears to provide additional benefits to a variety of species depending on the placement of the units within the ecosystems.

1. Perform scattered irrigations in upland areas to increase humidity and subsequent invertebrate numbers for the benefit of ground nesting birds such as mallard and ring-necked pheasant. These irrigations must be conducted quickly and drained thoroughly to prevent production of large numbers of mosquitoes.
2. Continue to enhance upland areas with the construction of topographic features such as swales to create micro habitats and more effectively move water on and off the field.

SG-3.2 Provide diverse nesting and brood habitat for upland game

1. Annually plant nesting cover including legumes that will improve nesting habitat for upland game species.

2. Consider providing nesting structures for mourning dove.
3. Perform irrigations in upland areas to increase humidity and invertebrate numbers to benefit ground nesting birds.

SG-3.3 Plant and manage forage for upland game species

1. Annually plant grains such as safflower and sunflower to provide foraging areas for upland game and hunting opportunities for upland game hunters.

SG-3.4 Monitor Upland game bird populations and evaluate management techniques

1. Conduct surveys to quantify upland game bird use at UBBWA.
2. Evaluate responses to different management techniques and implement adaptive management.

SG-4 Manage and maintain habitat communities for raptors

UBBWA is an important location for wintering birds of prey including white-tailed kites, rough-legged hawks, prairie falcons, merlins, peregrine falcons, kestrels, ferruginous hawks, barn owls, great horned owls, short-eared owls, northern harriers, bald and golden eagles, red shouldered hawks and large numbers of red-tailed hawks. Breeding raptor species on UBBWA include Swainson's hawks, red-tailed hawks, red shouldered hawks, kestrels, osprey, northern harriers, white-tailed kites, barn owls, and great horned owls. Discing, mowing, and summer irrigations attract large numbers of raptors feeding on grasshoppers, dragonflies, and rodents. Fall preparation of agricultural fields also attracts wintering raptors.

Management strategies for raptors include optimizing foraging opportunities by managing for a food base consisting of rodents and large insects. Although rodent numbers are highly dependent on the timing, magnitude, and duration of flooding on the UBBWA they seem to quickly populate the floodplain. Growing grain such as safflower, milo, and corn also provides for increased rodent numbers and therefore increased prey for raptors. Encouraging the proliferation of sweet clover and maintaining high humidity in pond/wetland bottoms helps to develop high grasshopper numbers, an important food item for Swainson's hawks. Planning and developing fire breaks to protect riparian areas is essential to the preservation of the raptor nesting habitat.

The tasks listed below identify specific management activities intended to benefit these bird species. This goal ties into the riparian ecosystem goal EG-2.

SG-4.1 Manage for large populations of rodents and insects to provide adequate prey items in order to benefit foraging raptor species

1. Maintain moist pond-bottom conditions to promote the development of high grasshopper populations.
2. Manage discing, mowing, and summer irrigation to attract Swainson's hawks, which feed on grasshoppers.
3. Manage fall flooding of agricultural fields to attract wintering raptors.
4. Plant food plots that will provide food for birds and rodents. Legumes and grain crops such as vetch, clovers, wheat, sunflower, milo, corn, and safflower are recommended.

SG-4.2 Maintain, develop, and protect roosting and nesting habitat

1. Explore opportunities to develop and expand riparian habitat.
2. Develop and implement a fire management and prevention plan.

SG-4.3 Monitor populations of raptors to assess management techniques and species response; apply adaptive management techniques as appropriate

1. Conduct raptor surveys throughout the year.

SG-5 Manage and maintain habitat communities for cavity-nesting bird species

Cavity-nesting birds, such as kestrels, tree swallows, and wood ducks can be seen through out UBBWA. Providing nesting boxes for these cavity-nesting bird species can increase their numbers locally. Swallows are summer migrants, occurring in UBBWA from late winter to early fall (February–November), with peak abundance generally in June and July. Large post-breeding flocks of swallows can occur in the late summer, particularly when flying insect populations associated with flooding of wetlands and removal of water on rice fields are abundant.

The tasks listed below identify specific management activities intended to benefit cavity-nesting bird species.

SG-5.1 Develop and implement a plan for maintaining, developing, and protecting riparian habitat

This goal can be tied to our riparian ecosystem goals EG-2.

1. Restore and enhance riparian vegetation for cavity nesters.
2. Continue irrigations until roots have reached ground water on recently planted trees to improve growth rates and canopy density.

SG-5.2 Maintain and enhance artificial dwellings

1. Provide and maintain artificial cavities for American kestrels, tree swallows, barn owls, and wood ducks in appropriate areas.
2. Recruit and utilize interested volunteers to provide and maintain nesting boxes for cavity nesters in appropriate habitats.

SG-5.3 Monitor populations of cavity-nesting bird species periodically to assess management techniques and species response; apply adaptive management techniques as appropriate

1. Conduct surveys throughout the year for cavity dwelling species.

SG-6 Manage and maintain communities for neo-tropical bird species

The neo-tropical migratory bird guild comprises bird species that breed in North America and winter in Central and South America. Many species of neo-tropical birds migrate through or breed within the UBBWA. Representative species of the neo-tropical migratory bird guild are yellow-billed cuckoo, willow flycatcher, western kingbirds, western wood-pewees, swallows, orioles, warblers, blue grosbeaks and yellow-breasted chats.

Regionally, there have been substantial losses of historic habitat used by neo-tropical migratory species, and the available information suggests that population levels for many of these species are declining. Continued management of existing habitat, and restoration of additional suitable wetland, riparian, and grassland habitats in the UBBWA is important to maintaining healthy neo-tropical migrant bird populations. Protection and restoration of nesting habitat helps improve migration corridors which reduce nest parasitism and predation by creating habitat conditions that render neo-tropical birds less susceptible to these stressors.

Upland habitat management that includes providing community variations in height, density of vegetation, food crops, and water has proven to be beneficial to many neo-tropical song birds. Opportunities to increase extent and density of riparian vegetation within the UBBWA will also benefit species in this guild. Riparian areas act as corridors for migratory songbirds.

The tasks listed below identify specific management activities intended to benefit neo-tropical migratory bird species. Implementation of the tasks and goals listed under EG-2 for riparian habitat will provide benefits for neo-tropical migrants.

SG-6.1 Maintain and enhance riparian vegetation through the UBBWA to serve as a continuous migration corridor for resident and migratory songbirds while providing nest sites for a variety of species

SG-6.2 Manage upland habitat to include variations in height, density of vegetation, food crops, and water

SG-6.3 Monitor populations of neo-tropical bird species periodically to assess management techniques and species response; apply adaptive management techniques as appropriate

SG-7 Manage and maintain communities for a variety of other waterbird species including grebes, rails, bitterns, ibis and songbirds associated with emergent marsh vegetation

Emergent marsh vegetation communities provide valuable habitat for a number of water bird species for both feeding, nesting and roosting. The tasks listed below identify specific management activities intended to benefit these bird species.

SG-7.1 Maintain appropriate nesting and brooding habitat

1. Maintain varying amounts of thatch within emergent marsh vegetation in order to attract such nesting species as white-faced ibis, black-crowned night herons, tricolored blackbirds, and yellow headed blackbirds.

SG-7.2 Monitor populations of water bird species periodically to assess management

1. Conduct surveys throughout the year for water bird species.
2. Correlate survey data with habitat management activities to improve and or verify management strategies.

SG-8 Manage and maintain habitat for mammals

Most mammal species known to occur on or within the UBBWA are found in the riparian corridors and upland fields. These species include mountain lions, deer, ringtail, and various microtene rodents to name a few. These areas are not managed specifically for mammals; however, management goals in general will improve the habitat quality for these species.

SG-8.1 Provide a diverse mosaic of habitats which can be used by a wide variety of mammalian species

1. Implementation of ecosystem goals under SG -5 will provide an array of habitat types which will benefit all mammal species that reside at UBBWA including bat species.

SG-8.2 Monitor mammal populations periodically to assess species composition

1. Conduct surveys for mammalian species by establishing photo stations, setting out track plates, small mammal trapping and other appropriate assessment techniques.
2. Use data derived from surveys to establish presence or absence of species and estimate populations.

E. Special Status Species Goals

Special Status Species

The special status species sub-element includes goals for management of special status species that may occur on the UBBWA. These goals are based on the California Fish and Game Code, the policies of the Department, and the goals and objectives of the CALFED ERP.

UBBWA is known to support 17 special status wildlife species (Table 3.5-3), and many more that are locally rare or have specialized habitat requirements that UBBWA provides. UBBWA also provides seasonal or permanent aquatic habitat for 31 species of fish, 2 of which are special status species (Table 3.5-5). Hundreds of invertebrate species also inhabit UBBWA, including four special status invertebrates (Table 3.5-3). Under the ecosystem management approach, management of the UBBWA is intended to maximize benefits for the full suite of these species as opposed to management at the single species level.

UBBWA provides active management for four T&E species. The rest of the T&E species are covered under habitat guild goals.

Spring Run Salmon and Steelhead

One of the original goals for the UBBWA was to improve fish passage in Butte Creek for spring run salmon and steelhead. This goal was achieved when the Department cooperated with both Western Canal Water District and the Llano Seco Management Working Group. Collectively four dams were removed from Butte Creek. Three of those dams were partially located on UBBWA property. In addition to dam removal, the remaining dams within Butte Creek were fitted with new fish ladders. Western Canal Water District also constructed a siphon under Butte Creek so that water from the Thermalito Afterbay would no longer mix with Butte Creek water, further

benefiting salmonids in the creek. The project with the Llano Seco Management group resulted in the construction of a new fish ladder on the Oakie Dam, a screened diversion off of Butte Creek, and a new pumping station and screened diversion from the Sacramento River. This allowed for additional flow in Butte Creek and made it possible to purchase water to increase flows in Butte Creek when needed.

Upon completion of these projects the Department has exercised its riparian water rights from both the HS and LDC units by dedicating them to in stream flows for the benefit of warm water and anadromous fish in Butte Creek.

Removal of the dams required giant garter snake mitigation, and as one of the partners in this restoration effort the Department took the lead on this effort.

Greater Sandhill Cranes

In the original management plan UBBWA was mandated to grow and manage several fields within the wetland and upland components of LDC with the specific intention of providing roosting, loafing, and feeding habitat for greater sandhill cranes. This management mandate was developed because of a two year study on sandhill crane use on and around UBBWA. During the study period the State was in the midst of a drought and limited water availability resulted in suitable habitat for the cranes being restricted to UBBWA. The study was contracted by the Department and awarded to C.D. Littlefield. He was charged with developing management recommendations for this species. He conducted counts for sandhill cranes and reported in excess of 10,000 individuals of both lesser and greater sandhill cranes. His management recommendations were to provide shallow flood fields in the LDC sanctuary to provide roost and loaf sites and to grow corn plots in order to provide forage. The Department continues to provide shallow flooded fields creating roosting and loafing sites for greater sandhill, waterfowl and shorebirds. In addition to providing roosting and loafing sites UBBWA also grows 30 acres of corn. The corn is used by a wide variety of species including ducks, geese, deer, raccoons, cranes, and ring-necked pheasant. There is also a field maintained in a semi-mudflat condition specifically for the benefit of sandhill cranes. Several of the duck clubs in the area are also growing small plots of corn to attract waterfowl, which also benefits sandhill crane.

Giant Garter Snake

The Department entered into an agreement with the USFWS, Union Pacific Railroad, and Western Canal Water District to provide offsite mitigation for giant garter snakes. This mitigation was required to offset impacts from railroad maintenance by Union Pacific Railroad and the removal of dams along Butte Creek to improve spring run salmon and steelhead passage. In the agreement, Field 212 was identified as the site where mitigation efforts would be directed to create and manage habitat suitable for GGS. This 38 acre field was formerly a laser leveled rice field. Restoration efforts created 3 foot deep swales, scattered islands, and scattered rock piles to provide basking sites and hibernacula.

Additionally, the Department adheres to all avoidance and minimization measures developed by the USFWS when conducting infrastructure maintenance and repairs throughout all three units of UBBWA.

SSS-1 Manage and maintain habitat for special status species

SSS-1.1 Ensure both State and federal avoidance and minimization measures are used on the area when and where appropriate

1. Review the literature and provide training to staff on the most current avoidance and minimization measures.

SSS-1.2 Train area staff to recognize species status species known to occur on the area

1. Provide staff with sufficient training to recognize suitable habitat for special status species known to occur on UBBWA and how to recognize them.

SSS-1.3 Monitor populations of special status species known to occur on the area

SSS-1.4 Conduct surveys in habitats with the potential to support special status species

1. Conduct surveys of wildlife, fish, and vegetation communities. The highest priority is to survey for special status animals and plants that could be present in the ecosystems at the UBBWA but that are not yet known to occur, such as California tiger salamander and western spadefoot. It is also important to survey for other special status species known to occur in the ecosystems at UBBWA but for which much information is lacking, such as giant garter snake and vernal pool crustaceans. Submit observation records to the CNDDB.
2. Monitor populations of special status species periodically to assess overall habitat integrity, detect changes in distribution and abundance, and detect positive and adverse effects of management activities, human use, and/or non-native species.

SSS-2 Improve habitats for fish species in Butte Creek

SSS-2.1 Continue to work with Department staff (water rights and fisheries) to provide in-stream flows to Butte Creek

1. Continue working with Department fisheries and water rights specialists to ensure the dedication of area water rights to in stream flows.

SSS-3 Adhere to agreements for the protection, mitigation, and enhancement of Special Status Species and their habitats

SSS-3.1 Sandhill Crane Management

1. Begin flooding wetlands at LDC in late August to provide roosting and loafing habitat in the sanctuary area of LDC. These wetlands must be shallow and relatively free of emergent vegetation. This will have to be coordinated with Butte County Mosquito Abatement District.
2. Grow 30 acres of field corn or milo to maturity in the LDC Sanctuary and manipulate this field to make it attractive to sandhill cranes.

SSS-3.2 Giant Garter Snake Habitat in Field 212

1. Maintain water levels within the unit.
2. Maintain vegetation to meet the goals of this unit.

3. Adhere to the most current avoidance and minimization measures, developed by USFWS, when conducting infrastructure maintenance and repair in this field.

SSS-3.3 Valley Elderberry Longhorn Beetle Riparian Habitat in Field 220

1. Avoid disturbance/management of Western Canal Irrigation District mitigation
    - This site was established as mitigation for the installation of a Siphon under Butte Creek in 1997 that was part of the interagency collaborative for the recovery of spring run Chinook salmon in Butte Creek.

SSS-3.4 Vernal Pool Habitat in Field 312

1. Avoid disturbance/management of the only vernal pool habitat on the UBBWA
    - This site is located on the western edge of the Llano Seco Unit

SSS-4 Where appropriate, area staff will participate in the development of protection, minimization, and enhancement measures for special status species and comment on their proposed recovery plans so that continued management of these areas is incorporated into the recovery plans.

SSS-4.1 Literature Review

1. Biological staff shall periodically review current and new literature on special status species and their habitats to improve management strategies on the area.

SSS-4.2 Participate in interagency working groups and provide Department input

1. Ensure that department lands, and their concerns, are included in larger landscape planning efforts.
2. Allow area staff to network with other regulatory agencies and non-government organizations and tap into other resources that may aid or be beneficial to the management of the area.

SSS-4.3 Monitor and evaluate implementation of Specials Status Species Goals on recovery of species and management of the area.

1. Obtain information from monitoring efforts to show successes and failures of recovery plan measures that lead to better management strategies for management of habitats for recovery of species.

F. Invasive Species Goals

Non-native Invasive Species

The non-native invasive species sub-element includes goals for management of non-native invasive species. These goals are based on the California Fish and Game Code, the policies of the Department, and the goals and objectives of the CALFED ERP.

The UBBWA has several invasive weeds that need control efforts directed at them. These control efforts include mechanical, chemical, flooding, and hand removal depending on the species' size of invasion and ecological location. Yellow star thistle tends to occur in disturbed upland areas

including parking lots and roads and thrives in years with little or no flooding. Perennial pepperweed is isolated to a few locations at both LDC and HS; however, the species has the potential to dominate the landscape if left unchecked. Most ditches on the UBBWA are choked with water primrose. Many of these ditches are shared with lessees, who contribute towards the control of this invasive aquatic weed. Control measures may include mechanical removal with an excavator or chemical control through the use of aquatic herbicides.

This goal is based on the need to avoid the potential consequences of the introduction and spread of invasive species, and on a related goal of the CALFED ERP. If additional non-native species become established there is potential for substantial adverse modifications to ecosystems. Thus, a goal of the CALFED ERP is to prevent additional non-native species from becoming established. The tasks listed below represent a strategic approach toward attaining this goal.

Prioritize infestations for treatment based on the risks that individual infestations pose to ecosystems, public infrastructure, and other resources within the UBBWA, and the likelihood that the infestation can be treated and maintained in a cost-effective manner. Coordinate control activities with the Department's Pesticide Use Program and monitor to determine effectiveness of effort.

IS-1 Prevent the introduction and spread of invasive species that negatively impact wildlife or special status species

One of the primary strategies employed by staff is constant vigilance and taking effective action when necessary to control invasive weeds. Typically, invasive weeds utilize common invasion strategies. They generally become established along roads or water systems. This is a critical time to initiate control efforts because there is generally good access and the infestation size is generally small. Once an invasion expands to over ten acres in size the costs go up and the effectiveness goes down, therefore the key factor is vigilance.

IS-1.1 Participate in groups interested in control of invasive species

1. Staff will participate in local weed management groups to keep up with local information about new invasive species and to learn about effective control measures.

IS-1.2 Monitor for invasive species

1. Inventory habitats within the UBBWA for infestations of invasive plants. Monitor these infestations and identify factors that influence their distribution such as flooding or vegetation manipulation.
2. Monitor occurrences of star thistle throughout all upland habitats.
3. Monitor occurrences of perennial pepperweed in grassland and wetland communities.
4. Monitor abundance and distribution of water primrose in the wetlands and irrigation infrastructure on UBBWA.
5. Monitor abundance and distribution of *Arundo* on the UBBWA.
6. Monitor abundance and distribution of verbena on the UBBWA.
7. Monitor abundance and distribution of Himalayan blackberry on the UBBWA.
8. Monitor abundance and distribution of joint grass on the UBBWA.

9. Monitor hot spots of introduction (e.g. sites along roads, trails, ditches, and canals, near parking areas, and in turnoffs) to enable early detection and rapid eradication of invasive species.

IS-1.3 Develop strategies and priorities for the implementation of control, containment, and eradication efforts

1. Manage and control invasive and other non-native species through the use of an integrated pest management program. This approach looks at integrating various control measures such as controlled flood-up and drawdown procedures, use of pesticides, and other conventional agricultural practices to mange exotic and nuisance species.
    a. During the rosette growth stage of star thistle, apply herbicide for control of this invasive weed.
    b. Apply herbicide to perennial pepperweed stands during early growth stages in spring.
    c. Evaluate the effectiveness of monitoring and control methods periodically; adjust methods as needed.
    d. Coordinate with regional staff all control efforts including the efforts of the Glenn and Butte County Weed Management Area.
    e. Provide education and outreach regarding impacts associated with invasive plants and control efforts.
    f. Share results of control efforts with other Wildlife Areas and private habitat managers in the area.
    g. Coordinate all actions with the CDFW pesticide use programs. Ensure that all actions comply with the ESA, CESA and other regulations aimed at the protection of special-status species and sensitive habitats, as well as current county and state regulations regarding the application of pesticides.
    h. Maintain a consistent level of expertise in regards to pesticide use techniques and chemical effectiveness by requiring current pesticide applicator's certification for at least two on-site employees.
    i. Consider and avoid unintentional effects to non-target plant species.
    j. Avoid adverse effects to agricultural crops in the area through drift in the air or water.
    k. Coordinate herbicide treatments to avoid contact with visitors. Clearly identify dates, locations, and times of herbicide treatments to inform the public and facilitate closure of herbicide treatment areas.
    l. Maintain chemical licenses by maintaining educational training requirements and training staff in efficient and safe handling and application techniques.

IS-1.4 Monitor the implementation of control, containment, and eradication efforts

G. Cultural Resources Goals

Cultural Resources Element (CRG)

Cultural resources at the UBBWA are limited. The Department is not aware of any significant historical or archaeological resources within the UBBWA. Consequently, there are few opportunities

or constraints on the management of cultural resources at UBBWA. Nonetheless, significant historical or archaeological resources may be present and could be impacted by public uses or management actions, particularly ground-disturbing activities in areas not yet surveyed. Potential ground-disturbing activities include levee maintenance by DWR and restoration of ecosystems by the Department or other agencies in collaboration with the Department (See also Public Use Goal 7 below for additional goals related to cultural resources.)

Chapter III, "Habitat and Species Descriptions," contains additional information regarding cultural resources of the UBBWA.

CRG-1 Ensure Cultural resources are preserved and maintained

This goal is based on CEQA requirements and on the Department's intent to provide long-term stewardship of cultural resources at the UBBWA. The tasks listed below represent a strategic approach toward providing such stewardship.

CRG-1.1 Research and inventory existing cultural resources

1. Maintain a confidential library of cultural resource reports from the vicinity.
2. Complete and submit site records to the State Historic Preservation Officer (SHPO) to establish and submit culturally significant resources that may be eligible for inclusion in the National Register of Historic Places (NRHP) or the CRHR.
3. When facility improvements or restoration efforts are proposed and may affect historical or archaeological resources, consult the State CEQA Guidelines and Department cultural resource policies for guidance and compliance with regulations. Consult with the California Native American Heritage Commission as appropriate.

CRG-1.2 Surveys will be conducted when management activities are planned in previously undisturbed soil

1. Conduct cultural resource surveys as necessary before significant ground-disturbing activities (e.g. excavations below normal plow depths) at undisturbed sites.

H. Public Use Goals

Authorized Public Use Element

It is the policy of the Department that land under its administration should be available to the public for recreational use whenever such uses will not unduly interfere with the primary purpose for which such lands were acquired. The UBBWA was acquired for the primary purpose of providing habitat for resident and migratory bird species. Various compatible, wildlife-dependent uses authorized and ongoing at the UBBWA are listed below.

The UBBWA presents a unique opportunity to affect the environmental awareness of unlimited numbers of people due to the proximity of its spectacular wildlife numbers to the urban/rural environment of the Chico, Oroville, and Gridley area. The Upper Butte Basin is just one component

of a larger matrix that allows the public to enjoy a variety of outdoor, wildlife oriented, recreational activities.

Opportunities for public uses at the UBBWA include hunting, angling, walking, hiking, nature study, and environmental education and interpretation. Current efforts and future goals that provide for reasonable accommodation through the provision of Americans with Disabilities Act (ADA) will be evaluated within programs and facilities. There is also significant potential for gathering of native plant materials for cultural uses. Other types of nature study include photography, drawing, and painting.

Constraints on public use of the UBBWA include:

1. Limited availability of staff and funding for operations such as opening and closing of gates, garbage collection, visitor use coordination, and law enforcement.
2. Limited availability of staff and funding for maintenance of roads, trails, parking lots, fencing, and signs.
3. Limited public access to UBBWA management units due to a lack of roads, ditch crossings, and parking lots.
4. Other management activities such as farming, presence of heavy equipment for farming and habitat maintenance can present safety problems for smaller vehicles, pedestrians, and bicyclists.
5. Environmental factors such as flooding that prevent access and present significant safety risks to the public.
6. Potential effects of human disturbance on wetlands, agricultural areas, riparian areas, grasslands and uplands, and aquatic ecosystems of UBBWA.
7. Potential effects of human disturbance to wildlife including frightening wildlife, flushing wildlife from habitat, disturbance while roosting, and noise disturbance within established sanctuary and closed portions of the wildlife area.
8. Potential effects of human disturbance to wildlife during breeding and nesting season.
9. The need to prevent access to sanctuary areas which are closed to public use.
10. Potential effects on cultural resources.
11. Incompatibility of various public uses; hunting and wildlife viewing cannot be accommodated in the same area.
12. The need to exclude public use during pesticide applications for agriculture, vector control, and invasive species management.
13. Conflicts between vehicle traffic, bicycles, and pedestrians.

Chapter III, "Habitat and Species Descriptions" and Chapter IV, "Compatible Resource Management and Public Use" contain additional information regarding public uses of the UBBWA.

PUG-1 Continue to provide existing public use programs

The UBBWA is located in Glenn and Butte counties in the heart of the California rice culture. There has been a long history of waterfowl and upland game bird hunting in and around UBBWA.

UBBWA currently allows hunting for waterfowl, upland game (both game birds and small mammals), and provides a limited apprentice deer hunt.

Uses for the non-hunting public have not been effectively addressed due to budgetary and personnel constraints. Non-hunting activities which are currently allowed include fishing, wildlife observation, school tours, and nature study by foot.

The area is open to foot traffic from two weeks after waterfowl season to two weeks before waterfowl season. The public can walk or ride bikes on the internal levee and road system. Often people will float down Butte Creek in small boats to fish and recreate.

PUG-1.1 Continue appropriate public hunt programs

1. Continue providing waterfowl, upland game (pheasant – both family and apprentice), and apprentice deer hunts.
2. Monitor the waterfowl sanctuary areas and evaluate and make changes which enhance the hunting experience while providing adequate resting areas for waterfowl and special status species.
3. Maintain physical separation of hunting areas from non-hunting areas during hunting season.
4. Communicate with neighboring duck clubs to identify UBBWA management strategies that may affect waterfowl hunting opportunities on their properties. Coordinate UBBWA management strategies to provide mutual benefits (e.g. managed movement and spread of local bird densities, location of sanctuaries) for UBBWA and neighboring lands.
5. Continue encouraging young hunters through participation in apprentice hunt programs for waterfowl, pheasants, and deer.
6. Conduct late summer and winter "volunteer clean up days" to ready UBBWA for the upcoming hunting season and develop and maintain a good relationship with users.
7. Evaluate use levels and visitor satisfaction periodically.
8. Evaluate the hunting, angling, and wildlife viewing programs and Wildlife Area regulations periodically to identify changes that are warranted to maintain consistency with the goals of this LMP.
    a. Periodically evaluate proposed modifications to the hunt program to improve the hunting experience. Goals listed in the original LMP were to provide quality habitat and create a positive hunting experience through reduced hunter density.
    b. Survey hunters, locally and on a statewide basis, to periodically receive input on a wide range of topics including safety, quality of the experience, and recommend changes to the hunt program.

PUG-1.2 Continue appropriate public fishing programs

1. Develop maps and signs that indicate fishing access points.
2. Post fishing regulations in appropriate locations.
3. Build access points for anglers with limited mobility.
4. Evaluate use levels and visitor satisfaction periodically.

PUG-1.3 Provide educational tours

1. Evaluate use levels and visitor satisfaction periodically.

PUG-2 Allow compatible public recreation where and when appropriate

1. There is the potential to develop and expand recreational programs on the UBBWA. This development or expansion must be well thought out. Before implementing any new program, it must be well vetted internally and externally to ensure compatibility with the Department's goals and objectives and ensure it is consistent with this plan.
2. Any new program will be monitored to ensure that there are minimal impacts to the desired goals and objectives of the area.

PUG-2.1 Evaluate the potential to develop new or expanded recreational programs

1. Evaluate potential to develop a viewing platform for crane viewing between field 102 and 103 at the Little Dry Creek Unit along Butte Creek.
2. Evaluate the potential to develop a viewing platform and trail system at the bottom end of Big Island (204 field) on the Howard Slough Unit coming in from Butte Creek, off of Afton Road.

PUG-2.2 Implement recreational programs consistent with this LMP as funding becomes available

Volunteering is a vital element of many activities carried out by CDFW. The volunteer program will continue to be supported and opportunities will be identified to expand programs. Volunteers assist with the Wood Box program and clean up days at UBBWA.

1. Use the existing CDFW volunteer handbook to provide consistent direction for volunteers.
2. Expand existing volunteer materials.
3. Sign up all volunteers as official CDFW volunteers per the handbook.
4. Keep careful records of volunteers, volunteer effort, and time for potential use as "in kind" contributions on grant applications.
5. Recruit new volunteers through regional media, community organizations, local colleges, professional associations, conservation organizations, and at public events.
6. Expand volunteer training opportunities.
7. Expand volunteer recognition program.

PUG-2.3 Evaluate all new and or expanded programs for consistency with LMP

1. Evaluate all changes to existing programs and any additional programs for consistency with the LMP.

PUG-3 Develop and implement an environmental education and interpretive program

This goal is based on policies of the California Fish and Game Commission. It is the policy of the California Fish and Game Commission that, to the maximum extent feasible, CDFW shall disseminate information to the public regarding conservation, protection, and management of the

state's fish and wildlife resources. It is also a policy that the Department shall encourage education programs that increase the public's respect and awareness of wildlife.

The objective of the program is to encourage the public's awareness of the presence and importance of wetlands in their environment and increase their understanding of issues that impact these ecosystems by providing various educational opportunities for the public through school programs, field experiences, and special programs. Programs of this type provide easily accessible field oriented learning opportunities to the regional student/teacher population and the general public.

PUG-3.1 Develop and evaluate an interpretative program

1. Provide educational tours on site.
2. Develop and distribute interpretive materials including brochures, plant and wildlife guided tours, interpretive displays and signs.
    a. Make presentations to various service clubs, chambers of commerce, university classes, educational conferences.
3. Develop new programs as time and budget allows.
4. Maintain access routes to all open facilities and parking lots.
5. Develop interpretive signage for wildlife viewing roads and trails.
6. Develop viewing blinds, observation towers, and trails where appropriate.

PUG-4 Public Safety

The wildlife areas are governed by state law, policies, and directives concerning public safety. These laws, policies and directives are used to guide the development and maintenance of public use programs and area operations.

PUG-4.1 Minimize conflicts between and among users and public use programs

Conflicts between various user groups have potential to arise. The tasks listed below are intended to reduce conflicts among user groups.

1. Encourage hunter safety through monitoring and enforcement of regulations.
2. Inform the public of wildlife area use designations, regulations and use restrictions through outreach, signage, and the Department web site.
3. Periodically evaluate management of access locations, tour routes, parking areas, and associated regulations to identify changes that are warranted to maintain consistency with the goals of this LMP.
4. Identify potential conflicts between recreational user groups and work to resolve such conflicts where appropriate.
5. Inform the public of times and locations where hunting is allowed and of all other restrictions and applicable regulations through outreach, signage, and the Department's web site.
6. Have Department personnel available on-site during high use times to monitor visitor activities and provide information as needed to visitors.

7. Conduct periodic reviews of public uses of the UBBWA; evaluate patterns of usage, rules, regulations, guidelines, and materials to ensure compatibility of public uses.

PUG-4.2 Develop and implement safety plans

Although risks are inherent in any physical activity, informing the public of potential risks and reducing access to unsafe areas should increase the safety of users. The sub-tasks listed below express this intent.

1. Continue to close the UBBWA when the Butte Basin is flooded by Butte Creek, Cherokee Canal and/or flood waters from the Sacramento or Feather Rivers.
2. Post warning signs at identified locations and indicate on these signs who to contact during emergencies.
3. Restrict access to unsafe areas such as construction zones and active farming areas.
4. Develop an emergency response plan.
5. Work with local, regional, and state agencies to integrate the UBBWA into emergency communications and response plans.
6. Reduce the potential for unauthorized public use.

Disposal of waste, construction of unauthorized structures, camping, fires, and other illegal activities have the potential to occur at UBBWA. These unauthorized uses damage the UBBWA's ecosystems, affect special status and game species and their habitats, and interfere with authorized uses. The limited availability of staff and funding substantially constrains management of unauthorized uses. Preventing unauthorized uses would prevent the adverse effects caused by those uses. The tasks listed below are intended to reduce the frequency and effects of unauthorized use.

- Prohibit activities that are inconsistent with the UBBWA mission and UBBWA regulations.
- Require CEQA analysis and surface agreements for access to the area for gas and/or mineral exploration and extraction.
- Discourage dumping of trash or waste within the UBBWA by providing and servicing trash receptacles.
- Patrol the UBBWA and enforce regulations that prohibit unauthorized uses.
- Maintain adequate signage on boundaries to satisfy lawful enforcement of wildlife area regulations.
- Use signage and written notifications to foster cooperation.
- Issue citations and/or pursue legal action when voluntary cooperation cannot be obtained.
- Enforce laws through Department enforcement and request assistance from the Butte and Glenn County Sheriff's Departments as necessary to enforce laws.
- Issue citations to violators illegally using the UBBWA and seek remediation from unauthorized users.
- Restore ecosystems damaged by unauthorized uses as necessary.

PUG-4.3 Periodically evaluate access locations, tour routes, parking areas, and associated regulations to identify changes that are warranted to maintain consistency with the goals of this LMP

PUG-5 Public Outreach

1. Work with user groups and the Department's Conservation Education Branch to improve the exchange of information between the Department and its diverse user groups.

PUG-5.1 Provide Area Information

Signage

Compatible public uses of the UBBWA are facilitated by signage that informs the public of the boundaries, laws, and regulations applicable on the areas, encourages public use, reduces conflicts among users, increases the safety of users, and discourages unauthorized uses. The tasks listed below are intended to promote the use of such signage.

1. Maintain signs and bulletin boards at the UBBWA Headquarters, parking lots and any other entrances that may be developed in the future with wildlife area maps and regulations, interpretive materials, and safety information.
2. Start a monitoring and maintenance schedule for all signage.
3. Inventory existing boundary signage and fencing, and install new signs and fencing where necessary.
4. Provide signs marking tour routes and trails.
5. Provide signs marking areas that are temporarily closed for nesting, maintenance, or other reasons.
6. Develop a plan for interpretive features including signs, blinds, and trails.
7. Develop, construct, install and maintain interpretive signs.

PUG-5.2 Operations and Maintenance

1. Rent and maintain portable toilets.
2. Provide garbage cans and garbage pickup.
3. Provide picnic tables in some visitor areas.
4. Provide for the opening and closing of gates to control access.
5. Improve ditch and creek crossings as needed for public use.

PUG-5.3 Other Uses

1. Evaluate the feasibility of improving boating and fishing opportunities on Butte Creek.

I. Facilities Maintenance Goals

Facilities at the UBBWA include the public access roads, hunting blinds, check stations, water management systems (dams, water controls, head ditches, pumping stations drains and other related infrastructure), and other facilities listed below. These structures at the UBBWA are essential to maintain the ecosystems at UBBWA, and require active management by applying and removing

water to develop and maintain the various habitats. If the infrastructure required to distribute this water is not maintained, the goals, elements, and tasks listed in this LMP will be difficult or impossible to achieve. Maintenance and repair activities have the potential to temporarily impact threatened and endangered species; however, if these facilities are not maintained or repaired, the habitats upon which these species rely will be severely impacted or eliminated. All management activities will follow BMPs adopted for threatened and endangered species.

There are also a number of important constraints on construction and maintenance of facilities at the UBBWA. These constraints include:

1. Limited availability of staff and funding.
2. Flooding of the Butte Basin limits access for construction and maintenance of facilities while impacting all facilities.
3. Flooding has the potential to cause damage to buildings, roads, crossings, water distribution system, and pumps.

Chapter II, "Property Description and Management," contains additional information regarding facilities at the UBBWA.

FMG-1 Construction, development, and maintenance of facilities

FMG-1.1 Maintenance and development of water infrastructure

1. Maintain water management infrastructure including pumps, pumping stations, water control gates and weirs, dams, water drainage systems, and water distribution system. This will be performed by the Department, agricultural lease tenants, and contractors.
   a. Clean out sumps and head channels at pump stations.
   b. Dry pump motors that may have received moisture during the flood event before putting back in operation.
   c. Repair screens at pump stations.
   d. Check and repair weirs and dams to maintain water levels within the ponds.
2. Repair both Howard Slough crossings and armor them with heavy rip rap and large gravel to avoid flood damage.
3. Repair the Llano Seco Dam which separates the western canal water district from the Llano Seco Ranch system. Armor the dam with heavy rip rap and large gravel to avoid flood damage.

FMG-1.2 Maintenance and development of roads and parking lots

1. Maintain gravel and secondary roads on an ongoing basis.
2. Check and do emergency repairs on roads and water systems.
3. Construct and maintain new access roads and parking lots on an as needed basis.

FMG-1.3 Maintenance and development of buildings

Management of facilities/structures for resource protection, safety, and prevention of unauthorized uses will contribute to the attainment of goals for biological and public use elements. The tasks listed below are intended to facilitate effective management of UBBWA facilities.

1. Regularly monitor the condition and use of existing facilities/structures.
    a. Existing facilities and structures include UBBWA headquarters' 17-acre site with office building, residence, equipment, equipment yard, parking lot, fences, gravel road, and shop buildings and related facilities, fish screen shop, various storage buildings and maintenance material needs constant maintenance.
2. Take actions as needed to keep desired facilities/structures in good repair.
3. Schedule preventative maintenance of all facilities and structures.
4. Take actions to demolish and remove those structures that are unauthorized or have become unsafe or undesirable.

FMG-1.4 Maintenance and development of boundaries

1. Maintain gates and fences.
2. Construct new gates and fences as needed.

FMG-1.5 Maintenance and development of public use infrastructures

These tasks are covered under the activities above.

FMG-2 Maintain Equipment

FMG-2.1 Repair and maintain heavy equipment

Habitat management activities require the use of a variety of equipment, tools, and vehicles. Each of these elements must be maintained, repaired and replaced as necessary. These items range from large farm tractors and implements to commercial vehicles, welders, generators, wood working tools, incinerators, boats, all terrain vehicles, compressors, and hand tools.

1. Repair and maintain heavy equipment including various tractors and implements.
    a. Maintain current compliance with California Highway Patrol Biennial Inspection of Terminals (BIT) Program.
    b. Maintain commercial vehicles through regular BIT inspections.
1. Tractor Operator- Laborer will maintain current commercial driver's license.
2. Provide commercial vehicle driving services to other Department facilities as necessary.

FMG-2.2 Repair and maintain vehicles

1. Maintain and repair wheeled vehicles other than commercial vehicles.

FMG-2.3 Repair and maintain shop equipment and tools

1. Maintain and repair shop facility.
2. Maintain and repair miscellaneous tools and equipment.

FMG-2.4 Repair and maintain office equipment

1. Maintain office equipment including computers, printers, copy machine, and telephone system.

FMG-3 Effectively manage existing facilities and/or structures for resource protection, safety, and prevention of unauthorized uses

FMG-3.1 Regularly monitor the condition and use of existing facilities/structures

When best available information suggests a flood event is imminent from Butte Creek, the Sacramento River, or the Feather River the following tasks will be done.

1. Secure compound flood gates.
2. Peg water control structures to keep boards from floating away during flooding.
3. Contact Region to notify the public that the area is closed due to public safety issues.
4. Close gates at wildlife area access points to prevent public use.

FMG-3.2 Take actions as needed to keep desired facilities/structures in good repair

1. Monitor and conduct emergency repairs or closures if necessary before allowing public use of the area after emergencies such as fires or floods.

FMG-3.3 Schedule preventative maintenance of all facilities and structures

FMG-3.4 Take actions to demolish and remove those structures that are unauthorized or have become unsafe or undesirable

J. Administration Goals

ADM-1 Perform administrative duties for daily operations of the area

Administration of the UBBWA includes maintaining and providing records of management actions and expenditures; allocating staff time, procuring needed supplies and equipment; soliciting grant monies to supplement operating income, habitat management activities, agriculture management activities and/or leases; and the tracking of all of the above.

ADM-1.1 Budgets

1. Maintain accurate financial records regarding expenditures, staff, maintenance, and other administrative duties.
2. Document facility needs in a Department maintenance and capital outlay database.
3. Prepare annual and periodic status reports as defined in Chapter VI, “Operations and Maintenance” of this LMP.
4. Actively pursue funding to help facilitate implementation of the LMP.

ADM-1.2 Personnel

1. Supervise permanent and seasonal staff.

ADM-1.3 Purchasing

1. Facilitate the planning and paying of UBBWA expenses.

ADM-1.4 Agricultural leases

1. Administer agricultural leases.
2. Annually plan agricultural activities throughout UBBWA including production fields.
3. Plan for administration of Farm Service Agency funds to be released to lessees.
4. Periodically inspect agricultural activities throughout the year.
5. Plan for and inspect the post harvest treatment of agricultural fields.

ADM-1.5 Maintain pertinent documentation related to the operation of the area

Current data on the management and resources of the UBBWA will support attainment of goals for biological, cultural, public use, and facility elements. The tasks listed below are intended to promote maintenance of needed data.

1. Regularly update geographic information system (GIS) data sources.
2. Participate in habitat planning efforts for areas in proximity and adjacent to UBBWA.
3. Maintain a filing and tracking system for UBBWA activities.
4. Maintain and update the area's safety and hazardous materials plans.

K. Coordination Goals

CG-1 Communication

Creation of UBBWA involved significant and complex coordination and partnership building with many agencies and organizations. The management of the UBBWA has continued in a spirit of cooperation and coordination. The result is a successful public-private partnership with the Department managing UBBWA and coordinating the management of the UBBWA with the private lands surrounding it. UBBWA is a successful model of cooperation between many agencies, organizations and private entities. This same approach should continue through the life of this LMP.

There are opportunities for continued management coordination at UBBWA including:

1. Continued coordination with the Llano Seco Management team.
2. Coordination of land use activities with the private duck clubs adjacent to the LDC Unit.
3. Ongoing wetland management activities coordinated with the local mosquito abatement district.
4. Water supply planning with Richvale Irrigation District and Western Canal Water District.
5. Regional invasive plant control efforts with the California Department of Food and Agriculture and the Butte and Glenn County Agricultural Commissioner's Office.
6. Fire management planning with CAL FIRE and local fire districts.
7. Water supply and drainage with Rancho Llano Seco and M&T Ranch.
8. Mercury monitoring and research with CVRWQCB, USGS, UC Davis, and others.

CG-1.1 Intra department

Coordinate with Fish and Wildlife specialists

1. Coordinate with Fish and Wildlife biologists and Environmental Specialists to develop new management techniques and maintain biological data base.
2. Collaborate on or submit proposals for CALFED-funded projects that could contribute to achieving the goals of this LMP and CALFED goals, objectives, targets and milestones.

Coordinate with Fish and Wildlife law enforcement agencies

The jurisdictions of multiple law enforcement organizations overlap at the UBBWA, and thus coordination among them should lead to more effective law enforcement. This coordination should also support achieving the goals in this LMP for public use elements. The tasks listed below are intended to foster coordination with the appropriate law enforcement agencies.

1. Meet on an annual basis with local Department enforcement prior to waterfowl hunting season to review area regulations, work schedules, exchange contact information and discuss the intricacies of the public hunting program.
2. Continue ongoing communication with enforcement staff throughout the year.
3. Coordinate with the California Highway Patrol regarding their actions to protect state land and property.

CG-1.2 State government

It is Department policy to provide maximum protection of fish and wildlife and their habitat. CDFW shall review and comment on proposed flood management, ecosystem restoration, and water development projects or other projects affecting habitat at UBBWA, and shall recommend and seek the adoption of proposals necessary or appropriate for the protection and enhancement of fish and wildlife and their habitat.

CG-1.3 Federal government

Coordinate with flood control agencies regarding flood control and management in the Butte Basin. A function of the Butte Basin is flood control by acting as a surge basin. CDFW will continue to coordinate with flood control agencies (i.e. DWR, the State Reclamation Board, and USACE) regarding potential restoration projects and other activities that could affect flood flows in the Butte Basin. The Department will review and comment on proposed flood management and water development projects or other projects that could affect habitat and/or management in the UBBWA. This would be part of the overall adaptive management process for implementing additional goals for the LMP. The sub-tasks listed below are intended to foster coordination with flood control agencies regarding management of the UBBWA.

1. Review, coordinate, and provide comments and recommendations on plans and proposed projects as appropriate to determine the consistency of such plans with goals of this LMP. Department biologists from the North Central Region shall serve as the lead in coordinating ecosystem restoration components of future flood protection improvement efforts.

2. Participate in ecosystem restoration components of any overall improvements to the Sacramento River, Feather River and Butte Creek Flood Control Systems.
3. Continue public outreach programs that describe the compatible nature of appropriate wetland management activities with flood protection efforts.

CG-1.4 County government

Coordinate with local agencies regarding plans and projects that may affect habitats and/or management at the UBBWA.

1. Review, coordinate, and provide comments and recommendations on local government plans and proposed projects as appropriate for the purpose of determining the consistency of such plans with the goals of this LMP.
2. Coordinate with Butte and Glenn County NCCP proponents to make them aware of habitat restoration efforts at UBBWA and coordinate proposed actions to compliment each other's efforts.
3. Coordinate with the Butte and Glenn County program to survey, control, and monitor invasive plant species.

Coordinate with local public service agencies including the BCMVCD and the Butte and Glenn County Health Departments. Section 1507 of the California Fish and Game Code contains language regarding the control of mosquito production of managed wetlands in Department wildlife areas. Control of mosquito production in wetlands and agricultural fields (e.g. rice fields) shall be a priority for the Department. As described in Section 1507, mosquito production should be controlled in a manner that:

1. Maintains or enhances habitat values for waterfowl and other wildlife
2. Minimizes financial costs to the Department and BCMVCD
3. Reduces the need for chemical treatment or other non-ecological mosquito control
4. Increases coordination and communication between the Department, BCMVCD, and the California Department of Health Services

The sub-tasks listed below are intended to foster coordination of mosquito and vector control activities between the Department and the BCMVCD.

1. In consultation with BCMVCD, continue to implement a mosquito control plan that applies BMPs and any other necessary management practices as identified in the Central Valley Habitat Joint Venture, Technical Guide to Best Management Practices for Mosquito Control in Managed Wetlands (Kwasny et al. 2004) and the California Rice Commission's BMPs for mosquito control.
2. Communicate regularly with BCMVCD. Coordinate mosquito and vector control activities. Meet annually with mosquito abatement agencies to discuss needed infrastructure improvements, identify areas of high mosquito productivity, schedules of summer irrigations and fall flood up, and scheduling of public use activities.
3. Conduct annual meeting with private wetland managers in the Butte Sink and BCMVCD staff to coordinate fall flood up of wetlands, target habitat infrastructure improvements and firm up contact information.
4. Coordinate with Butte and Glenn County Health Department as necessary.

5. Apply for grants and matching funds with BCMVCD to implement BMPs.
6. Jointly conduct research to measure land management effects on mosquito production.

CG-1.5 NGO'S

Maintain relationships with neighbors and tenants to address management issues. Activities of neighbors, including both agricultural and duck club interests, and tenant farmers at UBBWA all affect ecosystems and public uses at the UBBWA. Maintaining relationships with neighbors and tenants can thus contribute to achieving most of the goals of this LMP. This can be done through continued communication with the interested parties.

The sub-tasks listed below are intended to foster improved relationships between the Department and UBBWA neighbors and tenants.

1. Meet or correspond with adjacent landowners and tenants to maintain communication and discuss management needs of UBBWA, determine adjacent landowners' access and management needs, and share useful information regarding activities.
2. Collaborate with adjacent landowners and tenants regarding Department management activities that may affect their operations. Resolve potential issues by proactively working with adjacent landowners and tenants.
3. Collaborate with adjacent special districts including Reclamation District 1004.
4. Area Manager and appropriate staff should attend annual site visits to waterfowl hunting clubs conducted by Department headquarters staff as part of the implementation of various wetland easement programs.
5. Meet at least annually with waterfowl hunting club owners and BCMVCD to discuss fall flood-up schedule and summer irrigations.
6. Coordinate flooding of duck clubs through the Richvale Irrigation District and Llano Seco Management Group.
7. Review, modify, and exercise agreements with adjacent waterfowl hunting clubs regarding the delivery of water and use of wildlife area roads as necessary.
    a. Review billing process.

CG-2 Research

Scientific Research and Monitoring Element

Scientific research and monitoring contributes to sound management of wetlands, agricultural areas, riparian areas, grasslands and uplands, and aquatic ecosystems both in and beyond UBBWA. It is a key component of successful adaptive management programs. Monitoring the results of management actions is the key feedback feature of an adaptive management approach to land management. The Department's 2008 "Policy for Quality in Science and Key Elements of Scientific Work" will guide and assist these efforts.

Resource Assessment

CDFW is anticipating preparing a field-verified vegetation map of the UBBWA. However, detailed inventory data are lacking for portions of the UBBWA. For example, plant species lists based on field surveys do not exist for the entire wildlife area. Although the species list for the UBBWA (see Appendix G) is field-based and comprehensive for all species on-site, field verification is needed to determine the presence of several expected amphibian, reptile, and mammal species. There is also no formal ongoing monitoring of invasive plant populations, special status plant populations or their habitats, wildlife responses to UBBWA's innovative management of agriculture, or any monitoring that could be used to evaluate the effects of public use on ecosystems at the wildlife area.

Many opportunities exist at the UBBWA for scientific research and monitoring. These include:

1. Basic resource assessment to document what currently exists on the UBBWA
2. Monitoring of all of the following:
    a. Wildlife and natural community responses to the management of wetlands, agricultural areas, riparian areas, uplands and grasslands, and aquatic ecosystems.
    b. Floodplain processes (e.g. hydrology, geomorphology, fisheries resources and primary production).
    c. Mercury methylation processes in managed wetlands and agriculture.
    d. Development and monitoring of experimental BMPs to reduce/minimize mercury methylation processes.
    e. Monitoring of mosquito control BMPs.
    f. Management of public use activities in a natural setting.
    g. Implementation of agricultural techniques that provide wildlife habitat benefits.
    h. Importance of agricultural buffer areas to wildlife habitat management areas from the standpoint of wildlife.
    i. Compilation of existing background information by this and other reports.
    j. Coordination with other branches of the Department that are conducting data collection and mapping activities.
    k. Coordination with other resource agency departments including DWR, California Department of Conservation, and California Department of Food and Agriculture on monitoring, mapping, and other types of data collection.
    l. Coordination with federal agencies such as NOAA, NMFS, USGS, USFWS, USACE on data collection and mapping.
    m. Coordination with private organizations such as California Waterfowl Association, Ducks Unlimited, CA Audubon, and Point Reyes Bird Observatory on data collection.
3. Proximity of the UBBWA to universities, colleges, and other academic institutions presents opportunities to:
    a. Actively promote UBBWA to local academic institutions as a resource available for research activities.

b. Establish long term working relationships with local academic institutions.

There are also a number of important constraints on scientific research and monitoring of UBBWA. These constraints include:

1. Limited availability of staff and funding.
2. Public use of much of UBBWA.
3. Seasonal flooding.

CG-2.1 Intra Department

A goal of this LMP is to support appropriate scientific research and monitoring and encourage or conduct research that contributes to adaptive management strategies and management goals of the areas.

This is based on the need for data from monitoring and scientific research to guide implementation of this LMP. It is the policy of the Fish and Game Commission that research shall be performed to provide scientific and management data necessary to promote the protection, propagation, conservation, management, or administration of fish and wildlife resources. Whenever possible and advantageous, the services of the University of California, California State University, or other academic or research institutions, of federal, state, or local agencies shall be used. The sub-tasks listed below are intended to promote continuance of appropriate scientific research related to UBBWA.

1. Prepare an annual Habitat Management Work Plan Summary and submit it to the Department Wildlife Area Habitat Committee (WAHC), and Department Headquarters staff for evaluation.
   a. Implement recommendations for habitat improvement provided by the WAHC.
2. Develop a prioritized list of research needs.
3. Review and evaluate proposed research projects using the following criteria:
   a. Potential for research results to improve management of UBBWA, other wildlife areas, or other ecosystems.
   b. Potential for conflicts between the research and compatible public uses.
   c. Potential for conflicts between the research and any biological goals stated in this LMP.
   d. Scientific rigor in the proposed research design, methods of study, and scope of inference.
4. Provide letters or permits to researchers specifying dates and times of authorized access, and information on regulations and area restrictions.
5. Require that researchers provide copies of data and/or published papers, and contact researchers to ensure that this requirement is fulfilled.
6. Encourage long-term studies of the following:
   - Ecology of managed wetlands
   - Agro ecology

- Wildlife friendly agricultural practices
- Vernal pool ecology and management
- Native grassland ecology and management
- Invasive species management
- Trends in abundance of migrant and/or wintering waterfowl and shorebirds, in support of regional population monitoring throughout the Pacific Flyway
- Trends in abundance, reproduction, survival, and/or habitat use by special status species (e.g. giant garter snake), game species, or other species of regional interest (e.g. grasshopper sparrow)
- Mercury methylation processes in managed wetlands and crops, development and monitoring of experimental demethylation BMPs, and effects of methyl mercury on birds and other wildlife

7. Public use patterns and effectiveness of public use programs.
8. Encourage sharing of scientific information through relevant working groups associated with the Area.

CG-2.2 State Government

Although much is uncertain in regards to the role wetlands play in the methylation of mercury, certain wetland characteristics appear to minimize this concern. Projects should be designed to minimize the potential for mercury methylation as much as possible. Appropriate project features include open-water swales, active drainage and water movement to promote aerobic (i.e. oxygen rich) conditions, and tail water detention basins for post-flood demethylation. Extensive research is being conducted to help understand the finer nuances of methylation processes in wetlands.

The Central Valley RWQCB is currently in the process of developing a mercury and methyl-mercury TMDL for the Delta. Characterization of existing conditions and potential development of BMPs are two potential requirements of the TMDL. Development and implementation of experimental BMPs to address mercury methylation holds great potential to better understand and address wetland restoration throughout the region.

Thus, additional research and monitoring could benefit management and attainment of goals for biological and public use elements.

Research needs for the UBBWA would follow the same list as developed under Intra-department goals in (CG-2.1) and coordination goals (CG-1.1)

CG-2.3 Federal Government

The Department works closely with the USFWS, Bureau of Reclamation, USGS, USDA, and the Natural Resource Conservation Service as goals are often the same and are tied together by broader regional agreements such as Cal Fed and the Central Valley Habitat Joint Ventures.

Research needs for the UBBWA would follow the same list as developed under Intra Department needs (CG-2.1) and coordination goals (CG-1.1).

CG-2.4 County Government

Mosquito and Vector Control Districts, Public Health, County Fire, Air Resources, Weed Control Districts, and County Ag departments have specific expertise that contributes to development and implementation of an efficient and viable LMP.

Research needs for the UBBWA would follow the same list as developed under Intra-department needs (CG-2.1) and coordination goals (CG-1.1).

Research into the effects of ground disturbance upon the production of mosquito larvae is helping guide wetland management. Continued research regarding the fine tuning of established BMPs for wetlands will strengthen the collaborative relationship UBBWA shares with the Butte County Mosquito and Vector Control District.

CG-2.5 NGO'S

The Department will continue to work with non-governmental organizations such as Ducks Unlimited, California Waterfowl Association, River Partners, Rancho Llano Seco Working Group and others to meet its research goals.

Research needs for the UBBWA would follow the same list as developed under Intra-department needs (CG-2.1) and coordination goals (CG-1.1).

CG-3 Wildlife Health and Disease

CG-3.1 Train Employees

1. Coordinate activities associated with managing cholera, avian flu, and other disease outbreaks.
2. Provide continued preparedness training to ensure staff is able to recognize and react appropriately to wildlife diseases outbreaks.

The Department will serve as a lead agency in the surveillance of wild bird populations for the presence of avian influenza. Additionally, regular visual monitoring of birds for the presence of avian botulism and avian cholera will continue.

1. Conduct regular visual monitoring of birds for the presence of botulism in the summer and avian cholera in the winter.
    a. Submit carcass samples to Wildlife Investigations Laboratory for evaluation.
    b. Conduct clean up operations as necessary to remove carcasses when disease outbreaks occur.
    c. Dispose of carcasses properly per current protocols.
    d. Improve water circulation or other management activities to prevent spread of the disease.
2. Conduct regular monitoring of harvested birds at the hunter check station for the presence of avian influenza.
3. Participate in disease related work groups.

4. Coordinate with county and state public health agencies, and UC Davis.

CG-3.2 Respond to Incidents

1. Train employees in the ICS.
2. Participate in ICS activities.

CG-3.3 Provide appropriate information to government/private entities

CHAPTER VI
Operations and Maintenance

The purpose of this chapter is to indicate staffing, funding and other resources needed for the operation and maintenance of the UBBWA. This LMP proposes to use an ecosystem approach for the management of the multiple natural communities and habitats present on the area. In order to accomplish this and implement the goals and objectives of this LMP, as outlined in Chapter V, the Department will have to find innovative ways to fund and/or provide the additional budgetary resources needed for appropriate staffing and operations of the area. Implementation of this LMP will allow a proactive approach to the day to day management of the area for the natural resources and public that depend on it, with a more intensive and scientific approach than in the past.

In addition to financial resources, this LMP will require periodic revision to ensure that it is kept current, reflecting the goals met, while not being limited to current paradigms and understandings. It is fully expected that the ongoing adaptive management of the UBBWA, and advancement of scientific knowledge regarding the area, will result in new techniques and opportunities for more effective management of the diverse habitats and their associated natural communities. Suggested procedures to help keep this LMP current and relevant are included in this chapter.

A. Operations and Maintenance Tasks to Implement Plan

Table 6.1 summarizes and synthesizes operations and maintenance requirements (i.e. tasks identified in Chapter V, "Management Goals") to implement the LMP. Estimated hours by staff position are also included in the table.

B. Existing Staff and Additional Personnel Needs

Management of the UBBWA is currently accomplished by seven and one-half permanent employees and up to five part time employees. The duties are described in the following Table 6a.

Table 6.a

Quantity	Position	Duties
1	Wildlife Habitat Supervisor II	Responsible for overall day to day management and supervision of the wildlife area. Budget planning and management; management of agricultural leases. Grant applications proposals, preparation, and reporting. Contract management. Represents the wildlife area for media exposure. Represents area when working with various governmental agencies and non governmental organizations. Creation of annual habitat management plans. Administrator for public hunt/use programs. Permit application writer. Occasional operation of heavy equipment. Maintains compliance with various agreements for management. Direction of maintenance staff.
1	Wildlife Habitat Supervisor I	Lead person for field staff. Operation of heavy equipment. Procurement of supplies and equipment. Maintenance of wildlife area electronic equipment. Assists in planning of field activities. Coordination with farmers sharing irrigation system. Lead person for hunter check stations.
1	Wildlife Biologist Range B	Performs plant and wildlife surveys. Assist with analysis of biological benefits of management; assist in planning of habitat construction and maintenance activities. Lead person for scientific aids conducting biological sampling or surveys on the wildlife area.
2	Tractor Operator Laborer	Lead for operation and maintenance of heavy equipment and implements. Construction and fabrication of equipment utilizing metal and wood technologies. Lead for operation of shop facility. Lead for hunter check stations.
2	Fish and Wildlife Technician	Responsible for water control and conveyance on the wildlife areas. Construction and fabrication of equipment utilizing metal and wood technologies. Lead for maintenance of vehicles and residences. Operation and maintenance of equipment. Lead for application of herbicides. Responsible as lead person for one shift in the hunter check stations. Volunteer coordinator for wood duck and field day programs. Installation and maintenance of water control structures.
0.5	Office Technician (typing)	Perform the day to day administration of the wildlife area procurement activities, budget, employee paperwork, and communicate with visitors over the phone, via email and in person.
5	Seasonal/ Scientific Aids	Processing and greeting of visitors to administrative facilities and hunter check stations. Administration of procurement procedures. Tracking of expenditures. Maintenance of office and administrative records; Maintenance of public use areas and facilities. Assists with the operation and maintenance of the natural communities within the area. Operation of equipment. General construction activities. Application of herbicides.

To ensure the goals and objectives of this LMP are achieved and the natural communities within the UBBWA are managed from an ecosystem approach, additional staff from the Habitat, Biologist, Interpretive and Administrative Series will be needed to meet the intense level of management outlined in this LMP. The staffing team developed here includes all permanent and part time employees needed to operate the UBBWA and implement this LMP. Staffing levels for intensively managed wetland wildlife areas use the ratio of one permanent field employee person year (py) for each 1000 acres, up to the first 10,000 acres of habitat. For the UBBWA, with 9,597 acres, this breaks down to nine permanent field staff. These nine field positions will consist of 1 py Wildlife Habitat Supervisor II, 3 py Wildlife Habitat Supervisor I, 2 py Tractor Operator Laborers, and 3 py Fish and Wildlife Technicians.

In order to meet the biological, interpretive, administrative and part time tasks associated with this LMP the following additional personnel will be needed: 1 py Wildlife Biologist (Range B), 1 py Fish and Wildlife Interpreter I, 1 py Office Technician, 3 py scientific aid, 5 py seasonal aid, 0.5 py Associate Wildlife Biologist, and 0.3 py Senior Wildlife Biologist (supervisor). The duties of the proposed staff will consist of the following in Table 6.b:

Table 6.b

Quantity	Title	Duties
1	Wildlife Habitat Supervisor II	Planning and implementation of wildlife habitat management activities. Supervise day to day activities of field staff. Oversee procurement of equipment and supplies. Coordination with other land management entities, government agencies, and NGOs in the area.
3	Wildlife Habitat Supervisor I	Responsible for water conveyance and management on one unit of the wildlife area. Lead person for field staff, procurement of supplies for habitat management activities, planning of field work on one unit of the area.
2	Tractor Operator Laborer	Operation and maintenance of heavy equipment, vehicles, and various tools and machinery, check station operation.
3	Fish and Wildlife Technician	Assist with wildlife habitat management activities, check station operations, facility, and vehicle and equipment maintenance.
1	Wildlife Biologist (Range B)	Performs plant and wildlife surveys. Assist with analysis of biological benefits of management; assist in planning of habitat construction and maintenance activities. Lead person for scientific aids conducting biological sampling or surveys on the wildlife area.
1	Fish and Wildlife Interpreter I	Lead person for administration and coordination of the wildlife area volunteer and interpretive programs. Lead CDFW representative for development of new curriculum, interpretive programs and public use management. Coordinates public use programs with outdoor recreation and interpretive programs developed by other groups. Participates in wildlife area interpretive and education programs, represent wildlife area in public festivals and special events.
1	Office Technician (typing)	Perform the day to day administration of the wildlife area procurement activities, budget, employee paperwork, and communicate with visitors over the phone, via email and in person.
3	Scientific Aid	Assists biological staff in conducting resource assessment. Maintains sampling areas and equipment. Assists in hunter check stations.
5	Seasonal Aid	Assists area staff in the day to day maintenance of the area; staffs waterfowl and other public check stations during their respective seasons.
.5	Associate Wildlife Biologist	Lead person for developing, performing and reporting on resource assessment activities related to the management of the natural communities within and adjacent to the areas.
.3	Senior Wildlife Biologist (supervisor)	Coordinates and supervises management and planning activities of all areas in a geographic region.

Implementation of this LMP involves completing the tasks described in Chapter V. The duties of each position translate into hours spent towards each of these tasks. Table 6.1 distributes employee hours towards each of the above positions to complete the described tasks. These tasks are summarized and synthesized from the detailed descriptions provided in Chapter V.

C. Estimated Operation And Maintenance Costs And Funding Sources

Estimate Staffing Costs - The proposed staffing of the UBBWA required in order to fully implement this land management plan (e.g. salary, benefits) is estimated to be approximately $1,080,316 in 2006 dollars. Inflation will be part of the cost projections during the ensuing life of this Plan.

The breakdown of this annual cost is provided in Table 6.2**.**

Estimate Operational and Maintenance Costs - Operational and maintenance dollars needed for implementation of this LMP, and completion of the tasks outlined in Chapter V, are estimated to be approximately $865,000 annually. A breakdown of this annual cost is provided in Table 6.3

Funding Sources - Current funding sources used for personnel, operations and maintenance costs associated with the UBBWA include:

- Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act),
- Agricultural lease revenues,
- Fish and Game Dedicated and Non-Dedicated Preservation Funds,
- The Tobacco Tax and Health Initiative (Proposition 99),
- The Environmental License Plate Fund.

Capital Improvements/Restoration and Enhancement

On a project basis, funding sources for capital improvements/restoration and enhancement could include:

- North American Wetlands Conservation Act (NAWCA) funding
- California Endangered Species Tax Check-Off Fund
- U.S. Fish and Wildlife Service support under the Federal Endangered Species Act Section 6 provisions for cooperation with the states
- Wetlands Conservation Fund
- IRWMP-DWR Bond fund
- State Duck Stamp Program
- Upland Game Stamp Program
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Farm Bill Programs
- USFWS State Wildlife Grant Program, Federal Aid in Wildlife Restoration Program
- Central Valley Project, Wildlife Habitat Augmentation Plan
- Neo-tropical Migratory Bird Conservation Act Grants Program
- Riparian Joint Venture
- Ducks Unlimited, Wetland Restoration Program
- Department of Fish and Wildlife Minor/Major Capital Outlay proposals
- CDFW Comprehensive Wetlands Program
- Wildlife Conservation Board Inland Wetlands Conservation Program
- Other programs authorized under future bond acts
- DWR grants available for mitigation of water projects and levee maintenance activities
- Funding available through the Sacramento River Watershed Program
- Funding from grant programs administered by U.S. Environmental Protection Agency
- Funding from grant programs administered by National Oceanic and Atmospheric Administration
- Funding from grant programs administered by the National Fish and Wildlife Foundation
- Funding from grant programs administered by US Bureau of Reclamation
- Farm Service Agency payments to tenants
- AB 1982: Funding to implement mosquito Best Management Practices

- CDFW deferred maintenance fund

TABLE 6.1
ANNUAL OPERATIONS AND MAINTENANCE REQUIREMENTS (HOURS BY STAFF POSITION) TO IMPLEMENT PLAN

Element/ Sub-Element	Tasks	Senior Wildlife Biologist (Sup.)	Wildlife Habitat Supervisor II	Wildlife Habitat Supervisor I	Associate Wildlife Biologist	Wildlife Biologist (Range A-B)	Tractor Operator Laborer	Fish & Wildlife Technician	Fish & Wildlife Interpreter	Office Technician	Scientific Aid	Seasonal Aid	Totals
Ecosystems Goal 1 / Restore and enhance wetlands to conditions that provide desired ecological functions													
EG-1.1	Manage and enhance wetland units	40	160	440	24	40	320	480			320	320	**2144**
EG-1.2	Identify, design, and develop potential restoration projects and appropriate funding.	4	24	80	16	40	40	80			80	80	**444**
EG-1.3	Coordinate with other government agencies an NGO's on implementation of regional plans and goals.	4	16		16	32							**68**
EG-1.4	Monitor and evaluate management strategies	4	40	100	16	32					480		**672**
	Total hours	**52**	**240**	**620**	**72**	**144**	**360**	**560**	**0**	**0**	**880**	**400**	**3328**
Ecosystems Goal 2 / Maintain and enhance riparian communities													
EG-2.1	Manage and enhance riparian units	8	40	80	8	8	160	240				160	**704**
EG-2.2	Identify, design, and develop potential restoration projects and appropriate funding.	2	16	40	4	16	40	120			40	40	**318**
EG-2.3	Coordinate with other government agencies an NGO's on implementation of regional plans and goals.	2	4		4	8							**18**
EG-2.4	Monitor and evaluate management strategies	2	4	16	8	16					320		**366**
Ecosystems Goal 3 / Maintain and enhance Grassland and Upland communities	**Total hours**	**14**	**64**	**136**	**24**	**48**	**200**	**360**	**0**	**0**	**360**	**200**	**1406**
EG-3.1	Manage and enhance upland units	4	80	240			160	240			160		**884**
EG-3.2	Identify, design, and develop potential restoration projects and appropriate funding.	2	16	40	8	16	40	60			160	80	**422**
EG-3.3	Coordinate with other government agencies an NGO's on implementation of regional plans and goals.	2	8		8	16							**34**
EG-3.4	Monitor and evaluate management strategies	2	8	24	4	16					480		**534**
	Total hours	**10**	**112**	**304**	**20**	**48**	**200**	**300**	**0**	**0**	**800**	**80**	**1874**
Ecosystems Goal 4 / Maintain and enhance riverine and lacustrine habitats													
EG-4.1	Manage and enhance riverine and lacustrine habitats	2	2		2	2							**8**
EG-4.2	Identify, design, and develop potential restoration projects and appropriate funding.				2	2							**4**
EG-4.3	Coordinate with other government agencies an NGO's on implementation of regional plans and goals.	2	2		2	2							**8**
EG-4.4	Monitor and evaluate management strategies	2	2		2	2					40		**48**
	Total hours	**6**	**6**	**0**	**8**	**8**	**0**	**0**	**0**	**0**	**40**	**0**	**68**
Ecosystems Goal 5 / Maintain the Department's commitment to use agriculture as part of the management of the area.													
EG-5.1	Continue agricultural leases	2	16	8			40	40				40	**146**
EG-5.2	Explore and develop agricultural techniques that provide mutual benefits to farmers and wildlife.	2	8	16	2	4							**32**
EG-5.3	Work with local farmers to grow agricultural crops that benefit the tenant farmers and UBBWA	2	8	16	2	4							**32**
EG-5.4	Participate in local districts		40	24									**64**
	Total hours	**6**	**72**	**64**	**4**	**8**	**40**	**40**	**0**	**0**	**0**	**40**	**274**
Ecosystems Goal 6 / Develop and implement a wildfire plan for the UBBWA.													
EG-6.1	Coordinate with CDF and other agencies in the development and implementation of a fire management plant for UBBWA.	8	40	120	8	24							**200**
EG-6.2	Provide employees with appropriate training for response to fire events.	8	16	48	4	8	80	120			16	40	**340**
EG-6.3	Monitor effects of fire ecology on habitats		8	24	4	8					40		**84**
	Total hours	**16**	**64**	**192**	**16**	**40**	**80**	**120**	**0**	**0**	**56**	**40**	**624**
Species Guilds Goal 1 / Manage and maintain habitat communities for waterfowl species													
SG-1.1	Manage wetlands for resident waterfowl	8	160	320	16	40	160	200			40	960	**1904**
SG-1.2	Manage upland vegetation to provide nesting habitat	2	8	72	8	24	40	100			40	240	**534**
SG-1.3	Maintain Sanctuary Areas	2	4	8			16	24					**54**
SG-1.4	Monitor Waterfowl Populations	2	8	24	8	40					480		**562**
SG-1.5	Monitor for disease	8	16	48	8	24	16	24			80	16	**240**
	Total hours	**22**	**196**	**472**	**40**	**128**	**232**	**348**	**0**	**0**	**640**	**1216**	**3294**

TABLE 6.1
ANNUAL OPERATIONS AND MAINTENANCE REQUIREMENTS (HOURS BY STAFF POSITION) TO IMPLEMENT PLAN

Element/ Sub-Element	Tasks	Senior Wildlife Biologist (Sup.)	Wildlife Habitat Supervisor II	Wildlife Habitat Supervisor I	Associate Wildlife Biologist	Wildlife Biologist (Range A-B)	Tractor Operator Laborer	Fish & Wildlife Technician	Fish & Wildlife Interpreter	Office Technician	Scientific Aid	Seasonal Aid	Totals
Species Guilds Goal 2 / Manage wetland habitat communities for shore birds and wading birds													
SG-2.1	Manage seasonal wetlands for shore birds	2	16	24			40	60				40	**182**
SG-2.2	Monitor populations and assess management techniques	2	8	24	4	8					160		**206**
	Total hours	**4**	**24**	**48**	**4**	**8**	**40**	**60**	**0**	**0**	**160**	**40**	**388**
Species Guilds Goal 3 / Maintain and enhance habitat for upland game species													
SG-3.1	Dedicate 12 DUHU Units for upland game	10	24	80	4	16	80	120			80	260	**674**
SG-3.2	Provide diverse upland nesting and brood habitat	2	8	40			40	60				80	**230**
SG-3.3	Plant/manage for forage that benefit upland species	4	4	40			40	60				80	**228**
	Total hours	**16**	**36**	**160**	**4**	**16**	**160**	**240**	**0**	**0**	**80**	**420**	**1132**
Species Guild Goal 4 / Manage and maintain habitat communities for raptors													
SG-4.1	Manage for large populations of rodents and insects to provide adequate prey items to benefit foraging raptor species.		4	8	2	4	24	36				80	**158**
SG-4.2	Maintain, develop and protect roost and nesting habitats		24	40	8	24	24	60				80	**260**
SG-4.3	Monitor populations of raptors to assess management techniques and species response;	2	4	8	12	24					80		**130**
	Total hours	**2**	**32**	**56**	**22**	**52**	**48**	**96**	**0**	**0**	**80**	**160**	**548**
Species Guilds Goal 5 / Manage and maintain habitat communities for cavity nesting and dwelling species													
SG-5.1	Develop and implement a plan for maintaining, developing and protecting riparian habitat.	4	40	160	8	24	40	60				160	**496**
SG-5.2	Maintain and enhance artificial dwellings	1	4	24	4	8	40	60	40			40	**221**
SG-5.3	Monitor populations of cavity nesting birds to access management techniques and species response.	1	4		8	24			24		80		**141**
	Total hours	**6**	**48**	**184**	**20**	**56**	**80**	**120**	**64**	**0**	**80**	**200**	**858**
Species Guilds Goal 6 / Manage and maintain communities for neo-tropical bird species													
SG-6.1	Maintain and enhance riparian vegetation to create a migration corridor	4	40	120	4	8	40	60	40			80	**396**
SG-6.2	Manage uplands habitats to include variations in height, density, food crops and water		2	16	2	4	24	36				80	**164**
SG-6.3	Monitor populations of neo-tropical birds and assess management techniques	2	4		8	24					160		**198**
	Total hours	**6**	**46**	**136**	**14**	**36**	**64**	**96**	**40**	**0**	**160**	**160**	**758**
Species Guilds Goal 7 / Manage and maintain communities for other water bird species													
SG-7.1	Maintain appropriate nesting and brood habitat	4	8	24	4	16	24	36				80	**196**
SG-7.2	Monitor populations and assess management techniques	8	8	8	8	24					160		**216**
	Total hours	**12**	**16**	**32**	**12**	**40**	**24**	**36**	**0**	**0**	**160**	**80**	**412**
Species Guilds Goal 8 / Manage and maintain habitats for mammals													
SG-8.1	Manage and protect a diverse mosaic of habitat types	4	8	32	8	24	24	36				80	**216**
SG-8.2	Monitor mammal populations to see if management activities are impacting them.	2	2	2	16	16					120		**158**
	Total hours	**6**	**10**	**34**	**24**	**40**	**24**	**36**	**0**	**0**	**120**	**80**	**374**
Special Status Species Goals 1 / Manage and maintain habitats for special status species													
SSS-1.1	Ensure both State and federal avoidance and minimization measures are used on the area when and where appropriate	8	16	48	16	16	16	16					**136**
SSS-1.2	Train area staff to recognize special status species and their habitats.	4	4	16	16	24	16	16	16		16	16	**144**
SSS-1.3	Monitor populations of special status species known to occur on the area.	2	4	6	30	100					320		**462**
SSS-1.4	Conduct surveys in habitats with the potential to support SSS.	2	2		50	160					640		**854**
	Total hours	**16**	**26**	**70**	**112**	**300**	**32**	**32**	**16**	**0**	**976**	**16**	**1596**
Special Status Species Goal 2 / Improve habitats for fish species in Butte Creek													
SSS-2.1	Continue to work with CDFW staff and Fisheries to provide in stream flows to Butte Creek.	4	4		2	2							**12**
	Total hours	**4**	**4**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**12**
Special status Species Goal 3 / Adhere to agreements for the protection, mitigation and enhancement of SSS.													
SSS-3.1	Sandhill crane management	4	8	40	16	24	80	100			120	120	**512**
SSS-3.2	GGS field 212	2	4	24	4	8	24	36			80		**182**

TABLE 6.1
ANNUAL OPERATIONS AND MAINTENANCE REQUIREMENTS (HOURS BY STAFF POSITION) TO IMPLEMENT PLAN

Element/ Sub-Element	Tasks	Senior Wildlife Biologist (Sup.)	Wildlife Habitat Supervisor II	Wildlife Habitat Supervisor I	Associate Wildlife Biologist	Wildlife Biologist (Range A-B)	Tractor Operator Laborer	Fish & Wildlife Technician	Fish & Wildlife Interpreter	Office Technician	Scientific Aid	Seasonal Aid	Totals
SSS-3.3	VELB/Riparian	2	4	16	4	8	8	12			40		**94**
SSS-3.4	Vernal pool Field 312	2	2	6	4	8	6	8			24		**60**
	Total hours	**10**	**18**	**86**	**28**	**48**	**118**	**156**	**0**	**0**	**264**	**120**	**848**
Special Status Species Goal 4 / Where appropriate, area staff will participate in the development of PM&E measure and comment on proposed recovery plans that may influence area management.													
SSS-4.1	Literature review	4	8		16	40							**68**
SSS-4.2	Participate in interagency working groups and provide Department input.	16	16		24	24			8				**88**
SSS-4.3	Monitor and evaluate impacts of implementation.	2	40	24	32	80							**178**
	Total hours	**22**	**64**	**24**	**72**	**144**	**0**	**0**	**8**	**0**	**0**	**0**	**334**
Invasive species Goal 1 / Prevent the introduction and spread of invasive species that negatively impact wildlife or special status species.													
IS-1.1	Participate in groups interested in control of invasive species	8	8	24	8	16							**64**
IS-1.2	Monitor for invasive species	2	16	40	8	24	40	60			40	80	**310**
IS-1.3	Develop strategies and priorities for the implementation of control, containment or eradication efforts.	4	40	120			80	120	8			320	**692**
IS-1.4	Monitor the implementation of control, containment or eradication efforts.	4	8	20	8	16	16	24			160		**256**
	Total hours	**18**	**72**	**204**	**24**	**56**	**136**	**204**	**8**	**0**	**200**	**400**	**1322**
Cultural Resources Goal 1 / Ensure cultural resources are preserved and maintained													
CRG-1.1	Research and inventory existing cultural resources	2	4		2	4			16				**28**
CRG-1.2	When management activities are planned in previously undisturbed soil, surveys will be conducted	2	4	4	2	2							**14**
	Total hours	**4**	**8**	**4**	**4**	**6**	**0**	**0**	**16**	**0**	**0**	**0**	**42**
Public-Use Goal 1 / Continue to provide existing public use programs													
PUG-1.1	Continue appropriate public hunt programs	24	160	800	8	16	960	1540		80		3200	**6788**
PUG-1.2	Continue appropriate public fishing programs		16	48	4	4	40	60	16	8		40	**236**
PUG-1.3	Provide educational tours		16	24	8	24			320				**392**
	Total hours	**24**	**192**	**872**	**20**	**44**	**1000**	**1600**	**336**	**88**	**0**	**3240**	**7416**
Public-Use Goal 2 / Allow compatible public recreation where and when appropriate													
PUG-2.1	Evaluate the potential to develop new or expanded recreational programs	12	32	40	8	16			100			160	**368**
PUG-2.2	Implement recreational programs consistent with this LMP	4	16	48			8	12	120			120	**328**
PUG-2.3	Evaluate all new and or expanded programs for consistency with LMP.	8	8	24	2	4			60				**106**
	Total hours	**24**	**56**	**112**	**10**	**20**	**8**	**12**	**280**	**0**	**0**	**280**	**802**
Public-Use Goal 3 / Develop and implement an environmental education and interpretive program													
PUG-3.1	Develop and evaluate program	4	8		2	4			400			160	**578**
	Total hours	**4**	**8**	**0**	**2**	**4**	**0**	**0**	**400**	**0**	**0**	**160**	**578**
Public Use Goal 4 / Public Safety													
PUG-4.1	Minimize conflicts between and among users and public use programs	12	40	120			80	120	40			160	**572**
PUG-4.2	Develop and implement safety plans	8	16	80			80	100	40			80	**404**
PUG-4.3	Periodically evaluate management of access locations, tour routes, parking areas, and associated regulations to identify changes that are warranted to maintain consistency with the goals of this LMP.	2	8	16	2	4			40				**72**
	Total hours	**22**	**64**	**216**	**2**	**4**	**160**	**220**	**120**	**0**	**0**	**240**	**1048**
Public Use Goal 5 / Outreach													
PUG-5.1	Provide area information		8	24	8	24	40	60	260	80		320	**824**
PUG-5.2	Operations and Maintenance (covered under other O/M)												
PUG-5.3	Other Uses (covered under other O/M)												
	Total hours	**0**	**8**	**24**	**8**	**24**	**40**	**60**	**260**	**80**	**0**	**320**	**824**
Facilities & Maintenance Goal 1 / Construction, development, and maintenance of facilities.													
FMG-1.1	Maintenance and development of water infrastructure		24	100			80	120				320	**644**
FMG-1.2	Maintenance and development of roads & parking lots		24	80			80	120				240	**544**
FMG-1.3	Maintenance and development of buildings		8	40			40	60	24			120	**292**
FMG-1.4	Maintenance and development of boundaries		4	12			16	24				40	**96**
FMG-1.5	Maintenance and development of public use infrastructures		24	40			40	60	80			160	**404**

TABLE 6.1
ANNUAL OPERATIONS AND MAINTENANCE REQUIREMENTS (HOURS BY STAFF POSITION) TO IMPLEMENT PLAN

Element/ Sub-Element	Tasks		Senior Wildlife Biologist (Sup.)	Wildlife Habitat Supervisor II	Wildlife Habitat Supervisor I	Associate Wildlife Biologist	Wildlife Biologist (Range A-B)	Tractor Operator Laborer	Fish & Wildlife Technician	Fish & Wildlife Interpreter	Office Technician	Scientific Aid	Seasonal Aid	Totals
		Total hours	**0**	**84**	**272**	**0**	**0**	**256**	**384**	**104**	**0**	**0**	**880**	**1980**
Facilities & Maintenance Goal 2 / Maintain equipment														
FMG-2.1	Repair and maintain heavy equipment		4	8	40			120	40				80	**292**
FMG-2.2	Repair and maintain vehicles		8	8	60	8		8	60	24			120	**296**
FMG-2.3	Repair and maintain Shop equipment and tools			8	40			16	80	32			80	**256**
FMG-2.4	Repair and maintain office equipment			8	32	8	8		16	40	40			**152**
		Total hours	**12**	**32**	**172**	**16**	**8**	**144**	**196**	**96**	**40**	**0**	**280**	**996**
Facilities & Maintenance Goal 3 / Effectively manage existing facilities and/or structures for resource protection, safety, and prevention of unauthorized uses.														
FMG-3.1	Regularly monitor the condition and use of existing facilities/structures.		2	16	80			24	48	16			40	**226**
FMG-3.2	Take actions as needed to keep desired facilities/structures in good repair.		2	24	80			24	48	8	40		320	**546**
FMG-3.3	Schedule preventative maintenance of all facilities and structures			8	80			40	40	16	80		40	**304**
FMG-3.4	Take actions to demolish and remove those structures that are unauthorized or have become unsafe or undesirable.			4	20			24	16	16			40	**120**
		Total hours	**4**	**52**	**260**	**0**	**0**	**112**	**152**	**56**	**120**	**0**	**440**	**1196**
Administration Goal 1 / Perform administrative duties for the day to day operations of the area.														
ADM-1.1	Budgets		40	160	180	16	24		8	4	320			**752**
ADM-1.2	Personnel		24	160	80	8	16				240			**528**
ADM-1.3	Purchasing		16	120	160	40	40	16	24	16	600			**1032**
ADM-1.4	Agricultural leases.		4	8	8						40			**60**
ADM-1.5	Maintain pertinent documentation related to the operation of the area		24	40	120	40	60	16	16	40	300			**656**
		Total hours	**108**	**488**	**548**	**104**	**140**	**32**	**48**	**60**	**1500**	**0**	**0**	**3028**
Coordination Goal 1 / Communication														
CG-1.1	Intra department		40	40	80	24	56		16		40			**296**
CG-1.2	State government		16	4	8	8	16		8		16			**76**
CG-1.3	Federal government		16	4	40	24	40		8		16			**148**
CG-1.4	County government		8	4	12	8	8				8			**48**
CG-1.5	NGO'S		8	8	24	16	16		8		16			**96**
		Total hours	**88**	**60**	**164**	**80**	**136**	**0**	**40**	**0**	**96**	**0**	**0**	**664**
Coordination Goal 2 / Research														
CG-2.1	Intra department		40	4	8	24	40							**116**
CG-2.2	State government		16	4		16	16							**52**
CG-2.3	Federal government		16	8	8	16	16							**64**
CG-2.4	County government		8	4	8	4	8							**32**
CG-2.5	NGO'S		8	4	12	8	16							**48**
		Total hours	**88**	**24**	**36**	**68**	**96**	**0**	**0**	**0**	**0**	**0**	**0**	**312**
Coordination Goal 3 / Wildlife health and disease														
CG-3.1	Train employees		24	8	24	16	36	16	24	8				**156**
CG-3.2	Respond to incidents		8	4	8	16	16	40	40	8				**140**
CG-3.3	Provide appropriate information to government/private entities		16	8	16	24	24							**88**
		Total hours	**48**	**20**	**48**	**56**	**76**	**56**	**64**	**16**	**0**	**0**	**0**	**384**
		Total Hours All Tasks per Position	**674**	**2246**	**5550**	**892**	**1780**	**3646**	**5580**	**1880**	**1924**	**5056**	**9492**	**38720**
Hours Per personnel Year (PY)	1778													
		Total PY's Needed per Position	**0.4**	**1.3**	**3.1**	**0.5**	**1.0**	**2.1**	**3.1**	**1.1**	**1.1**	**2.8**	**5.3**	**21.8**

TABLE 6.2
STAFFING COSTS FOR IMPLEMENTATION OF THE UBBWA LMP

Position	Wildlife Habitat Supervisor II	Wildlife Habitat Supervisor I	Tractor Operator Laborer	Fish and Wildlife Technician	Wildlife Biologist (Range B)	Fish and Wildlife Interpreter I	Office Technician	Scientific Aids	Seasonal Aids	Senior Biologist Supervisor (Wildlife)	Associate Wildlife Biologist
Number of py's	1	3	2	3	1	1	1	3	5	0.3	0.5
Salary per month1	$5,067	$4,216	$3,895	$3,391	$4,045	$4,045	$3,157	$2,271	$1,762	$6,069	$5,400
Annual Salary	$60,804	$151,776	$93,480	$122,076	$48,540	$48,540	$37,884	$81,756	$105,720	$21,848	$32,400
Staff Benefits2	$20,813.21	$51,952.92	$31,998.20	$41,786.61	$16,615.24	$16,615.24	$12,967.69	$27,985.08	$36,187.96	$7,478.71	$11,090.52
Total Annual Salaries	**$81,617.21**	**$203,728.92**	**$125,478.20**	**$163,862.61**	**$65,155.24**	**$65,155.24**	**$50,851.69**	**$109,741.08**	**$141,907.96**	**$29,327.11**	**$43,490.52**

Total Permanent Positions	**12.8**
Total Temporary Positions	**8.0**
Total Annual Needed	**20.8**
Total Annual Personnel Costs	**$1,080,316**

1. This is the 2006 top salary per position
2. This is 34.23%, the Benefit rate for 2006

TABLE 6.3
ESTIMATED OPERATIONAL COSTS

	Amount
Operational Expenses	
General Expenses	85,000
Utilities	125,000
Water	180,000
Facility Maintenance	250,000
Vector Control	75,000
Other Items of Expenses	150,000
Total Estimated Costs	**$865,000**

CHAPTER VII
Future Revisions to Plan

All planning documents eventually become dated and require revision so that they can continue to provide practical direction for operational and maintenance activities. A common and unfortunate situation is that the revision of planning documents is often neglected for budgetary or staff constraints, or other reasons. To address this problem, this section incorporates a suggested hierarchy of revision procedures in which the level of process and required involvement is proportionate to the level of change that is proposed. This LMP reflects the best information available during the planning process, but it is understood that new information will become available over time and adjustments will be required to keep this LMP current. Such new information may include:

- feedback generated by adaptive management of the UBBWA
- scientific research that directs improved techniques of habitat management
- research that directs improved management of agricultural resources
- documented threats to fish and wildlife species and their habitats
- future modeling results
- management of related facilities in the UBBWA vicinity (e.g. flood management)
- new legislative or policy direction
- a cultural paradigm shift

When the new information dictates a change to this LMP it is important that there is an appropriate process established. Public outreach and public input will be necessary in proportion to the proposed policy change established by this LMP. Unless a reasonable and clear revision process exists, this LMP could become outdated and irrelevant. If the appropriate procedure for a particular proposed revision is not apparent, the determination of which of the following procedures to use shall be made by the regional manager in consultation with the Wildlife Branch. Plan revisions shall be sent to the Wildlife Branch for inclusion in the statewide real property information and management plan files and databases.

A. Minor Revisions

A process is required to accommodate minor revisions to this LMP. Minor revisions may include the addition of new property to the UBBWA or the adoption of limited changes to the goals and tasks through adaptive management, based on other scientific information or legislative direction. This procedure will be applicable to revisions that meet the following criteria:

- No change is proposed to the overall purposes of this LMP
- CEQA documentation (if required) is prepared and approved
- Appropriate consultation occurs within the region and headquarters staff
- Appropriate consultation with other agencies occurs
- Adjoining neighbors are consulted regarding the revision, if the revision is related to a specific location or the acquisition of an additional area

Minor revisions may be prepared by the staff members assigned to the UBBWA or with other CDFW resources, and require approval by the regional manager.

B. Major Revisions

Major revisions, or a new LMP, require a procedure comparable to the initial LMP planning process, but also proportionate to the level of policy change that is proposed. This procedure will be applicable to revisions that meet the following criteria:

- Substantial revision and/or a new policy direction is proposed to this LMP, or the adoption of a completely new plan is proposed
- Appropriate CEQA documentation is prepared and approved
- Appropriate consultation occurs throughout CDFW
- Appropriate coordination and consultation with other agencies occurs
- A public outreach program is conducted that is proportional to the level of the proposed revision

Major revisions or a new plan may be prepared using available CDFW resources. Any major revisions or new plan require recommendation by the regional manager and approval by the director of CDFW.

If the appropriate procedure for a particular, proposed revision is not apparent, the determination of which of these procedures to use shall be made by the regional manager in consultation with the Wildlife Branch.

C. Plan Status Reports

Periodic evaluation is important to help ensure that the purposes and goals of the LMP are being met. Chapter V, "Management Goals," contains many specific tasks that involve monitoring of the UBBWA and evaluation of the adequacy of management of the area. Cumulatively, these efforts will provide feedback regarding the success of the overall management effort. Periodic and detailed analysis of this feedback data will be necessary to assess the status of this LMP.

An exhaustive review of the achievement of the goals of the LMP should be prepared every 5-10 years following the date of adoption of the LMP or subsequent revisions. A status report documenting this review should, at minimum, include:

- An evaluation of the achievement of the purposes and goals of the LMP

- An evaluation of the completion or annual completion, as appropriate, of each task contained in this LMP
- A fiscal evaluation of the program
- An evaluation of the effectiveness of CDFW's coordination efforts with CALFED, local governments, and other property management and regulatory agencies involved in the Upper Butte Basin Wildlife Area
- A notation of important new scientific information that has bearing on the management of the UBBWA
- A recommendation for revisions to this LMP to incorporate new information and improve its effectiveness

The status report should be prepared or coordinated by the Area Manager. It should be submitted to the CDFW North Central Region for review and comment, then should be approved by the Regional Manager and submitted to the Director of CDFW. This report should serve as a basis for revision of this LMP and appropriate adjustment to ongoing management practices.

D. Climate Change

Brief Background

According to the Department's *California's Wildlife Action Plan,* (2005, 2007) detrimental impacts to wildlife diversity have been categorized under four major threats: population growth and development, water management conflicts, invasive species and climate change. During the past several years, there has been tremendous effort to address climate change and to develop strategies either mandated by legislation or by various Executive Orders. Please see: http://www.climatechange.ca.gov/state/legislation.html

The California Natural Resources Agency has undertaken a Climate Change Adaptation Strategy (CAS) to implement the Global Warming Solutions Act (AB 32) and to:

> *"Collect, synthesize, and communicate to the greatest extent possible, how sea level rise; temperature rise and duration; and precipitation changes due to climate change will exacerbate existing fire, flood, water quality, air quality, habitat loss, human health and drought risks will impact the state's economy, infrastructure, human populations, and environment. In concert with AB 32 objectives and ongoing climate science predictions, adaptation strategies shall focus on a 50 year climate impact timeline. This effort will rely heavily on research funded through the California Energy Commission's Public Interest Energy Research (PIER) program.*[2]

The projected climate change threats include higher temperatures and amplified drought periods which will lead to increased catastrophic wildland fires. Invasive weeds, invertebrates and other non native species which rely on disturbance and stressed ecosystems may have an advantage over native communities. Earlier snowmelt and consequent flooding may impact vulnerable levee

[2] http://www.climatechange.ca.gov/adaptation/meetings/2008-10-10_meeting/Draft_CASVision_and_Principles_10-7-08.doc

systems, water availability and management. In addition, sea level rise and fluctuating rainfall need to be considered within the Department's restoration programs and management of wildlife, vegetation and fisheries resources held in the public's trust. Engineering solutions to address subsequent erosion for public safety and infrastructure may have a detrimental effect on Department managed estuaries and coastal wetlands. Request for commercial use of Department lands including wind and solar energy projects will also likely increase and contribute to habitat fragmentation and species impacts.

So how does this relate to Department lands management goals and policies?

Wildlife area and ecological reserve managers are currently integrating climate change strategies in their proposed goals, operations and maintenance tasks on their sites. These include vegetative fuel reduction for habitat diversity or for adjacent residential and urban interface mandates; monitoring of leading populations and control of exotic weeds and other invasives; water quality and conservation measures, purchase of water rights, maintaining or enhancing in-stream flows; implementing best management practices for mosquito control in managed wetlands; acquisition and conservation planning to preserve wildlife corridors, creating larger buffer zones around wetlands and coordinating management goals with other public agencies and non government organizations that have similar missions. Site planning has also emphasized management on a landscape ecosystem level. The Department incorporates other planning and international conservation efforts on its lands that include the North American Bird Conservation Initiative, Partners in Flight, North American Waterfowl Management Plan, U.S. Shorebird Conservation Plan and the Western Hemisphere Shorebird Reserve Network and future participation in Partners in Reptile and Amphibian Conservation. Department lands also contribute to Recovery Plans for listed species, NCCP's and multiple species HCP's.

Lands management is also actively involved in reducing "non climatic stressors" described as runoff from non point pollution, appropriate disposal of trash and other hazardous materials. Public health and safety are considered in every program offered to the public and maintenance of infrastructure on Department lands (levees, roads, parking lots and interpretive centers etc.). There are also programs in place to reduce greenhouse gas emissions in facilities, residences and vehicles that are maintained and operated on the properties.

Critical to all these efforts is the continuing education of lands managers and their staff and providing them the best scientific information available. The science of climate change and its potential effects on natural resources has to be conveyed in a timely matter to anticipate their future needs.

The Department supports research that will determine the most appropriate survey protocols to identify new or troubling patterns and trends within a species or vegetation community. Future phenology changes in plants and wildlife together with potential range shifts and migration patterns will affect management decisions for seasons and harvest models for game species. Various regions have continued to implement specific actions outlined in *California's Wildlife Action Plan,* through baseline resource assessment and monitoring with State Wildlife Grant (SWG) funds. The Department has completed a draft White Paper titled "*Climate Change-related Research Considerations* (July 2008) and a "*Policy for Quality in Science and Key Elements of Scientific*

Work (January 2008) that will assist research efforts on Department lands and benefit natural resource management in general. The science of climate change is evolving, so it is important to check relevant Department Programs http://www.dfg.ca.gov/Climate_and_Energy/ and other viable sources: (http://www.climatechange.ca.gov/adaptation/biodiversity.html).

Implementing the Natural Resources Agency Climate Change Strategies and emerging Department policies will present financial and staffing challenges to a Lands Program already beleaguered with chronic budget shortfalls. Focus should be maintained on planning for current climate change effects as well as projected impacts. Continued effective and efficient use of Department operational budgets is essential and outside funding opportunities should be maximized.

SECTION VIII
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Appendix A
Species of UBBWA

ESA

APPENDIX A
Species of UBBMA

SPECIES OF UBBMA

Scientific Name	Common Name
Amphibians	
Bufo boreas	Western toad
Hyla regilla	Pacific treefrog
Rana catesbeiana	Bullfrog
Spea hammondii	Western spadefoot
Reptiles	
Coluber constrictor	Racer
Crotalus viridus	Western rattlesnake
Elgaria multicarinata	Southern alligator lizard
Emys marmorata	Western pond turtle
Eumeces skiltonianus	Western skink
Lampropeltis getula	Common kingsnake
Pituophis catenifer	Gopher snake
Sceloporus occidentalis	Western fence lizard
Thamnophis elegans	Western terrestrial garter snake
Thamnophis gigas	Giant garter snake
Thamnophis sirtalis	Common garter snake
Birds	
Accipiter cooperii	Cooper's hawk
Accipiter striatus	Sharp-shinned hawk
Actitus macularia	Spotted sandpiper
Aeronautes saxatalis	White-throated swift
Agelaius phoeniceus	Red-winged blackbird
Agelaius tricolor	Tricolored blackbird
Aix sponsa	Wood duck
Anas acuta	Northern pintail
Anas americana	American wigeon
Anas clypeata	Northern shoveler
Anas crecca	Green-winged teal
Anas cyanoptera	Cinnamon teal
Anas discors	Blue-winged teal
Anas penelope	Eurasian wigeon
Anas platyrhynchos	Mallard
Anas strepera	Gadwall

SPECIES OF UBBMA

Scientific Name	Common Name
Anser albifrons	Greater white-fronted goose
Anthus rubescens	American pipit
Aphelocoma californica	Western scrub jay
Aquila chrysaetos	Golden eagle
Archilochus alexandri	Black-chinned hummingbird
Ardea alba	Great egret
Ardea herodias	Great blue heron
Asio flammeus	Short-eared owl
Athene cunicularia	Burrowing owl
Aythya affinis	Lesser scaup
Aythya americana	Redhead
Aythya collinaris	Ring-necked duck
Aythya marilla	Greater scaup
Aythya valisineria	Canvasback
Baeolophus inoratus	Oak titmouse
Bombycilla cedrorum	Cedar waxwing
Botaurus lentiginosus	American bittern
Branta canadensis	Canada goose
Bubo virginianus	Great horned owl
Bubulcus ibis	Cattle egret
Bucephala albeola	Bufflehead
Bucephala clangula	Common goldeneye
Buteo jamaicensus	Red-tailed hawk
Buteo lineatus	Red-shouldered hawk
Buteo swainsonii	Swainson's hawk
Butorides virescens	Green heron
Calidris alpina	Dunlin
Callidris mauri	Western sandpiper
Callidris minutilla	Least sandpiper
Callipepla californica	California quail
Calypte anna	Anna's hummingbird
Carduelia tristis	American goldfinch
Carduelis pinus	Pine siskin
Carduelis psaltria	Lesser goldfinch
Carpodacus mexicanus	House finch
Carpodacus purpureus	Purple finch
Cathartes aura	Turkey vulture
Catharus guttatus	Hermit thrush
Catoptrophorus semipalmatus	Willet
Certhia americana	Brown creeper
Ceryle alcyon	Belted kingfisher
Chaetura vauxi	Vaux's swift
Charadrius vociferus	Killdeer
Chen caerulescens	Snow goose

SPECIES OF UBBMA

Scientific Name	Common Name
Chen rossii	Ross' goose
Chlidonias niger	Black tern
Chondestes grammacus	Lark sparrow
Chordeiles acutipennis	Lesser nighthawk
Circus cyaneus	Northern harrier
Cistothorus palustris	Marsh wren
Coccothraustes vespertinus	Evening grosbeak
Coccyzus americanus	Yellow-billed cuckoo
Colaptes auratus	Northern flicker
Columba livia	Rock dove
Contopus cooperi	Olive-sided flycatcher
Contopus sordidulus	Western wood pewee
Corvus brachyrhyncos	American crow
Corvus corax	Common raven
Coturnicops noveboracensis	Yellow rail
Cygnus columbianus	Tundra swan
Dendroica coronata	Yellow-rumped warbler
Dendroica nigrescens	Black-throated gray warbler
Dendroica occidentalis	Hermit warbler
Dendroica townsendi	Townsend's warbler
Egretta thula	Snowy egret
Elanus leucurus	White-tailed kite
Empidonax difficilis	Pacific-slope flycatcher
Empidonax trallii	Willow flycatcher
Eremophila alpestris	Horned lark
Euphagus cyanocephalus	Brewer's blackbird
Falco columbarius	Merlin
Falco mexicanus	Prairie falcon
Falco peregrinus	Peregrine falcon
Falco sparverius	American kestrel
Fulica americana	American coot
Gallinago gallinago	Common snipe
Gallinula cholorpus	Common moorhen
Geothlypis trichas	Yellowthroat
Grus canadensis canadensis	Lesser sandhill crane
Grus canadensis tabida	Greater sandhill crane
Guiraca caerula	Blue grosbeak
Haliaeetus leucocephalus	Bald eagle
Himantopus mexicanus	Black-necked stilt
Hirundo rustica	Barn swallow
Icteria virens	Yellow-breasted chat
Icterus galbula	Bullock's oriole
Ixobrychus exilis	Least bittern
Ixoreus naevius	Varied thrush

SPECIES OF UBBMA

Scientific Name	Common Name
Junco hyemalis	Dark-eyed junco
Lanius ludovicianus	Loggerhead shrike
Larus argentatus	Herring gull
Larus californicus	California gull
Larus delawarensis	Ring-billed gull
Larus glaucescens	Glaucous-winged gull
Laterallus jamaicensis	California black rail
Limnodromus scolopaceus	Long-billed dowitcher
Lophodytes cucullatus	Hooded merganser
Megascops kennicottii	Western screech owl
Melanerpes formicivorus	Acorn woodpecker
Melanerpes lewis	Lewis' woodpecker
Meleagris gallopavo	Wild turkey
Melospiza lincolnii	Lincoln's sparrow
Melospiza melodia	Song sparrow
Mergus merganser	Common merganser
Mimus polyglottos	Northern mockingbird
Molothrus aster	Brown-headed cowbird
Myiarchus cinerascens	Ash-throated flycatcher
Numenius americanus	Long-billed curlew
Numenius phaeopus	Whimbrel
Numida meleagris	Helmeted guineafowl
Nycticorax nycticorax	Black-crowned night heron
Oporornis tolmiei	MacGillivray's warbler
Oxyura jamaicensis	Ruddy duck
Pandion haliaetus	Osprey
Passer domesticus	House sparrow
Passerculus sandwichensis	Savannah sparrow
Passerella iliaca	Fox sparrow
Passerina amoena	Lazuli bunting
Pavo cristatus	Peacock
Pelecanus erythrorhynchos	American white pelican
Petrochilidon pytrhonota	Cliff swallow
Phalacrocorax auritus	Double-crested cormorant
Phalaropus lobatus	Red-necked phalarope
Phalaropus tricolor	Wilson's phalarope
Phasianus colchicus	Ring-necked pheasant
Pheucticus melanocephalus	Black-headed grosbeak
Pica nuttalli	Yellow-billed magpie
Picoides nuttallii	Nuttall's woodpecker
Picoides pubescens	Downy woodpecker
Pipilo crissalis	California towhee
Pipilo erythrophthalmus	Spotted towhee
Piranga ludoviciana	Western tanager

SPECIES OF UBBMA

Scientific Name	Common Name
Plegadis chihi	White-faced ibis
Podiceps nigricollis	Eared grebe
Podilymbus podiceps	Pied-billed grebe
Polioptila caerula	Blue-gray gnatcatcher
Porzana carolina	Sora
Psaltriparus flaviceps	Bushtit
Quiscalus mexicanus	Great-tailed grackle
Rallus limicola	Virginia rail
Recurvirostra americana	American avocet
Regulus calendula	Ruby-crowned kinglet
Regulus satrapa	Golden-crowned kinglet
Sayornis nigricans	Black phoebe
Sayornis saya	Say's phoebe
Selasphorus rufus	Rufous hummingbird
Sialia currucoides	Mountain bluebird
Sialia mexicana	Western bluebird
Sphyrapicus ruber	Red-breasted sapsucker
Spizella passerina	Chipping sparrow
Stelgidopteryx serripennis	Northern rough-winged swallow
Sterna caspia	Caspian tern
Sterna forsteri	Forster's tern
Sturnella neglecta	Western meadowlark
Sturnus vulgaris	European starling
Tachycineta bicolor	Tree swallow
Tachycineta thalassina	Violet-green swallow
Thryomanes bewickii	Bewick's wren
Tringa flavipes	Lesser yellowlegs
Tringa melanoleuca	Greater yellowlegs
Tringa solitaria	Solitary sandpiper
Troglodytes aedon	House wren
Turdus migratorius	American robin
Tyrannus verticalis	Western kingbird
Tyto alba	Common barn owl
Vermivora celata	Orange-crowned warbler
Vermivora ruficapilla	Nashville warbler
Vireo cassinii	Cassin's vireo
Vireo gilvus	Warbling vireo
Wilsonia pusilla	Wilson's warbler
Xanthocephalus xanthocephalus	Yellow-headed blackbird
Zenaida macroura	Mourning dove
Zonotrichia atricapilla	Golden-crowned sparrow
Zonotrichia leucophrys	White-crowned sparrow
Mammals	
Bassariscus astutus	Ringtail

SPECIES OF UBBMA

Scientific Name	Common Name
Canis latrans	Coyote
Castor canadensis	Beaver
Corynorhinus townsendii	Townsend's big-eared bat
Didelphis virginiana	Virginia opossum
Dipodomys californicus	California kangaroo rat
Eptesicus fuscus	Big brown bat
Felis concolor	Mountain lion
Felix domestica	Feral cat
Lasiurus cinereus	Hoary bat
Lepus californicus	Black-tailed jackrabbit
Lutra canadensis	River otter
Lynx rufus	Bobcat
Mephitis mephitis	Striped skunk
Microtis californicus	California vole
Mus musculus	House mouse
Mustela frenata	Long-tailed weasel
Mustela vison	Mink
Myotis yumanensis	Yuma myotis
Odocoileus hemionus	Black-tailed deer
Ondatra zibethicus	Common muskrat
Peromyscus maniculatus	Deer mouse
Pipistrellus hesperus	Western pipistrelle
Procyon lotor	Raccoon
Rattus rattus	Black rat
Ratus norvegicus	Norway rat
Reithrodontomys megalotis	Western harvest mouse
Scapanus latimanus	Broad-footed mole
Scurius griseus	Western gray squirrel
Spermophilus beecheyi	California ground-squirrel
Sylvilagus audubonii	Audubon cottontail
Thomomys bottae	Botta's pocket gopher
Urocyon cinereoargenteus	Gray fox
Vulpes vulpes	Red fox

Appendix C
Environmental Review IS/ND, NOD, Comment Letters, and Responses to Comments

ESA

UPPER BUTTE BASIN WILDLIFE AREA LAND MANAGEMENT PLAN

Initial Study / Negative Declaration

October 2009

Prepared for
California Wildlife Foundation

Prepared by
ESA, Steve Cordes (DFG),
Donald Blake (DFG)

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204412

ESA

UPPER BUTTE BASIN WILDLIFE AREA LAND MANAGEMENT PLAN

Initial Study / Negative Declaration

1.	Project Title:	Upper Butte Basin Wildlife Area Land Management Plan
2.	Lead Agency Name and Address:	California Department of Fish and Game 1701 Nimbus Road, Suite A Rancho Cordova, CA 95670-4599
3.	Contact Person and Phone Number:	Armand Gonzales (916) 358-2876
4.	Project Location:	Upper Butte Basin Wildlife Area, Butte County and Glenn County
5.	Project Sponsor's Name and Address:	California Department of Fish and Game 1701 Nimbus Road, Suite A Rancho Cordova, CA 95670-4599
6.	General Plan Designation(s):	Agriculture
7.	Zoning Designation(s):	Agriculture exclusive, 40 acre, Little Dry Creek and Howard Slough Units; Public, Quasi-public, Llano Seco Unit.

8. Description of Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

   See attached Upper Butte Basin Wildlife Area Land Management Plan.

9. Surrounding Land Uses and Setting. (Briefly describe the project's surroundings.)

   See attached Upper Butte Basin Wildlife Area Land Management Plan.

10. Other public agencies whose approval is required (e.g. permits, financing approval, or participation agreement. Indicate whether another agency is a responsible or trustee agency.)

    None

Environmental Factors Potentially Affected

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☒ Biological Resources	☐ Cultural Resources	☒ Geology, Soils and Seismicity
☒ Hazards and Hazardous Materials	☒ Hydrology and Water Quality	☐ Land Use and Land Use Planning
☐ Mineral Resources	☐ Noise	☐ Population and Housing
☐ Public Services	☐ Recreation	☐ Transportation and Traffic
☐ Utilities and Service Systems	☐ Mandatory Findings of Significance	

DETERMINATION: (To be completed by Lead Agency)
On the basis of this initial study:

☒ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

Sandra Morey
Signature

10/29/09
Date

Sandra Morey
Printed Name

For

Environmental Checklist

Aesthetics

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
1. AESTHETICS—Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway corridor?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

Discussion

a-d) Proposed project would not have an impact on the environment with regard to these questions.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Agricultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2. AGRICULTURAL RESOURCES In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. **Would the project:**				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland of Statewide Importance to non-agricultural use?	☐	☐	☐	☒

Discussion

a-c) Proposed project would not have an impact on the environment with regard to these questions.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Air Quality

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
3.	**AIR QUALITY** Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **Would the project:**				
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒
c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒
d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion

a-e) Proposed project would not have an impact on the environment with regard to these questions.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Biological Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
4. BIOLOGICAL RESOURCES— Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

a) Overall, the proposed project would constitute a beneficial effect on candidate, sensitive, and special status species due to the extensive areas of wetland and upland habitat that would be created from fallow rice fields and maintained for all wildlife. However, some activities that would be necessary for creating and maintaining the habitat may have a temporary negative impact on sensitive status species. These impacts will be either maintained at less than significant levels or mitigated to less than significant levels by adopting all applicable best management practices.

b) Proposed project would have a beneficial impact on riparian habitat and sensitive natural communities by implementing management practices that would encourage the recruitment of native trees such as Fremont cottonwood and valley oak.

c) Overall, the proposed project would constitute a beneficial effect on federally protected wetlands due to the extensive area of wetland and upland habitat that would be created in upland areas that are fallow agricultural fields. However, some management activities, such as maintaining moist soil plant communities, may have a temporary and less than significant negative impact on the created wetlands. Regardless of the positive or negative character of potential impacts of the proposed project, all applicable requirements of Section 404 of the Clean Water Act will be satisfied.

d-f) Proposed project would not have an impact on the environment with regard to these questions.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
5. CULTURAL RESOURCES— Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

Discussion

a-g) Proposed project would not have an impact on the environment with regard to these questions. No site alteration will be allowed prior to a survey for cultural features; no detrimental management action will be allowed at a cultural site, and any action will follow archeological guidelines. Sites will be protected by site closures should vandalism or artifact collection occur. Site location will not be disclosed to the public and public use will be monitored.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Geology, Soils, and Seismicity

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
6. GEOLOGY, SOILS, AND SEISMICITY— Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Discussion

a.i) No delineated Alquist-Priolo fault is present.

a.ii) No known faults.

a.iii) No known faults.

a.iv) No potential for landslides due to level terrain.

b) Some loss of topsoil is inevitable due to the soil disturbing activities that are necessary for maintaining seasonal wetland vegetation as optimal wildlife habitat and for maintaining water delivery and drainage canals and ditches. Best management practices will be implemented to maintain the impacts of these activities at less than significant levels.

c) No potential for landslides due to level terrain.

d) Expansive soils may be present but no developments are proposed so the proposed project would not create a substantial risk to life or property.

e) No disposal of wastewater is proposed.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Hazards and Hazardous Materials

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
7.	**HAZARDS AND HAZARDOUS MATERIALS Would the project:**				
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion

a) Proposed project may require the use herbicides and adjuvants that may pose a significant environmental hazard. This hazard will be maintained at less than significant levels by following all label and other regulatory requirements for their proper and lawful use, carefully targeting their use to invasive species, minimizing overspray that could impact sensitive plant communities or water resources, avoiding their application during sensitive periods in the life cycles of candidate, sensitive, and special status species, and by using all applicable best management practices.

b) Proposed project may require the use herbicides and adjuvants that may pose a significant environmental hazard through inadvertent spills and other potential

accidents. This hazard will be maintained at a less than significant level by following all label, other regulatory requirements, and using all applicable best management practices for their proper and lawful handling, storage, transport, cleanup, and remediation in the case of spillage.

c-g) Proposed project would not have an impact on the environment with regard to these questions.

h) Proposed project would maintain areas of natural vegetation that could produce fuel levels sufficient to sustain wildfires that could threaten humans and structures. However, most use of the UBBWA occurs during the winter and spring months when potential fuel flammability is low so the risk to humans would be less than significant. The risk to structures would also be less than significant through the continuation of the practice of maintaining fuel breaks around structures and along strategic areas along the Project's borders.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Hydrology and Water Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
8. HYDROLOGY AND WATER QUALITY— Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river or, by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion

a) Proposed project would not violate any water quality standards and, where applicable, National Pollution Discharge Elimination System permits will be obtained for waste discharges. Additionally, the impacts of any potential waste discharge, such as the application of an aquatic herbicide, will be maintained at less than significant levels by following all regulatory requirements and best

management practices to minimize impacts to water resources, sensitive plant communities, and candidate, sensitive, and special status species.

b) Proposed project may have an impact on groundwater levels during drought years but adherence to all applicable Butte County Groundwater Management and Conservation ordinances will maintain any potential impact at less than significant levels.

c-h) Proposed project would not have an impact on the environment with regard to these questions.

i) Proposed project would not exposed structures to a significant risk but may expose people to an increased significant risk of injury or death due to flooding. However, the risk to people will be maintained at a less than significant level through the closing of the units to hunting during periods of seasonal flooding.

j) Proposed project would not have an impact on the environment with regards to this question.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Land Use and Land Use Planning

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
9.	**LAND USE AND LAND USE PLANNING— Would the project:**				
a)	Physically divide an established community?	☐	☐	☐	☒
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion

a-c) Proposed project would not have an impact on the environment with regard to these questions.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
10. MINERAL RESOURCES—Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion

a-b) Proposed project would not have an impact on the environment with regard to these questions.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Noise

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
11.	**NOISE—Would the project:**				
a)	Result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b)	Result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c)	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d)	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
e)	For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☐	☒
f)	For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

a) Proposed project is a continuation of existing management and public use practices and no other actions are contemplated.

b) Proposed project would not have an impact on the environment.

c) Proposed project is a continuation of existing management and public use practices and no other actions are contemplated.

d) Proposed project is a continuation of existing management and public use practices and no other actions are contemplated.

e) Proposed project would not have an impact on the environment with regards to this question.

f) Proposed project would not have an impact on the environment with regards to this question.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
12. POPULATION AND HOUSING— Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a-c) Proposed project would not have an impact on the environment with regard to these questions.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Public Services

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
13. PUBLIC SERVICES— Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Discussion

a.i-a.v) Proposed project is a continuation of existing hunting and land management practices.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Recreation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
14. RECREATION—Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

a-b) a.i-a.v) Proposed project is a continuation of existing hunting and land management practices.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Transportation and Traffic

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
15. TRANSPORTATION AND TRAFFIC— Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	☒
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Result in inadequate parking capacity?	☐	☐	☐	☒
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., conflict with policies promoting bus turnouts, bicycle racks, etc.)?	☐	☐	☐	☒

Discussion

a-g) Proposed project is a continuation of existing hunting and land management practices.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Utilities and Service Systems

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
16. UTILITIES AND SERVICE SYSTEMS—Would the project:				
a) Conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Require new or expanded water supply resources or entitlements?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion

a-g) Proposed project is a continuation of existing hunting and land management practices.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Mandatory Findings of Significance

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
17. MANDATORY FINDINGS OF SIGNIFICANCE— Would the project:				
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒
b) Have impacts that would be individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☐	☒
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Discussion

a-c) Proposed project is a continuation of existing hunting and land management practices.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Optional topics

Communications Interference

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
	COMMUNICATIONS INTERFERENCE— Would the project:				
a)	Cause substantial interference to existing television and radio reception at residences in the vicinity?	☐	☐	☐	☒
b)	Interfere with existing navigational systems operated by the Federal Aviation Administration (FAA) or the U.S. military?	☐	☐	☐	☒
c)	Obstruct or prevent point-to-point microwave relay station transmissions that traverse the project site?	☐	☐	☐	☒

Discussion

a-c) Proposed project is a continuation of existing hunting and land management practices.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Energy

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
	ENERGY—Would the project:				
a)	Result in a substantial increase in overall or per capita energy consumption?	☐	☐	☐	☒
b)	Result in wasteful or unnecessary consumption of energy?	☐	☐	☐	☒
c)	Require or result in the construction of new sources of energy supplies or additional energy infrastructure capacity the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d)	Conflict with applicable energy efficiency policies or standards?	☐	☐	☐	☒

Discussion

a-d) Proposed project is a continuation of existing hunting and land management practices.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Wind

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
WIND—Would the project:				
a) Cause wind speeds to exceed established comfort criteria?	☐	☐	☐	☒
b) Cause wind speeds that exceed established hazard criteria or that could result in a safety hazard to project occupants or pedestrians?	☐	☐	☐	☒

Discussion

a-b) Proposed project is a continuation of existing hunting and land management practices.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Shadow

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
	SHADOW—Would the project:				
a)	Cause shadowing of public open space that would conflict with established local criteria?	☐	☐	☐	☒
b)	Cause substantial shadowing of operating solar collectors for electricity generation?	☐	☐	☐	☒

Discussion

a-b) Proposed project is a continuation of existing hunting and land management practices.

References

See attached Upper Butte Basin Wildlife Area Land Management Plan.

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: Upper Butte Basin Wildlife Area Draft Land Management Plan (LMP)

Lead Agency: California Department of Fish and Game — Contact Person: Armand Gonzales

Mailing Address: 1701 Nimbus Rd. Suite A — Phone: (916) 358-2876

City: Rancho Cordova — Zip: 95670 — County: Sacramento

Project Location: County: Butte and Glenn counties — City/Nearest Community: Butte City/Dayton/Chico

Cross Streets: SH 162 — Zip Code: 95920

Longitude/Latitude (degrees, minutes and seconds): 39 ° 27 ' 22 " N / 122 ° 00 ' 44.2 " W Total Acres: 9,375

Assessor's Parcel No.: many - refer to LMP — Section: 21-33 Twp.: 18N-19N Range: 01E Base: MDBM

Within 2 Miles: State Hwy #: 162 — Waterways: Sacramento River/Butte Creek

Airports: — Railways: — Schools:

Document Type:

CEQA: ☐ NOP ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ☐ Early Cons ☑ Neg Dec ☐ Mit Neg Dec Other:

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other:

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Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☑ Other: LMP

Development Type:

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational:
☐ Recreational:
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type ____ MW ____
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type
☑ Other: Wildlife Area

Project Issues Discussed in Document:

☐ Aesthetic/Visual
☑ Agricultural Land
☐ Air Quality
☑ Archeological/Historical
☑ Biological Resources
☐ Coastal Zone
☐ Drainage/Absorption
☐ Economic/Jobs
☐ Fiscal
☐ Flood Plain/Flooding
☐ Forest Land/Fire Hazard
☑ Geologic/Seismic
☐ Minerals
☐ Noise
☐ Population/Housing Balance
☑ Public Services/Facilities
☐ Recreation/Parks
☐ Schools/Universities
☐ Septic Systems
☐ Sewer Capacity
☑ Soil Erosion/Compaction/Grading
☐ Solid Waste
☑ Toxic/Hazardous
☐ Traffic/Circulation
☑ Vegetation
☑ Water Quality
☐ Water Supply/Groundwater
☑ Wetland/Riparian
☐ Growth Inducement
☑ Land Use
☐ Cumulative Effects
☐ Other:

Present Land Use/Zoning/General Plan Designation:

public wildlife area/agriculture

Project Description: *(please use a separate page if necessary)*

The project being proposed is the adoption and implementation of the Land Management Plan (LMP). The LMP will guide the Department's management, planning, and operations of the Upper Butte Basin Wildldfe Area. The purpose of the LMP is to: 1. guide management of habitats, species, and programs; 2. serve as a guide for appropriate public uses of the property 3. serve as a descriptive inventory of fish, wildlife, and native plant habitats; 4. provide an overview of the property's operation and maintenance and of the personnel requirements associated.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Revised 2008

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "X".
If you have already sent your document to the agency please denote that with an "S".

____	Air Resources Board	____	Office of Emergency Services
____	Boating & Waterways, Department of	____	Office of Historic Preservation
____	California Highway Patrol	____	Office of Public School Construction
____	Caltrans District # ____	____	Parks & Recreation, Department of
____	Caltrans Division of Aeronautics	____	Pesticide Regulation, Department of
____	Caltrans Planning	____	Public Utilities Commission
____	Central Valley Flood Protection Board	____	Regional WQCB # ____
____	Coachella Valley Mtns. Conservancy	X	Resources Agency
____	Coastal Commission	____	S.F. Bay Conservation & Development Comm.
____	Colorado River Board	____	San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
____	Conservation, Department of	____	San Joaquin River Conservancy
____	Corrections, Department of	____	Santa Monica Mtns. Conservancy
____	Delta Protection Commission	____	State Lands Commission
____	Education, Department of	____	SWRCB: Clean Water Grants
____	Energy Commission	____	SWRCB: Water Quality
____	Fish & Game Region # ____	____	SWRCB: Water Rights
____	Food & Agriculture, Department of	____	Tahoe Regional Planning Agency
X	Forestry and Fire Protection, Department of	____	Toxic Substances Control, Department of
____	General Services, Department of	X	Water Resources, Department of
____	Health Services, Department of		
____	Housing & Community Development	____	Other: ____
____	Integrated Waste Management Board	____	Other: ____
X	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date _____ Ending Date _____

Lead Agency (Complete if applicable):

Consulting Firm: _____
Address: _____
City/State/Zip: _____
Contact: _____
Phone: _____

Applicant: California Department of Fish and Game
Address: 1701 Nimbus Rd. Suite A
City/State/Zip: Rancho Cordova, CA
Phone: (916) 358-2876

Signature of Lead Agency Representative: _____ Date: _____

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

December 3, 2009

Amanda Gonzales
California Department of Fish and Game
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670

Subject: Upper Butte Basin Wildlife Area Draft Land Management Plan (LMP)
SCH#: 2009112006

Dear Amanda Gonzales:

The State Clearinghouse submitted the above named Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on December 1, 2009, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Acting Director, State Clearinghouse

Enclosures
cc: Resources Agency

Notice of Determination

Form C

To:

☒ Office of Planning and Research

For U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Sacramento, CA 95814

☒ County Clerk

County of: Butte: 25 County Center Drive, Suite 105 Oroville, CA 95965-3375

Address: Glenn: 526 W. Sycamore Street, Willows, CA 95988

From:

Public Agency: CA Department of Fish and Wildlife

Address: 1701 Nimbus Rd. Suite A, Rancho Cordova, CA 95670

Contact: Ms. Tina Bartlett

Phone: (916) 358 - 2898

Lead Agency (if different from above):

Address:

Contact:

Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2009112006

Project Title: Upper Butte Basin Wildlife Area Land Management Plan

Project Location (include county): Butte and Glenn counties

Project Description:

The project is the adoption and implementation of the Upper Butte Basin Wildlife Area (UBBWA) Land Management Plan (LMP). The UBBWA consists of three units totaling more than 9,597 acres in both Butte and Glenn counties. UBBWA is a mosaic of seasonal wetland, permanent wetland, upland, riparian, and commercial rice habitats. These areas provide diverse and valuable wildlife habitat and public use programs, where appropriate. The LMP will guide the Department's management, planning, and operations of the UBBWA.

This is to advise that the CA Department of Fish and Wildlife has approved the above described project on

☒ Lead Agency or ☐ Responsible Agency

(Date) and has made the following determinations regarding the above described project:

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☐ were ☒ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☐ was ☒ was not] adopted for this project.
4. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
5. Findings [☐ were ☒ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at: Upper Butte Basin Wildlife Area Headquarters: 9256 Highway 162, Butte City, CA 92920

Signature (Public Agency) Tina Bartlett Title Regional Manager

Date 3/21/2014 Date Received for filing at OPR

RECEIVED
APR 01 2014
STATE CLEARING HOUSE

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2005

Document Details Report
State Clearinghouse Data Base

SCH#	2009112006
Project Title	Upper Butte Basin Wildlife Area Draft Land Management Plan (LMP)
Lead Agency	Fish & Game #2

Type	Neg Negative Declaration
Description	The project being proposed is the adoption and implementation of the Land Management Plan (LMP). The LMP will guide the Department's management, planning, and operations of the Upper Butte Basin Wildlife Area. The purpose of the LMP is to: 1. guide management of habitats, species, and programs; 2. serve as a guide for appropriate public uses of the property; 3. serve as a descriptive inventory of fish, wildlife, and native plant habitats; 4. provide an overview of the property's operation and maintenance and of the personnal requirements associated.

Lead Agency Contact

Name	Amanda Gonzales		
Agency	California Department of Fish and Game		
Phone	(916) 358-2876	*Fax*	
email			
Address	North Central Region 1701 Nimbus Road, Suite A		
City	Rancho Cordova	*State* CA *Zip* 95670	

Project Location

County	Butte, Glenn				
City	Chico				
Region					
Lat / Long	39° 27' 22" N / 122° 00' 44.2" W				
Cross Streets	SH 162				
Parcel No.	several				
Township	18,19N	*Range* 1E	*Section* 21-33	*Base*	MDB&M

Proximity to:

Highways	162
Airports	
Railways	
Waterways	Sacramento River, Butte Creek
Schools	
Land Use	Public wildlife area/agriculture

Project Issues	Agricultural Land; Archaeologic-Historic; Biological Resources; Geologic/Seismic; Landuse; Public Services; Soil Erosion/Compaction/Grading; Toxic/Hazardous; Vegetation; Water Quality; Wetland/Riparian
Reviewing Agencies	Resources Agency; Office of Historic Preservation; Department of Parks and Recreation; Central Valley Flood Protection Board; Department of Water Resources; California Highway Patrol; Caltrans, District 3; State Water Resources Control Board, Division of Water Quality; Department of Toxic Substances Control; Native American Heritage Commission; State Lands Commission

Date Received 11/02/2009 *Start of Review* 11/02/2009 *End of Review* 12/01/2009

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

DEPARTMENT OF TRANSPORTATION
DISTRICT 3
703 B STREET
P. O. BOX 911
MARYSVILLE, CA 95901-0911
PHONE (530) 741-4025
FAX (530) 741-4825
TTY (530) 741-4509

Flex your power!
Be energy efficient!

November 10, 2009

032009BUT0033
SR 162
Upper Butte Basin Wildlife Area LMP
SCH#2009112006

Mr. Armand Gonzales
California Department of Fish and Game
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670

Dear Mr. Gonzales:

Thank you for the opportunity to review and comment on the IS/ND for the Upper Butte Basin Wildlife Area Draft Land Management Plan (LMP), which will guide the Department of Fish and Game's management, planning, and operations in the area that includes State Route 162 in Butte County. Caltrans has the following comments:

All work proposed and performed within the State Right-of-Way must be in accordance with Caltrans' standards and require a Caltrans Encroachment Permit prior to commencing construction, surveying or other activities in the Right-of-Way. For more information on encroachment permits, the requirements, and an application form, please visit our web page at www.dot.ca.gov/doingbusiness and click on "Encroachment Permits" or contact the Caltrans District 3, Office of Permits at (530) 741-4403.

If you have questions or need additional information, please contact Rupinder Jawanda, Butte County IGR Coordinator, at (530) 740-4989 or e-mail at rupinder_jawanda@dot.ca.gov.

Sincerely,

SUKHVINDER (SUE) TAKHAR, Chief
Office of Transportation Planning – North

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

CENTRAL VALLEY FLOOD PROTECTION BOARD
3310 El Camino Ave., Rm. LL40
SACRAMENTO, CA 95821
(916) 574-0609 FAX: (916) 574-0682
PERMITS: (916) 574-0685 FAX: (916) 574-0682

December 1, 2009

Amanda Gonzales
California Department of Fish and Game
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670

Dear Mr. Gonzales:

State Clearinghouse (SCH) Number: 2009112006
Upper Butte Basin Wildlife Area Draft Land Management Plan (LMP)
Mitigated Negative Declaration

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

The proposed project is located within the jurisdiction of the Central Valley Flood Protection Board (Formerly known as The Reclamation Board). The Board is required to enforce standards for the construction, maintenance and protection of adopted flood control plans that will protect public lands from floods. The jurisdiction of the Board includes the Central Valley, including all tributaries and distributaries of the Sacramento River and the San Joaquin River, and designated floodways (Title 23 California Code of Regulations (CCR), Section 2).

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

- The placement, construction, reconstruction, removal, or abandonment of any landscaping, culvert, bridge, conduit, fence, projection, fill, embankment, building, structure, obstruction, encroachment, excavation, the planting, or removal of vegetation, and any repair or maintenance that involves cutting into the levee (CCR Section 6);

- Existing structures that predate permitting or where it is necessary to establish the conditions normally imposed by permitting. The circumstances include those where responsibility for the encroachment has not been clearly established or ownership and use have been revised (CCR Section 6);

- Vegetation plantings will require the submission of detailed design drawings; identification of vegetation type; plant and tree names (i.e. common name and scientific name); total number of each type of plant and tree; planting spacing and irrigation method that will be within the project area; a complete vegetative management plan for maintenance to prevent the interference with flood control, levee maintenance, inspection and flood fight procedures (CCR Section 131).

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

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

Sincerely,

James Herota
Staff Environmental Scientist
Floodway Protection Section

cc:

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

Don Blake
746 Co Rd 15
Orland, Ca.
95963

FISH & GAME REGION 2
2009 NOV 30 PM 2:07

Calif. Dept. Fish & Game
Region 2 NCR
Rancho Cordova, Ca.
11/26/09

Comments on the Upper Butte Basin Wildlife Area Management Plan.

There are major changes to the Public Use Portion of the New Management Plan without any reasons given for the change in direction this new plan takes in the hunt programs primarily on the LDC Unit

Old Plan	New Plan
50 hunters	70 hunters
No Refills	Refills
Open 2 days/week	Open 3 days/week
Provide a Quality Experience such as on a Duck Club.	Provide a quality Experience (Matches existing State hunt Prog.

These changes have created several Problems on LDC.
1. Failure to follow original Mgmt. Plan.
2. Reduction in Wetland Closed Zone acreage.
3. Increased Disturbance due to increased hunting.
4. Safety issues between hunters in Free Roam areas. (Fights, Verbal abuse, Threats, and accidental shootings)

It must be noted that the Hunt Programs for the LDC Unit and the H.S. Unit were different in the old Management Plan.

As the LDC & HS units evolved over time they both became primer wetland habitat and hunting Units. This successful management created problems from both the hunting clientele and the Duck Club community. As the Department tried to walk the tight Rope between these two segments of the hunting community but in so doing the direction to the hunt program at LDC changed. Now is the time to bring it back into focus.

2. Reduction in Closed Zone Wetland Acreage.
3. Increased Closed Zone Disturbance.

The addition of 10 blinds in the closed zone reduced the closed zone acreage and increased closed zone disturbance factors on the LDC unit. This has reduced the waterfowl holding capacity. This acreage reduction needs to be made up for and the only logical areas for this to maintain waterfowl numbers is in fields 109 & the west side of 110.

4. Hunter Ethics Issues on both LDC & H.S.

Both LDC and H.S. have major problems with hunter ethics within the Free Room areas of the hunt Program. This problem was resolved at Llano Seco by going to assigned fields.

The department ran a survey on the assigned field proposal for both LDC and HS but failed

to complete the tabulation and assessments of the results after promising to do so. There have been additional surveys done by C.W.A. covering the same issues. The ~~range~~ range data from all of the surveys show that over 70% of the hunters want change because of the unsafe conditions in the marsh.

The wardens and area personal have complained about the hunt program and its inability to ~~change with~~ adapt to the change in hunter ethics.

This Management Plan addresses the public laws that are already on the books which demand that the Department change its program due to its creation of a public nuisance and public liability. (Section IV-5)

These issues need to be addressed in the management plan in ~~the~~ PUG 1.1-8 & 6 and PUG-4. In addition these issues need to be identified in the sections of the Plan dealing with Regulations and within the safety section.

The major issue I have with this plan is that what it has addressed is fine but their is no priority given to dollars and what will actually be done. It promises absolutely nothing yet promises the world. When the Department won't address safety issues a program creates it is time to take the program authority from the Department. Your Hunt Program does not protect the public as LDC or U.S. St. Nicholas State laws.

If you won't bring your Public Hunting Program in line with Public Nuisance and Safety laws what assurance is there that you will follow your management plans.

Don Blake
716 CR 25
Orland, Calif.
95963

UBBWA NOD for LMP

We received three comments letters during the course of public review. The comments received during the public review period focused on two general areas; the first area related to obtaining appropriate permits and the second was public use.

We received letters from both the California Department of Transportation and the Central Valley Flood Protection Board. Both agencies commented about the need to obtain appropriate permits before projects are initiated.

1. We addressed this comment in two locations of the Draft LMP. In Chapter II, Property Description and Management Setting; Subsection D Easements and Rights-of-Way, page 9, both Agencies are listed as having jurisdiction over projects within their right-of way. Furthermore, in Chapter V; Management Goals, page 1, we state that "Additional permits; consultation and/or approval actions may also be required to approve specific future projects." We go on to list potential agencies in which additional project permits may be required before work can begin.

The second subject area of comment focused on hunting and public uses of Upper Butte Basin Wildlife Area.

1. We address this comment in two locations of Chapter IV Compatible Resource Management and Public Use, under subsection C; Public Use (page 5) we state "The Department continually evaluates the hunting program at UBBWA to determine whether its operation is consistent with the goals of the area and whether it is meeting the needs of the public." _Additionally we address this concern on page 9 subsection H Regulation Adjustments by stating "A review of the regulations by UBBWA management staff every three years coincides with the review cycle of the Fish and Game Commission and is appropriate to ensure the regulations remain current."

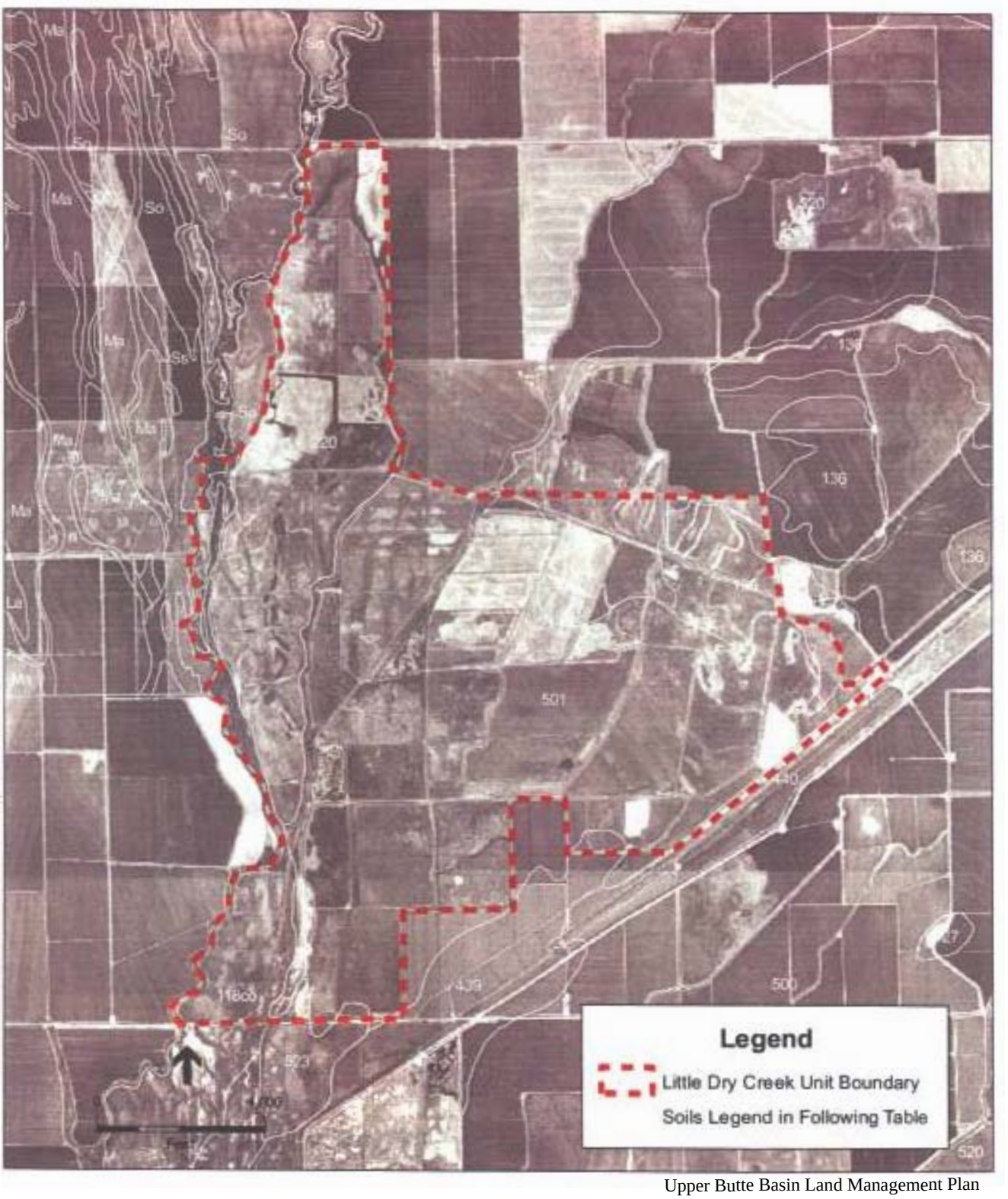
Appendix D
Soils at UBBWA

ESA

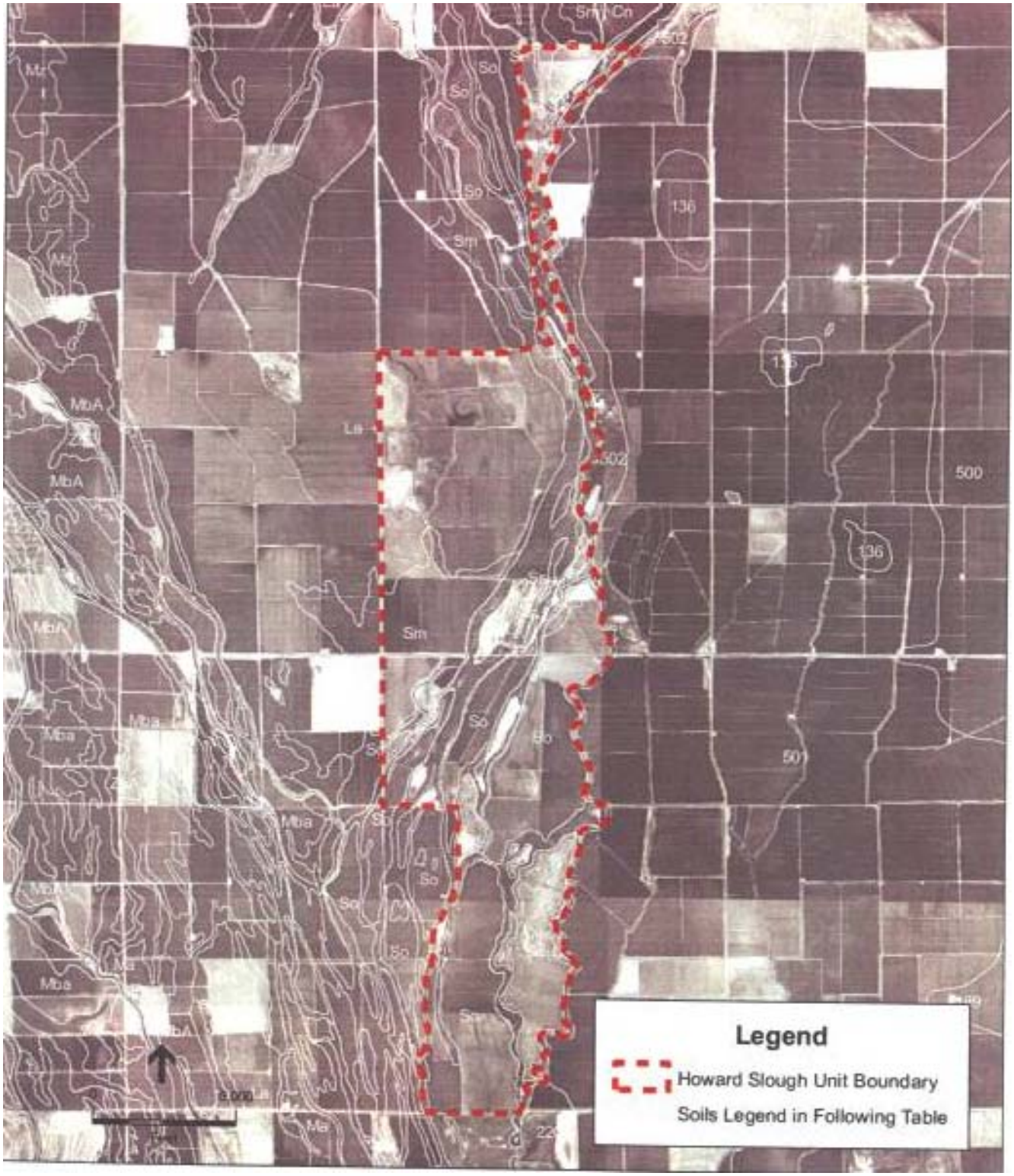
APPENDIX D
Soils at UBBWA

SOIL SURVEY LEGEND

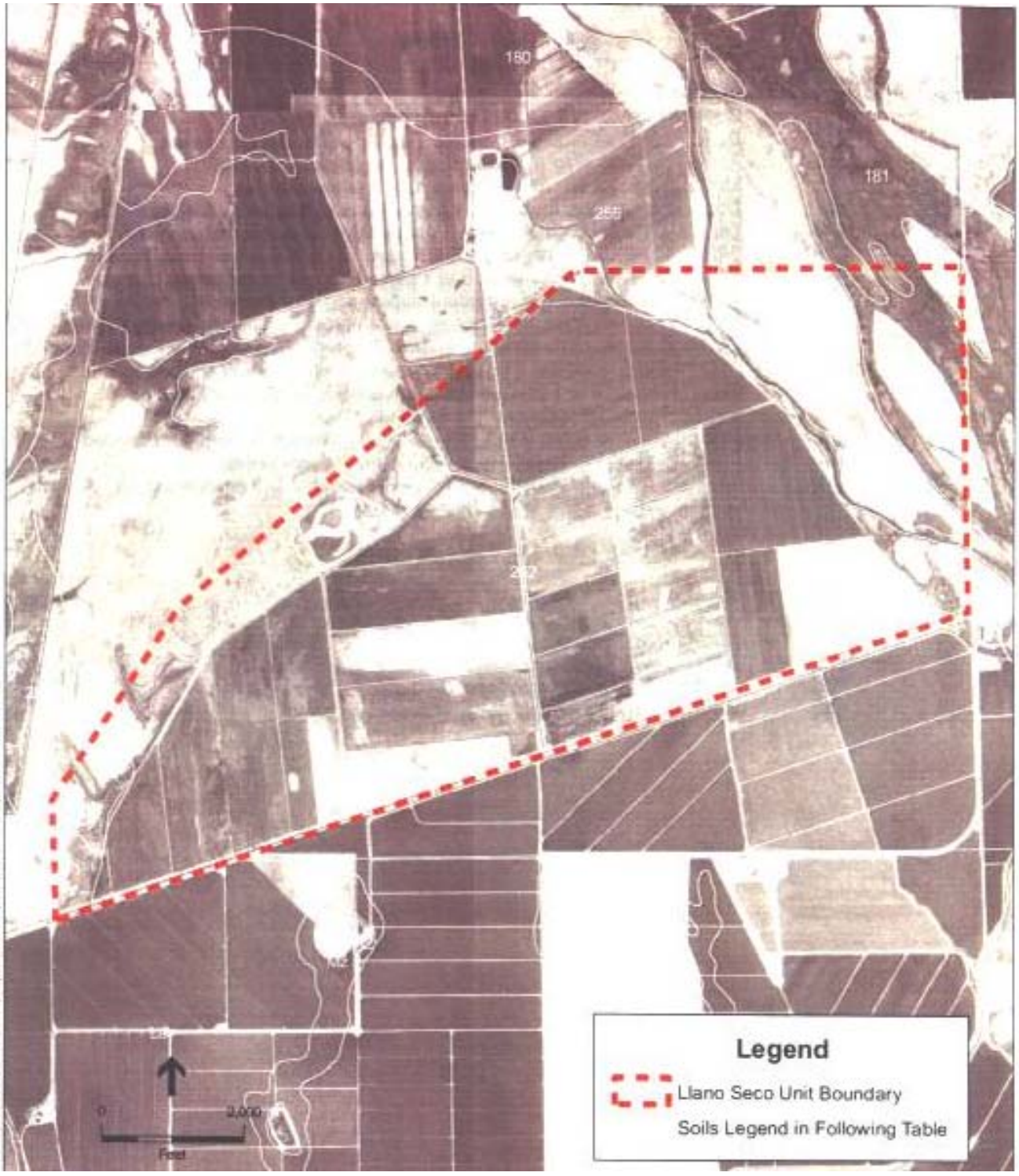
Symbol	Number of Acres	Soil Type
118	210	Clearlake clay, 0 to 2 percent slopes, frequently flooded
136	183	Duric xerarents-Eastbiggs complex, 0 to 1 percent slopes, leveled
177	152	Farwell silt loam, 0 to 1 percent slopes, occasionally flooded
179	6	Moda taxadjunct-Arbuckle complex, 0 to 2 percent slopes
181	65	Dodgeland silty clay loam, 0 to 1 percent slopes, frequently flooded
220	874	Esquon-Clearlake complex, 0 to 1 percent slopes, frequently flooded
252	1210	Whitecabin-Ordferry silty clays, 0 to 1 percent slopes, occasionally flooded
255	46	Whitecabin-Ordferry complex, 0 to 1 percent slopes, occasionally flooded
256	25	Whitecabin silt loam, 0 to 1 percent slopes, occasionally flooded
439	15	Oxyaquic xerofluvents clay, thermic, 0 to 1 percent slopes, frequently flooded
440	18	Oxyaquic xerofluvents silt loam, thermic, 0 to 1 percent slopes, frequently flooded
501	2147	Lofgren-Blavo complex, 0 to 1 percent slopes, occasionally flooded
502	3	Blavo silt loam, 0 to 1 percent slopes, overwash, occasionally flooded
520	227	Esquon-Neerdobe complex, 0 to 1 percent slopes
523	18	Esquon silty clay loam, 0 to 1 percent slopes, overwash, frequently flooded
Cn	1	Columbia silt loam, shallow over clay, 0 to 1 percent slopes
Co	199	Columbia silt loam, shallow over clay, channeled, 0 to 3 percent slopes
CwA	4	Corning gravelly loam, 0 to 2 percent slopes
La	999	Landlow clay
MbA	1	Marvin silty clay loam, 0 to 2 percent slopes
Rh	25	Riverwash
Sm	505	Stockton clay
Sn	50	Stockton clay, moderately deep
So	1578	Stockton clay, very deep
Sp	200	Stockton clay, deep, overflow
Sr	49	Stockton clay, moderately deep, overflow
Ss	451	Stockton clay, moderately deep, frequent overflow



Upper Butte Basin Land Management Plan
Appendix D-1 Soils Map
Little Dry Creek Unit



Upper Butte Basin Land Management Plan
Appendix D-2 Soils Map
Howard Slough Unit



Upper Butte Basin Land Management Plan
Appendix D-3 Soils Map
Llano Seco Unit

Appendix E

Plant Species Known to Occur on or Near the UBBWA

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APPENDIX E

Plant Species Known to Occur On or Near the UBBWA

PLANTS OF UBBWA

Scientific Name	Common Name
Azollaceae – Azolla Family	
Azolla	Duckweed Fern
Dicotyledones – Dicot Class	
Aceraceae – Maple Family	
Acer negundo L. var californicum	Box elder
Acer saccharinum L.	Silver maple
Amaranthaceae – Amaranth Family	
Amaranthus albus L.	Tumbleweed
Amaranthus blitoides	Prostrate amaranth
Amaranthus retroflexus L.	Red rooted amaranth
Anacardiaceae – Sumac Family	
Toxicdendron diversilobum	Poison oak
Apiaceae – Carrot Family	
Conium maculatum L.	Poison hemlock
Eryngium vaseyi	Coyote thistle
Foeniculum vulgare	Fennel
Perideridia kelloggii	Kellog's yampah
Apocynaceae – Dogbane Family	
Apocynum cannabinum L.	Indian hemp
Asclepiadaceae – Milkweed Family	
Asclepias fascicularis	Narrow leaved milkweed
Asclepias speciosa	Showy milkweed
Asteraceae – Sunflower Family	
Achyrachaena mollis	Blow wives
Ambrosia psilostachya	Western ragweed
Anthemis cotula L.	Mayweed
Artemisia douglasiana	Mugwort
Aster subulatus var. ligulatus	Annual saltmarsh aster
Baccharis pilularis	Coyote brush
Bidens frondrosa L.	Stick-tight
Centaurea solstitialis L.	Yellow star-thistle
Chamomilla occidentalis	Valley pineapple-weed
Chamomilla suaveolens	Common pineapple-weed
Cichprium intybus L.	Chicory
Cirsium vulgare	Bull thistle

PLANTS OF UBBWA

Scientific Name	Common Name
Euthamia ocidentalis	Western goldenrod
Gnaphalium luteo-album L.	Weedy cudweed
Gnaphalium palustre	Western marsh cudweed
Grindelia camporum var. camporum	Valley gumplant
Helianthus bolanderi	Bolander's sunflower
Hemizonia fitchii	Fitch's spikeweed
Hemizonia congesta ssp. Luzulifolia	Hayfield tarweed
Hemizonia parryi ssp. Rudis	Parry's spikeweed
Hemizonia pungens ssp. Septentrionalis	Common spikeweed
Hypochoeris glabra L.	Smooth cat's-ear
Lactuca saligna L.	Willow-leaved lettuce
Lactuca serriola L.	Prickly lettuce
Lasthenia glabrata ssp. Glabrata	Yellow-rayed goldfields
Picris echioides L.	Bristly ox-tongue
Psilocarpus brevissimus var. brevissimus	Dwarf woolly-marbles
Senecio vulgaris L.	Old-man-in-the-spring
Silybum marianum L	Milk-thistle
Sonchus asper ssp. Asper	Spiny-leaved sow-thistle
Xanthium strumarium L.	Cocklebur
Boraginaceae – Borage Family	
Amsinckia lycopsoides	Bugloss fiddleneck
Plagiobothrys canescens	Valley popcorn-flower
Plagiobothrys leptocladus	Alkali popcorn-flower
Plagiobothrys stipitatus var. stipitatus	Stalked popcorn-flower
Plagiobothrys stipitatus var. micranthus	Stalked popcorn-flower
Brassicaceae – Mustard Family	
Brassica nigra	Black mustard
Capsells bursa-pastoris	Shepard's purse
Cardamine oligosperma	Western bittercress
Hirschfeldia incana	Mediterranean hoary-mustard
Lepidium dictyotum var. acutidens	Sharp-toothed pepper-grass
Lepidium latifolium L.	Broad-leaved pepper-grass
Lepidium latipes var. latipes	Dwarf pepper-grass
Lapidium nitidum var. nitidum	Shining pepper-grass
Lepidium strictum	Upright pepper-grass
Raphanus raphanistrum L.	Jointed charlock
Rorippa curvisiliqua avr. orientalis	Western yellowcress
Rorippa palustris ssp. Occidentalis	Marsh yellowcress
Sibara viginica	Virginia winged-rockcress
Sinapis arvensis	Field charlock
Campanulaceae – Bellflower Family	
Downingia insignis	Harlequin downingia
Caryophyllaceae – Pink Family	
Cerastium glomeratum	Sticky mouse-eared chickweed
Sagina apetala	Dwarf pearlwort
Spergularia bocconei	Boccone's sandspurry

PLANTS OF UBBWA

Scientific Name	Common Name
Stellaria media	Common chickweed
Ceratophyllaceae – Hornwort Family	
Ceratophyllum demersum L.	Hornwort
Chenopodiaceae – Goosefoot Family	
Atriplex triangularis	Spearscale
Bassia hyssopifolia	Bassia
Chenopodium album L.	Lamb's-quarters
Chenopodium ambrosioides L.	Mexican-tea
Kochia californica	California summer-cypress
Convolvulaceae – Morning Glory Family	
Convolvulus arvensis L.	Bindweed
Crassulaceae – Stonecrop Family	
Crassula connata	Pigmyweed
Crassula tillaea	Mossy pigmyweed
Cucurbitaceae – Gourd Family	
Marah fabaceus var. agrestis	California manroot
Cuscutaceae – Dodder Family	
Cuscuta pentagona	Field dodder
Euphorbiaceae – Spurge Family	
Chamaesyce Serpyllifolia ssp. Serpyllifolia	Thyme-leaved spurge
Eremocarpus setigerus	Turkey-mullein
Fabaceae – Legume Family	
Astragalus tener var. ferrisiae	Ferris' milk-vetch
Glycyrrhiza lepidota	American licorice
Lathyrus jepsonii var. californicus	California pea
Lotus corniculatus L.	Bird's-foot trefoil
Lotus purshianus var. purshianus	Spanish lotus
Lupinus polycarpus	Small-flowered lupine
Lupinus succulentus	Succulent lupine
Medicago polymorpha L.	Common bur-clover
Melilotus alba	White sweet-clover
Melilotus indica	Indian sweet-clover
Trifolium fragiferum L.	Strawberry clover
Trifolium gracilentum var. gracilentum	Pinpoint clover
Trifolium hirtum	Rose clover
Vicia sativa L.	Garden vetch
Vicia villosa ssp. Villosa	Winter vetch
Vicia villosa ssp. Varia	Winter vetch
Quercus lobata	Valley oak
Fagaceae – Oak Family	
Erodium cicutarium L.	Red-stemmed filaree
Erodium moschatum L.	White-stemmed filaree
Geranium dissectum L.	Cut-leaved geranium
Juglandaceae – Walnut Family	
Juglans californica var. hindsii	Northern California black walnut
Lamiaceae – Mint Family	

PLANTS OF UBBWA

Scientific Name	Common Name
Lamium amplexicaule L.	Giraffhead
Lycopus americanus	Cut-leaved bugleweed
Mentha arvenis L	American wild mint
Pogogyne zizyphoroides	Sacramento valley pogogyne
Stachys ajugoides avr. rigida	Rigid hedge-nettle
Lythraceae – Loosestrife Family	
Lythrum hyssopifolia L	Hyssop loosestrife
Malvaceae – Mallow Family	
Hibiscus lasiocapus	California hibiscus
Malva nicaeensis	Bull mallow
Malva parviflora L	Little mallow
Malvella leprosa	Alkali-mallow
Molluginaceae – Carpetweed Family	
Mollugo verticillata L	Indian chick-weed
Moraceae – Mulberry Family	
Ficus carica L.	Edible fig
Morus alba L.	White mulberry
Oleaceae – Olive Family	
Fraxinus latifolia	Oregon ash
Onagraceae – Evening Primrose Family	
Epilobium brachycarpum	Tall annual willow-herb
Epilobium ciliatum ssp. Ciliatum	Fringed willow-herb
Epilobium densiflorum	Dense-flowered spike-primrose
Epilobium pygmaeum	Smooth spike-primrose
Ludwigia peploides ssp. peploides	Yellow waterweed
Plantaginaceae – Plantain Family	
Plantago coronopus L.	Cut-leaved plantain
Plantago lanceolata L.	English plantain
Polygonaceae – Buckwheat Fmily	
Polygonum arenastrum	Common knotweed
Polygonum hydropiperoides	Mild water-pepper
Polygonum lapathifolium L.	Willow-weed
Polygonum persicaria L.	Lady's thumb
Polygonum punctatum	Dotted smartweed
Rumex conglomerates	Green dock
Rumex crispus L.	Curly dock
Rumex dentatus L.	Toothed dock
Portulacaceae – Purslane Family	
Calandrinia ciliate	Redmaids
Primulaceae – Primrose Family	
Anagallis arvensis L.	Scarlett pimpernel
Ranunculaceae – Buttercup Family	
Myosurus minimus L.	Common mousetail
Ranunculus muricatus L.	Prickle-seeded buttercup
Rosaceae – Rose Family	
Rosa californica	California rose

PLANTS OF UBBWA

Scientific Name	Common Name
Rosa canina L.	Dog rose
Rubus discolor	Himalayan blackberry
Rubiaceae – Madder Family	
Cephalanthus occidentalis L. var. californicus	California button-willow
Salicaceae – Willow Family	
Populus fremontii ssp. Fremontii	Fremont's cottonwood
Salix exigua	Sandbar willow
Salix goodingii	Gooding's black willow
Salix laevigata	Red willow
Salix lasiolepis	Arroyo willow
Scrophulariaceae – Figwort Family	
Mimulus tricolor	Tricolored monkey-flower
Verbascum blattaria L.	Moth mullein
Veronica peregrine ssp. Xalapensis	Purslane speedwell
Verbenaceae – Vervain Family	
Phyla nodiflora var. nodiflora	Creeping lippia
Phyla nodiflora var. rosea	Rosy lippia
Verbena litoralis	Shore vervain
Vitaceae – Grape Family	
Vitis californica	California wild grape
Monocotyledones – Monocot Class	
Alismataceae – Water Plantain Family	
Alisma plantago-aquatica L.	Common water-plantain
Cyperaceae – Sedge Family	
Carex barbrae	Santa Barbara sedge
Carex densa	Dense sedge
Carex praegracilis	Clustered field sedge
Cyperus eragrostis	Tall cyperus
Eleocharis macrostachya	Common spike-rush
Scirpus acutus var. occidentalis	Hard-stemmed tule
Scirpus fluviatilis	River bulrush
Scirpus maritimus L.	Saltmarsh bulrush
Scirpus tuberosus	Tuberous bulrush
Iridaceae – Iris Family	
Sisyrinchium bellum	Blue-eyed grass
Juncaceae – Rush Family	
Juncus balticus var. mexicanus	Mexican rush
Juncus oxymeris	Pointed rush
Liliaceae – Lily Family	
Chlorogalum pomeridianum var. pomeridianum	Common soap-plant
Poaceae – Grass Family	
Agrostis avenacea	Avens bentgrass
Alopecurus carolinianus	Carolina foxtail
Arundo donax L.	Giant-reed
Avena barbata	Slender wild oat
Avena fatua L.	Wild oat

PLANTS OF UBBWA

Scientific Name	Common Name
Bromus diandrus	Ripgut brome
Bromus hordeaceus L.	Soft chess
Bromus madritensis L. ssp. Rubens	Red brome
Crypsis schoenoides	Swamp pricklegrass
Cynodon dactylon L.	Bermuda grass
Distichlis spicata L.	Saltgrass
Echninocloa crus-galli ssp. Trachycaulus	Slender wheatgrass
Eragrostis pilosa L. var. pilosa	Tufted lovegrass
Festuca arundinacea	Reed fescue
Hordeum brachyantherum ssp. Brachyantherum	Meadow barley
Hordeum marinum ssp. Gussoneanum	Mediterranean barley
Hordeum murinum L. ssp. Leporinum	Hare barley
Koeleria phleoides	Bristly Koeler's grass
Leersia oryzoides L.	Rice cutgrass
Leymus triticoides	Alkali ryegrass
Lolium multiflorum	Annual ryegrass
Paspalum dilatatum	Dallisgrass
Phalaris awuatica L.	Harding-grass
Phalaris brachystachys	Short-spiked canary-grass
Phalaris minor	Mediterranean canary-grass
Phalaris paradoxa L.	Paradox canary-grass
Poa annua L.	Annual bluegrass
Polypogon interruptus	Ditch beardgrass
Polypogon maritimus	Mediterranean beardgrass
Polypogon monspeliensis L.	Annual beardgrass
Sorghum halepense L.	Johnsongrass
Vulpia Myuros L. var. myuros	Rattail fescue
Potamogetonaceae – Pondweed Family	
Potamogeton	Pondweed
Typhaceae – Cattail Family	
Typha domingensis	Narrow-leaved cattail
Typha latifolia L.	Broad-leaved cattail

Appendix F

Special Status Species Known to Occur or or Near the UBBWA

ESA

APPENDIX F

Special Status Species Known to Occur On or Near UBBWA

List of Potentially Affected Special Status Species

The "Potential for Species to Occur" category is defined as follows:

> **None/Unlikely:** The project site and/or immediate area does not support suitable habitat for a particular species. Alternatively, the project site is outside of the species known range. None is indicated for species with little dispersal capacity while Unlikely is indicated for species with moderate to large dispersal capacity.
>
> **Low Potential:** The project site and/or immediate area only provides limited habitat for a particular species. In addition, the known range for a particular species may be outside of the project area.
>
> **Medium Potential:** The project site and/or immediate area provides suitable habitat for a particular species.
>
> **High Potential:** The project site and/or immediate area provides ideal habitat conditions for a particular species. Species is known to occur within the project area.

Species that have medium or high potential to be impacted by the proposed project are shown in **boldface** type.

TABLE F-1
SPECIAL STATUS SPECIES THAT MAY OCCUR IN THE PROJECT AREA

Scientific Name Common Name	Status: Federal/State/CNPS	General habitat	Potential for Species to Occur
Invertebrates			
Branchinecta conservatio Conservancy fairy shrimp	FE/--/--	Lifecycle restricted to large, cool-water vernal pools with moderately turbid water.	High. Vernal pool habitat is present on the Llano Seco Unit.
Branchinecta lynchi Vernal pool fairy shrimp	FT/--/--	Lifecycle restricted to vernal pools.	High. Vernal pool habitat is present on the Llano Seco Unit.
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT/--/--	Breeds and forages exclusively on elderberry shrubs (*Sambucus mexicana*) below 3,000 feet. Occurs only in the Central Valley of California.	**High.** Species is known from the Howard Slough Unit.
Lepidurus packardi Vernal pool tadpole shrimp	FE/--/--	Lifecycle restricted to vernal pools.	High. Vernal pool habitat is present on the Llano Seco Unit.
Linderiella occidentalis California linderiella	--/--/--	Lifecycle restricted to vernal pools.	High. Vernal pool habitat is present on the Llano Seco Unit.
Amphibian			
Ambystoma californiense California tiger salamander	FE, FT/CSC/--	Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Needs underground refuges and vernal pools or other seasonal water sources.	Low. Only known regional occurrence for this species is Gray Lodge Wildlife Area.
Rana aurora draytonii California red-legged frog	FT/CSC/--	Breeds in slow moving streams, ponds, and marshes with emergent vegetation forages in nearby uplands within about 200 feet.	Low. Streams are present within the Project Area, but breeding habit is limited due to the large number of bullfrogs present.
Reptiles			
Emys (=Clemmys) marmorata marmorata Northwestern pond turtle	--/CSC/--	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat for egg-laying. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	**High.** Species is known from the Little Dry Creek Unit.
Thamnophis gigas Giant garter snake	FT/ST/--	Generally inhabits marshes, sloughs, ponds, slow-moving streams, ditches, and rice fields that have water from early spring until mid-fall. Emergent vegetation (cattails and bulrushes), open areas for sunning and high ground for hibernation and cover.	**High.** Species is known from all three Units.
Birds			
Agelaius tricolor Tricolored blackbird	--/CSC/--	Largely endemic to California, most numerous in the Central Valley and nearby vicinity. Typically requires open water, protected nesting substrate, and foraging grounds within vicinity of the nesting colony. Nests in dense thickets of cattails, tules, willows.	**High.** Species is known from the Llano Seco and Howard Slough Units.
Ardea alba Great egret	--/--/--	Fresh and salt marshes, marshy ponds, and tidal flats, nests in trees or shrubs.	**High.** Species is known from the Gray Lodge and Upper Butte Basin Wildlife Areas.
Ardea herodias Great blue heron	--/--/--	Groves of tall trees, especially near shallow water foraging areas such as marshes, tide-flats, lakes, rivers/streams and wet meadows.	**High.** Species is known from the Gray Lodge and Upper Butte Basin Wildlife Areas.

Scientific Name Common Name	Status: Federal/State/CNPS	General habitat	Potential for Species to Occur
Athene cunicularia Burrowing owl	--/CSC/--	Forages in open plains, grasslands, and prairies; typically nests in abandoned small mammal burrows.	**High.** Species is known from the Llano Seco Unit.
Branta hutchinsii (=canadensis) leucopareia Aleutian Canada goose	FDelist/--/--	Feeds in emergent wetlands, moist grasslands, croplands, pastures and meadows near water.	**High.** Species is known from the Gray Lodge and Upper Butte Basin Wildlife Areas.
Buteo swainsoni Swainson's hawk	--/ST/--	Forages in open plains, grasslands, and prairies typically nests in trees or large shrubs.	**High.** Species is known from the Little Dry Creek and Howard Slough Units.
Circus cyaneus Northern harrier	--/CSC/--	Nests in wet meadows and tall grasslands, forages in grasslands and marshes.	**High.** Species is known from the Gray Lodge and Upper Butte Basin Wildlife Areas.
Coccyzus americanus occidentalis Western yellow-billed cuckoo	FC/SE/--	Nests in densely foliaged deciduous trees and shrubs especially willow, in broad riparian forest.	**High.** Species is known from the Llano Seco and Howard Slough Units.
Grus canadensis tabida Greater sandhill crane	--/ST, CFP/--	Open habitats, shallow lakes, and emergent wetlands. In winter also uses dry grasslands and croplands near wetlands.	**High.** Species is known from the Gray Lodge and Upper Butte Basin Wildlife Areas.
Haliaeetus leucocephalus Bald eagle	FDelist, FT/SE/--	Nests in large trees with open branches along lake and river margins, usually within one mile of water.	**High.** Species is known from the Gray Lodge and Upper Butte Basin Wildlife Areas.
Laterallus jamaicensis coturniculus California black rail	--/ST, CFP/--	Freshwater, brackish, or tidal salt marshes.	**High.** Species is known from the Little Dry Creek Unit.
Pandion haliaetus Osprey	--/CSC/--	Builds large platform stick nests near fish-bearing water. Feeds primarily on fish in open waters of lakes, estuaries, bays, reservoirs, and within the surf zone.	**High.** Species is known from the Gray Lodge and Upper Butte Basin Wildlife Areas.
Riparia riparia Bank swallow	--/ST/--	Banks of rivers, creeks, lakes, and seashores nests in excavated dirt tunnels near the top of steep banks.	Low. Appropriate nesting habitat is not known to be present in the Project Area.
Mammals			
Lasionycteris noctivagans Silver-haired bat	--/--/--	Summer habitats include coniferous forests, woodlands, and riparian habitats. Roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark. Needs drinking water.	**Medium.** Species may use the Project Area for foraging.
Taxidea taxus American badger	--/CSC/--	Occurs in a wide variety of open forest, shrub, and grassland habitats that have friable soils for digging.	**High.** Species is known from the Howard Slough Unit.
Fishes			
Hypomesus transpacificus Delta smelt	FT/ST/--	Open surface waters in the Sacramento/San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Found in Delta estuaries with dense aquatic vegetation and low occurrence of predators. May be affected by downstream sedimentation.	None. Project Area is not within the known range of this species.
Oncorhynchus mykiss Steelhead - Central Valley ESU	FT/--/--	This ESU enters the Sacramento and San Joaquin Rivers and their tributaries from July to May; with spawning from December to April. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	**High.** Species is known from Butte Creek.

Scientific Name Common Name	Status: Federal/State/CNPS	General habitat	Potential for Species to Occur
Oncorhynchus tshawytscha Chinook Salmon - Central Valley Fall / Late Fall-Run ESU	--/CSC/--	This ESU enters the Sacramento and San Joaquin rivers and their tributaries from July to April; with spawning October to February. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	**High.** Species is known from Butte Creek.
Oncorhynchus tshawytscha Chinook Salmon Winter Run	FE/SE/--	This ESU enters the Sacramento River December to May; spawning peaks May and June. Upstream movement occurs more quickly than in spring run population. Young move to rearing areas in and through the Sacramento River, Delta, and San Pablo and San Francisco Bays.	Unlikely. Project Area is not within the known range of this species.
Oncorhynchus tshawytscha Spring-Run Chinook Salmon	FT/ST/--	This ESU enters the Sacramento and San Joaquin Rivers and tributaries March to July; spawning from late August to early October. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	**High.** Species is known from Butte Creek.
Plants			
Astragalus tener var. *ferrisiae* Ferris's milk-vetch	--/--/1B.1	Annual herb occurring in vernally mesic meadow and seeps, and sub alkaline flats in valley and foothill grasslands. Blooms Apr-May. 5-75 meters elevation.	**High.** Species is known from the Little Dry Creek Unit.
Atriplex cordulata Heartscale	--/--/1B.2	Chenopod scrub, alkali seasonal wetlands, and grassland. Often found in the sandy soils of alkaline flats and scalds in the Central Valley. Blooms Apr-Oct.	Low. Habitat for this species is marginal in the Project Area.
Atriplex depressa Brittlescale	--/--/1B.2	Generally found in chenopod scrub, alkali seasonal wetlands and grassland, meadows and playas. Blooms May-Oct.	Low. Habitat for this species is marginal in the Project Area.
Atriplex minuscule Lesser saltscale	--/--/1B.1	Annual herb occurring in chenopod scrub, playas, and in valley and foothill grassland with sandy, alkaline substrate. Found at 15-200 meters elevation. Blooms May-Oct.	Low. Habitat for this species is marginal in the Project Area.
Atriplex subtilis Subtle orache	--/--/1B.2	Valley and foothill grassland up to 400 feet in elevation.	Low. Habitat for this species is marginal in the Project Area.
Carex vulpinoidea Fox sedge	--/--/2.2	Perennial herb occurring in freshwater marshes and swamps, and in riparian woodland. Found at elevations 30-1200 meters and blooms May-June.	**Medium.** Appropriate habitat is present for this species in the Project Area.
Castilleja rubicundula ssp. *rubicundula* Pink creamsacs	--/--/1B.2	Annual herb occurring in open areas of chaparral, in cismontane woodland, in meadows and seeps, and on serpentinite substrate in valley and foothill grassland. Found at 20-900 m elevation. Blooms Apr-Jun.	None. Habitat for this species is not present on the Project site.
Centromadia parryi spp. *parryi* Pappose tarplant	--/--/1B.2	Vernally mesic, often alkaline sites in coastal prairies, meadows and seeps, coastal salt marshes, and valley and foothill grasslands. 2-420m.	Low. Habitat for this species is marginal in the Project Area.
Cordylanthus palmatus Palmate-bracted bird's beak	FE/SE/1B.1	Prefers marshes and swamps, lake margins, alkaline vernal pools and wet places. Blooms May-Oct.	Low. Habitat for this species is marginal in the Project Area.
Delphinium recurvatum Recurved larkspur	--/--/1B.2	Perennial herb occurring in chenopod scrub, cismontane woodland, and in alkaline substrate in valley and foothill grassland. Found at 3-750 meters elevation. Blooms Mar-May.	Low. Habitat for this species is marginal in the Project Area.

Scientific Name Common Name	Status: Federal/State/CNPS	General habitat	Potential for Species to Occur
Erodium macrophyllum Round-leaved filaree	--/--/2.1	Generally found in Valley grasslands and foothill woodlands, 0-3937 feet in elevation. Blooms Mar-May.	Low. Habitat for this species is marginal in the Project Area.
Fritillaria pluriflora Adobe-lily	--/--/1B.2	Bulbiferous herb occurring in chaparral, cismontane woodland, and valley and foothill grassland, often on adobe or serpentine substrate. Blooms Feb-Apr. 65-705 meters elevation.	None. Habitat for this species is not present on the Project site.
Hibiscus lasiocarpus Rose-mallow	--/--/2.2	Prefers freshwater marshes and swamps. Blooms Jun-Sep. 0-120 meters.	**High.** Species is known from the Howard Slough and Little Dry Creek Units.
Juncus leiospermus var. *ahartii* Ahart's dwarf rush	--/--/1B.2	Annual herb occurring in mesic valley and foothill grasslands. Found at 30-100 meters elevation. Blooms March-May.	None. Habitat for this species is not present on the Project site.
Juncus leiospermus var. *leiospermus* Red Bluff dwarf rush	--/--/1B.1	Annual herb occurring in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and in vernally mesic vernal pools. Found at 35-1020 m elevation. Blooms March-May.	None. Habitat for this species is not present on the Project site.
Limnanthes floccosa ssp. *californica* Butte County meadowfoam	FE/SE/1B.1	Annual herb occurring in mesic valley and foothill grassland and vernal pools. Found at 50-930 m elevation. Blooms March-May.	None. Habitat for this species is not present on the Project site.
Navarretia leucocephala spp. *bakeri* Baker's navarretia	--/--/1B.1	Annual herb occurring in cismontane woodland, lower montane coniferous forest, meadows and seeps, Valley and foothill grassland, and vernal pools. Blooms May-Jul. 15-1740 meters elevation.	Low. Habitat for this species is marginal in the Project Area.
Neostaphia colusana Colusa grass	FT/SE/1B.1	Found in the bottoms of large, deep vernal pools. Blooms May-Aug.	None. Habitat for this species is not present on the Project site.
Sagittaria sanfordii Sanford's arrowhead	--/--/1B.2	Found in assorted freshwater habitats including marshes, swamps, and seasonal drainages. Blooms May-Oct.	**Medium.** Appropriate habitat is present for this species in the Project Area.
Trifolium jokerstii Butte County golden clover	--/--/1B.2	Annual herb occurring in mesic valley and foothill grassland and in vernal pools. Found at 50-385 m elevation. Blooms April-May.	None. Habitat for this species is not present on the Project site.
Tuctoria greenei Greene's tuctoria	FE/SR/1B.1	Occurs under vernally-flooded conditions in vernal-pool habitats.	None. Habitat for this species is not present on the Project site.
Wolffia brasiliensis Columbian watermeal	--/--/2.3	Shallow freshwater marshes. 30-100m.	**High.** Species is known from the Llano Seco Unit.

Sources: CDFG (2003); CNDDB (2006); CNPS (2006); USFWS (2006).

Status Codes

Federal			State		
FE	=	Endangered	SE	=	Endangered
FT	=	Threatened	ST	=	Threatened
FPE	=	Proposed Endangered	SR	=	Rare
FPT	=	Proposed Threatened	SFP	=	Fully Protected
FC	=	Candidate	CSC	=	California Department of Fish and Game Special Concern species

California Native Plant Society

List 1B	=	Plants rare, threatened, or endangered in California and elsewhere
List 2	=	Plants rare, threatened, or endangered in California, but more common elsewhere
List 3	=	Plants about which we need more information--a review list
List 4	=	Plants of limited distribution--a watch list