# Grasslands Wildlife Management Area Proposed Expansion

*Environmental Assessment, Land Protection Plan and Conceptual Management Plan*

San Luis National Wildlife Refuge Complex
Merced County, California

Prepared by:

U.S. Fish and Wildlife Service
Region 1
Portland, Oregon

U.S. Fish and Wildlife Service
2800 Cottage Way
Sacramento, California 95825
916-414-6502

October 2002

"The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired, in value."

- Theodore Roosevelt (1858-1919), 26th President of the United States

"If in the human economy, a squash in the field is worth more than a bushel of soil, that does not mean that food is more valuable than soil; it means simply that we do not know how to value the soil. In its complexity and its potential longevity, the soil exceeds our comprehension; we do not know how to place a just market value on it, and we never learn how. Its value is inestimable; we must value it, beyond whatever price we put on it, by respecting it."

- Wendell Berry, Home Economics, 1995

Table of Contents

## Figures

# CHAPTER 1

# PURPOSE OF AND NEED FOR ACTION

## 1.1 Background

California's Central Valley consists of the Sacramento Valley in the north and the San Joaquin Valley in the south. Historically, the San Joaquin Basin's major wetland areas were found east and west of the San Joaquin River, presently in the general vicinity of the cities of Los Banos and Merced. Overflow wetlands were associated with the San Joaquin, Fresno, Chowchilla, Merced, Tuolumne, and Stanislaus Rivers which are the major drainages of this basin. Flood waters created an extensive wetland habitat consisting of permanent lakes, sloughs, ponds and marshes as well as seasonal wetlands. Most of this habitat has been lost to agriculture.

The area with the most significant marshes remaining is termed the "Grasslands". This area is divided into the West and East Grasslands with the San Joaquin River as the dividing line. The Grasslands Wildlife Management Area (WMA) was established by the U.S. Fish and Wildlife Service (Service) to protect highly valuable and declining wetlands of California's San Joaquin Valley. Land within the WMA is privately owned and protected by conservation easements. Daily management of the easement area remains under private landowner control, the majority of the properties being managed for waterfowl hunting, cattle grazing and small grain agriculture. The 36,550-acre, eastern division of the Grasslands WMA, was established in 1986 to complement the management of the adjoining San Luis and Merced National Wildlife Refuges, and assist in achieving goals for recovery of migratory waterfowl in North America's Pacific Flyway and federally listed threatened or endangered species. The western division of the Grasslands WMA consists of approximately 33,343 acres and was established in 1979.

Since establishment of the Grasslands WMA, conversion of California's valuable Central Valley pasture land (grasslands) and wildlife habitat has accelerated, threatening the existence of many San Joaquin Valley wildlife species. The *Recovery Plan for Upland Species of the San Joaquin Valley, California* (1998), has identified the area to the east of the existing WMA as an area essential to recovery of threatened and endangered species including the San Joaquin kit fox and blunt-nosed leopard lizard. This same area is recognized in the Central Valley Habitat Joint Venture and the *North American Waterfowl Management Plan.* for its international importance in the life cycle of migratory waterfowl and shorebirds of North America's Pacific Flyway. This area also provides important habitats for several priority species listed in the Fish and Wildlife Service's list of Birds of Conservation Concern (USFWS, in prep).

Development is continuing at a steady pace, with a new campus of the University of California scheduled for Merced County, and with it, an associated population increase, including a projected student population of 25,000. The San Joaquin Valley Region ranked second in the growth of new urban land during 1996-1998 period, with Merced County losing 2,566 acres of farmland during the

1998-2000 period, 2,154 acres during the 1996-1998 period, 2,203 acres during the 1994-1996 period, and 1,393 acres during the 1992-1994 period. Conversion of wildlife compatible crops to orchards, dairies, poultry farms, fish farms and vineyards is also occurring at a relatively rapid pace in the grasslands. Loss of the area's native habitat may be contributing to the continued decline of the region's migratory waterfowl and shorebird populations, landbirds, Birds of Conservation Concern, and threatened and endangered species.

## 1.2 Proposed Action

In light of the valuable resources in the grasslands area and continuing threats to these resources, the Service proposes to expand the eastern division of the Grasslands WMA. The expanded WMA would include between 13,800 and 49,000 additional acres. This proposed expansion would allow the Service to conserve, protect, and restore native grasslands, vernal pools, riparian corridors and wildlife compatible crops through purchase of perpetual conservation easements. The Service does not anticipate, nor propose fee-title acquisition at this time for the project study area, but fee title-protection could be considered further in the future should some unforseen event necessitate additional protection beyond the proposed conservation easements. Conservation of these habitats and their associated species would be a cooperative responsibility between the Service and landowners.

The proposed expansion of the Service's easement program for protection of the wildlife habitat of Merced County's Grasslands Ecological Area is consistent with previous wildlife conservation plans, including:

- ❑ *East Grasslands Wildlife Management Area Land Protection Plan, Environmental Assessment* (1985)
- ❑ *Recovery Plan for Upland Species of the San Joaquin Valley* (1998)
- ❑ Central Valley Habitat Joint Venture and the *North American Waterfowl Management Plan*.
- ❑ U. S. Shorebird Conservation Plan's *Southern Pacific Coast Regional Shorebird Plan* (2000).
- ❑ California Partners in Flight, Draft Grassland *Bird Conservation Plan* (2000).
- ❑ California Riparian Habitat Joint Venture's, The Riparian Bird Conservation Plan (2000).

This expansion of the existing WMA would help achieve the conservation goals outlined in the plans listed above, as it assists in the recovery of migratory waterfowl populations, and helps to stem the continued decline of several priority bird species recognized by Partners in Flight, the U.S. Shorebird Conservation initiative, and the North American Waterbird Conservation initiative. Expansion will also extend protection of valuable wetlands, and assist with protection of resident threatened and endangered species within the project study area.

The study area is located east of the existing Grasslands WMA and Merced National Wildlife Refuge in the heart of Merced County and the northern San Joaquin Valley, California. Three towns frame the proposed easement areas, Merced, Chowchilla, and Los Banos, California. Smaller agricultural

communities in the region include El Nido, Dos Palos, and Atwater. Expansion of the WMA would provide nearly continuous land protection between Interstate Highway 5 to the west and State Highway 99 on the eastern boundary of the study area (see Figure 1). The Land Protection Plan (Appendix A) includes a list of properties proposed for inclusion in an expanded WMA.

## 1.3 Purpose For Action

The purpose of the proposed action is to 1) expand protection and management of the existing Grasslands WMA to include key habitats for migratory waterfowl, shorebirds, landbirds, and several endangered, threatened, and rare species; 2) maintain the high biological diversity of Merced County's native grasslands and vernal pools; and 3) establish a protected wildlife corridor across a portion of California's Central Valley.

This conservation easement program is designed to benefit both the agricultural community by protecting agricultural land uses, and benefit the American people by expanding the existing WMA to include increased habitat for migratory waterfowl populations, shorebirds, landbirds of North America's Pacific Flyway and threatened and endangered species. The proposed expansion of the WMA would represent an important contribution by the Service to conserve the rich and varied natural resources of Merced County's native grasslands (savanna) and vernal pools for the continuing benefit of the American people through a perpetual conservation easement program. The National Audubon Society has listed the entire Grasslands area as an "Important Bird Area," and the Grasslands Water District, the California Department of Fish and Game and the Fish and Wildlife Service have nominated the Grasslands area as an "Internationally Important Wetland" under the Ramsar Convention. These grasslands have also been designated of International importance by the Western Hemisphere Shorebird Reserve Network.

The study area and greater grasslands' region supports diverse wildlife habitats including declining native California savanna, rare vernal pools, and riparian corridors along a network of sloughs and creeks. These habitats support numerous federally listed threatened and endangered species on a year-round or seasonal basis including: four freshwater invertebrate species, populations of the San Joaquin kit fox and blunt-nosed leopard lizard. The grasslands provide wintering forage for 500,000 to one million migratory waterfowl annually, and provide stopover and wintering habitat for over 100,000 migratory shorebirds annually. It is also important habitat for several other priority bird species. Perpetual conservation easements on farmland utilizing wildlife compatible crops allow should for wildlife and the farming community to benefit mutually. Protection of the area under study would also contribute to maintenance of one of the few remaining wildlife corridors across California's Central Valley. The residents of and visitors to the region would benefit from protection and management of these diverse wildlife habitats, abundant wildlife and the scenic open space of Merced County.

## 1.4 Decisions To Be Made

This Environmental Assessment (EA) has been prepared to assist the Service's planning and decision

making regarding the proposed expansion of the Grasslands WMA. The two action alternatives are designed to accomplish Service planning objectives and goals for assisting with the recovery of migratory waterfowl populations, shorebirds and landbirds of North America's Pacific Flyway, protection of valuable wetlands, and assist with the recovery of resident threatened and endangered species within the project study area. These alternatives differ primarily with regard to the size of the area to be protected.

In the EA is an evaluation of alternatives and description of the environmental effects of expanding the approved boundary of the Grasslands WMA for conserving native grasslands, vernal pools, riparian stream corridors, and their dependent flora and fauna. The Service's initial proposal, now referred to as Alternative 2, focused on an approximately 13,800-acre study area east of the existing WMA, comprised primarily of native grasslands and vernal pools. Based on public input received during a public scoping period, Alternative 3 was developed to expand upon Alternative 2, and connect blocks of native grassland and vernal pool areas by including wildlife compatible crop lands and riparian corridors along the sloughs and creeks within the study area. By adding these compatible crop lands and riparian properties, the Service is seeking to establish a more contiguous wildlife corridor across the study area.

Major impact topics assessed for each alternative include: protection of biological resources; land ownership and property values; potential effects to tax revenues; urban development and agricultural conversion; and public use. All action alternatives have received an equal level of analysis.

Based on the analysis documented in this Environmental Assessment, the following decisions will be made by the California/Nevada Operations Manager of the Service:

1. Determine whether or not the Service should expand the Grasslands WMA. If so,

2. Select an approved expanded boundary which best fulfills the purposes for expanding the WMA based on the analysis in this Environmental Assessment. And,

3. Determine whether the selected alternative would have a significant impact upon the quality of the human environment.

The authorities for this protection effort are the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715-715d, 715e,715f-715r) and Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754). The Migratory Bird Conservation Act established the Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds. The Fish and Wildlife Act authorizes the Service to use funds made available under the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601-4611) to acquire lands, waters, or interests therein for fish, wildlife, and plant conservation purposes.

## 1.5 Issues Identified and Selected for Analysis

### 1.5.1 Public Scoping and Issues Identification

The *Proposed East Grasslands Wildlife Management Area Expansion Planning Update #1* was mailed to more than 250 individuals and organizations with an interest in the grasslands' region in mid-November, 1998. Landowners within the preliminary study area were also contacted through individual notification letters. On December 9, 1998, the Service hosted a two-hour public workshop in Merced, California to present the Service's preliminary proposal and receive public comment. Public comment workbooks were provided to all participants to facilitate public input. The public was notified of the workshop through both direct mailing of planning updates and news releases throughout central and northern California.

The Service received comments from landowners, agencies, community, organizations, and interested citizens during the public scoping period in late 1998 and early 1999. Based on this public comment and feedback, the Service identified biological, social, and economic concerns that were considered in preparing the draft *Environmental Assessment and Land Protection Plan for the Expanded Grasslands Wildlife Management Area.*

The Service also determined that there was substantial interest on the part of landowners, the scientific community, and environmental organizations to expand the study area from the then 13,800-acre study area to a 49,300-acre area. Landowners outside the initial study area wanted the opportunity to participate in the Service's conservation easement program and notified the Service of important wildlife attributes on their individual properties. The scientific and environmental community provided the Service with evidence indicating important vernal pool complexes, grasslands, riparian corridors and agricultural lands would not be adequately protected under the 13,800 acre fragmented study area.

The Service therefore sought approval of the Service's Director in Washington, D.C. to expand the study area to approximately 49,300 acres. The Director granted the approval to study this larger area in the spring of 2000. The Service then issued a second planning update and news release to the public inviting interested individuals, agencies, and organizations to participate in public scoping for the larger study area. A public workshop was held in Merced, California on September 6, 2000, where verbal and written comments were recorded. The Service also received written public comment by the mail and via electronic mail. A third planning update has since been sent in March 2002, using the previous mailing list.

### 1.5.2 Issues to be Addressed

Major issues identified by the Service in the planning and public involvement process were selected for analysis within this EA. Of particular focus for the EA were social and economic issues related to land ownership, property taxes, and public use; wildlife conservation issues such as protecting wildlife habitat and movement corridors from urban and agricultural development; and physical environment concerns such as preservation of open space and vernal pools. The Service reviewed all of the comments received during the public scoping period for relevance in development of this EA. Based on the public involvement process, the following issues were considered in preparing the EA.

#### 1.5.2.1 Physical and Biological Issues

The issues described below have been addressed when the Service added Alternative 3 as an option:

*Creek and Slough Protection* - Environmental groups and wildlife biologists were concerned that creeks and sloughs of the study area were declining and not protected from alteration and development.

*Small Grain Agriculture and Pasture Land* - Several landowners suggested that additional agricultural lands such as small grain agriculture and irrigated pasture lands should be included within the study area because these lands provide important wildlife benefits.

*Vernal Pool Protection* - Environmental groups and wildlife biologists were concerned that several areas containing important vernal pool habitats were not included within the preliminary study area and suggested that the study area be expanded to include these physical features.

*Wildlife Corridor Protection and Restoration* - Several individuals suggested that the existing creeks and sloughs should be included in the protected area to connect blocks of native grasslands and vernal pools. Several individuals recommended that riparian habitat along the areas creeks and sloughs be restored along their length to provide a more viable wildlife corridor across the study area.

*Habitat Protection* - Conservation groups and individuals believed that there is a need to expand the WMA to include larger contiguous blocks of habitats capable of protecting the regions' biological diversity and endangered and threatened species. Conservation groups also supported expanding the WMA to protect the study area from urban development and conversion to more intensive agricultural uses and to aid in the recovery of endangered and threatened species.

#### 1.5.2.2 Social and Economic Issues

*Land Ownership* - Landowners wanted to know if private lands located within the planning area or approved WMA boundaries would be subject to additional government regulation and zoning. Landowners were concerned that their land would be more difficult to sell or be devalued within or adjacent to the planning area or approved expanded boundary. Property owners also wanted to know if the Service would use condemnation to purchase properties and expressed interest in knowing more

about the Service's willing seller policy. For further discussion of zoning and regulations, please see sections 2.3.1 and 2.3.2 and Appendix A - Land Protection Plan. The Service has no intention of using condemnation to expand the WMA.

*Property Taxes* - Citizens want to know if lands protected by the Service's conservation easement program would be removed from the county tax rolls. Lands protected by a Service Conservation easement would not be removed from the county's tax rolls. Please see section 3.3.5 and Appendix A - Land Protection Plan for further discussion.

*Agriculture Production and Availability of Jobs* - Landowners were interested in what types of agricultural crops would be appropriate under Service conservation easements. Please see section 3.2.2 for a sample list, which is not intended to be all-inclusive. Other species may be desirable under some circumstances.

*Public Use* - Individual landowners expressed concern regarding increased public access including hunting and associated liability for public use on private lands within the boundary. They wanted to know if public use is allowed under a Service conservation easement. All access is controlled by the landowner, and no public use is dictated by easement. Please see section 3.3.6 and Appendix A - Land Protection Plan and Appendix B - Conceptual Management Plan for discussion.

### 1.5.3 Issues Not Selected for Detailed Analysis

Because the action proposed by the Service would have little to no impact on the issues regarding these concerns, the following topic is not evaluated further in this environmental assessment.

#### 1.5.3.1 Archeological and Historic Resources

Effects on archeological and historic resources from implementing either of the action alternatives would not be expected to differ significantly from the no action alternative. These resources are currently protected under existing archeological and historical authorities and regulations.

Figure 1. Location Map

# CHAPTER 2

# ALTERNATIVES

## 2.1 Introduction

Chapter 2 describes three alternatives: the No Action alternative, and two action alternatives that would expand the Grasslands WMA boundary and provide the Service authority to acquire an interest in additional lands as part of the WMA. Under the no action alternative, the refuge boundary would not be expanded and the Service would not pursue acquiring additional conservation easements.

This EA, the Land Protection Plan (Appendix A), and the Conceptual Management Plan (Appendix B) describes the Service's involvement in general terms because this is a decision-making document for the primary purpose of expanding an existing WMA land acquisition boundary and to offer the Service's conservation easement program to additional landowners whose properties supports wildlife habitat of national importance. Under both of the action alternatives, private ownership and land use in the study area will not substantially change if the Service expands its existing conservation easement program.

## 2.2 Process Used to Develop the Alternatives

A team of Service and other resource specialists considered the following elements when they developed the alternatives for this project: (1) verbal comments provided during informal public scoping between 1998 and preparation of this document; (2) issues raised during meetings with various agencies, organizations, elected officials, and individuals during the informal scoping process; (3) goals of ongoing programs to benefit federally listed species including the *Recovery Plan for Upland Species of the San Joaquin Valley* (Service, 1998); (4) waterfowl management goals and objectives of the *North American Waterfowl Management Plan* and Central Valley Habitat Joint Venture Program; and (5) the mission of the Service to conserve, protect, and where necessary recover the nation's fish, wildlife, and plant resources for the enjoyment of present and future generations.

The Service also considered a variety of land protection methods in developing the range of alternatives, described in the Land Protection Plan (Appendix A). The Service believes that the acquisition of conservation easements represents the minimum possible interest or rights in lands and waters needed to retain the land in private ownership while still meeting habitat protection objectives.

A reasonable range of alternatives to expand the Grasslands WMA in size from 13,800 acres to approximately 49,000 acres was explored and objectively evaluated. Limitations were identified based upon the three purposes identified in Section 1.3 above. With these purposes in mind, extending the project area east of Highway 99 was considered impractical because the highway itself is a significant barrier to wildlife movement, and the physical habitat changes due to human actions and elevational differences (non-compatible crops and drier conditions). Extending the area further to the north was eliminated because the sphere of influence of the City of Merced is nearly at the proposed boundary. A

westerly extension is not necessary, as the existing WMA is situated there. An extension toward the south beyond Chamberlain Road was considered impractical due to the presence of more intense agricultural practices, and less wildlife compatible crop lands, and a marked decrease in native habitats present.

Of primary importance are the few remaining properties with native habitats in the proposed expansion area. Both action alternatives maintain the same level of protection for these properties, as native habitats within this area are extremely valuable for the species that depend upon them.

The largest alternative (Alternative 3) was developed due to the support of the farming community, which generally supports the easement program in this area. Alternative 3 includes lands identified in Alternative 2 and, upholds the three goals articulated in the aforementioned documents, in particular, promoting wildlife compatible agricultural easements that encourage management for migratory waterfowl, protection of riparian habitat for native species and landbirds, and protection of an east-west migratory corridor in this section of the Central Valley.

## 2.3 Alternatives Considered but Determined to be Impractical

Several land protection proposals were discarded during the scoping process because they were not feasible, would not reasonably meet the Service's purpose and stated need for the project, or they were not suitable for inclusion in the refuge system. These proposals included requests from landowners to consider additional properties that were substantially outside the project study area, and therefore did not meet the identified purpose and need of the action. Other alternatives considered included:

- ❑ Fee acquisition of the lands on a willing seller basis, which proved to be too costly. The Service does not anticipate, nor propose fee-title acquisition at this time for the project study area, but fee title-protection could be considered further in the future should some unforseen event necessitate additional protection beyond the proposed conservation easements.

- ❑ Expanding the study area beyond the identified limits, thereby including lands that did not meet the purposes of the action, resulting in larger than acceptable gaps within the boundaries. These gaps also did not meet the purposes of the action because they negated the benefits of a migration corridor.

- ❑ Using a combination of Alternative 2 and incorporating only lands with streams. This alternative was very similar to Alternative 3 because, in order to protect and potentially restore the streams identified, a majority of the lands already identified in Alternative 3 would need to be incorporated into the Grasslands WMA.

## 2.4 Description of Alternatives

### 2.4.1 Alternative 1 - No Action - (0 acres)

The No Action Alternative represents no change from the existing management of lands in the study area. Under this alternative, the Service would not acquire interest in the lands in the study area for the purpose of expanding the Grasslands WMA.

The distribution, general location, and extent of land use in the study area and vicinity would be guided by the Merced County General Plan and zoning codes. The General Plan is the official overall policy statement of the County relating to land use and planning issues and provides a broad outline of future land use patterns. The zoning ordinance regulates land use by dividing the unincorporated areas of the County into districts or zones and specifies the uses that are permitted or prohibited within each district. Under the No Action Alternative, existing land uses in the study area would remain unchanged in the short term. However, long-term protection and restoration of the area's wildlife habitat would not be likely without some type of incentive to the landowners.

### 2.4.2 Alternative 2 - 13,800-Acre Expansion

Under Alternative 2, the Service would expand the approved Refuge Boundary by approximately 13,800 acres from approximately 36,550 acres to 50,350 acres and seek to protect wildlife and native habitats through acquisition of native grassland and wetlands (see Figure 1). Under this alternative, the Service would seek habitat protection through conservation easements (for specific parcels included see Appendix A, Table 1). With the protection of additional native grasslands and vernal pool habitat, the Service would also be contributing to protection and recovery of migratory waterfowl populations, shorebirds and landbirds of North America's Pacific Flyway, and federally listed threatened and endangered species.

The current approved Grasslands WMA boundary excludes large blocks of native grasslands and vernal pool habitat that supports shorebirds and migratory waterfowl of North America's Pacific Flyway and federally listed threatened and endangered wildlife species. Protection of the study area through perpetual conservation easements would assist in achievement of recovery goals for the wildlife that use this area. Expansion of the boundary would also assist somewhat in the protection of a wildlife migratory corridor across the San Joaquin Valley.

As with the No Action Alternative, under Alternative 2, the properties would remain in private ownership with property taxes and land use largely unchanged. Approval of the expanded WMA land acquisition boundary does not grant the Service jurisdiction or control over lands within the acquisition boundary, and it does not automatically make lands within the boundary part of the National Wildlife Refuge System. Lands would not become part of the WMA or the system unless the Service has purchased an interest in a property from a willing seller.

### 2.4.3 Alternative 3 - 49,000-Acre Expansion (Preferred Alternative)

Alternative 3 includes lands identified in Alternatives 2, with the addition of 34,680 acres including wildlife compatible crop lands, pasture lands and local creeks and sloughs (see Figure 2). These additional lands would increase protection to vernal pools and native grasslands by connecting the large

blocks of grasslands and vernal pools included in Alternative 2, and provide a contiguous corridor for wildlife migration across the study area. Creeks and sloughs have been included in this alternative, and opportunities for riparian restorations are expected to become available. Farming with wildlife compatible crops would be supported with this alternative.

These lands would be protected through perpetual conservation easements and would assist in achievement of recovery goals for migratory waterfowl, shorebirds, and federally listed threatened and endangered wildlife species which occur within the study area at the maximum level considered. As with Alternative 2, lands would not become part of the WMA or National Wildlife Refuge System upon establishment of the new boundary, but rather at such time that the Service purchased an interest in the property on a willing seller basis.

Figure 2.  Proposed Expansion Study Area

# CHAPTER 3

# AFFECTED ENVIRONMENT

## 3.1 Introduction

This chapter describes the physical, biological, social, and socioeconomic factors within the Grasslands WMA expansion study area which could potentially be affected by implementing the action alternatives are relevant to the issues described in Chapter 1. The study area for the proposed project comprises approximately 49,000 acres within the north central San Joaquin Valley of Merced County. Lands within the study area are primarily native grasslands, seasonal wetlands (vernal pools), Central Valley riparian habitat, and irrigated pasture land that support both a diversity of native wildlife and cattle grazing operations. While the boundaries for the two action alternatives were developed to exclude properties that have been developed into incompatible crops, fish farms, chicken ranches, urban infrastructure, and other areas that have lost much or all of their natural resource value, some of these properties may occur within the study area due to ongoing land use changes in the area.

## 3.2 Physical and Biological Environment

The weather in the area can be characterized as a dry, mild, Central Valley climate. During the rainy season (October through April), the average rainfall is 12 inches. The average low temperature in the winter is 38 degrees Fahrenheit. The average high temperatures in the summer are typically just below 100 degrees Fahrenheit.

### 3.2.1 Native Grasslands (California Savanna)

The predominate vegetation community found within the proposed study area is annual grassland, also known as California savanna. The annual grassland habitat occupies what was once native grassland, which historically supported perennial bunch grasses.

Today this habitat is composed primarily of annual plant species. The structure and appearance of these grasslands depend largely on seasonal weather patterns and levels of livestock grazing. Fall rains cause germination of annual plant seeds. Plants grow slowly during the cool winter months, remaining low in stature until spring. Large amounts of standing dead plant material can be found during summer in wet years on areas which are not grazed.

Heavy spring grazing favors the growth of the grassland's summer-annual forbs and reduces the amount of standing dead materials. Because these are important food plants for many wildlife species, livestock grazing is generally beneficial for terrestrial wildlife.

Reptiles that breed in the annual grassland habitat include the western fence lizard, common garter snake, western rattlesnake, and the endangered blunt-nose leopard lizard. Mammals that inhabit the

area include the black-tailed jackrabbit, California ground squirrel, western harvest mouse, California vole, badger, and coyote. The endangered San Joaquin kit fox is also found in and adjacent to this habitat. Common birds known to breed in annual grasslands including burrowing owls, short-eared owls, horned lark, and western meadowlark. This habitat also provides important foraging habitat for turkey vulture, northern harrier, American kestrel, white-tailed kite, and prairie falcon. The grasslands provide wintering forage for 500,000 to one million migratory waterfowl annually.

### 3.2.2 Agriculture Crop Fields

A significant number of farms produce wildlife compatible crops in the study area, and since most harvesting equipment leaves behind some waste grain or crop, migratory waterfowl, cranes, and other migratory birds take advantage of this bounty. There are many farming practices that benefit wildlife, such as; managing specific crops, timing of harvest, using fallowed fields, taking advantage of non-farmed areas, or utilizing water as a management tool. Many farmers in the study area currently use these practices. The conservation easement program is designed for the farmer to profit while managing their farmlands for the benefit of wildlife. Wildlife compatible crops include wheat, barley, oats, milo, clover, alfalfa, vetch, rye, safflower, sudan, millet, triticale, and sorghum.

### 3.2.3 Pasture Lands

Pasture vegetation is a mix of perennial grasses and legumes with the mixture varying according to management practices such as soil type, type and level of livestock grazing, irrigation, fertilization and weed control. Some farms in the study area include irrigated pasture in their crop rotation system. These are therefore frequently included in the category of agricultural lands.

Pasture lands with annual perennial grassland support a variety of wildlife species. Given adequate vegetation at the onset of the nesting season, ground-nesting birds, including waterfowl, pheasant, and sandhill crane, nest in pastures. Flooded irrigation of pastures provides feeding and roosting sites for many shorebirds, wading birds, waterfowl and raptors. The Aleutian Canada goose requires pastures that are sufficiently grazed to keep them low and open.

### 3.2.4 Vernal Pools

Vernal pools are seasonally flooded depressions found on ancient soils with an impermeable layer such as hardpan, claypan, or volcanic basalt. The impermeable layer allows the pools to retain water much longer than the surrounding uplands. Vernal pools often fill with rainfall and empty by evaporation several times during California's rainy season. Only plants and animals that are adapted to this cycle of wetting and drying can survive in vernal pools over time. These specialized plants and animals are what makes vernal pools unique. As winter rains fill the pools, freshwater invertebrates, crustaceans, and amphibians emerge. Some vernal pool plants use special floating leaves and air-filled stems to stay afloat and some even flower underwater.

Vernal pool plant and wildlife species serve as a food source that attracts and supports migratory

waterfowl populations of North America's Pacific Flyway that winter in the San Joaquin Valley.

Due to the loss and decline of vernal pools across the Central Valley many of these unique species have become rare and listed as federal threatened or endangered species. Vernal pools also provide critical wintering habitat for migratory waterfowl and shorebirds of the Pacific Flyway.

There are approximately 1,016,000 acres of vernal pool complexes of more than 40 acres in the Central Valley of California, down from a historical four million acres (Holland, 1978). Of this approximately 58,200 acres (6%) are protected on public lands.

### 3.2.5 Threatened and Endangered Species

Four threatened or endangered species of freshwater crustaceans are known to occur in vernal pools within the study area. These species include: vernal pool tadpole shrimp (*Lepidurus packardi*); vernal pool fairy shrimp (*Branchinecta lynchi*), conservancy fairy shrimp *(Branchinecta conservatio*), and longhorn fairy shrimp (*Branchinecta longiantenna*).

Vernal pools and native grasslands of the study area also support populations of the endangered blunt nosed leopard lizard( *Gambelia [=Crotaphytus] sila ),* San Joaquin kit fox *(Vulpes macrotis mutica)*, and hairy Orcutt grass (*Orcuttia pilosa*). Colusa grass (*Neostapfia colusana*), listed as threatened, may also be found in the area.

The Recovery Plan for Upland Species of the San Joaquin Valley (1998) covers 11 species federally-listed as endangered or threatened. Two of these wildlife species, the blunt-nosed leopard lizard and San Joaquin kit fox, are or were historically found within the proposed WMA expansion area. Approved recovery plans were previously prepared for these two species in 1985 and 1983 respectively. *The Recovery Plan for Upland Species of the San Joaquin Valley* (1998) represents a revision of the earlier recovery plans. The Recovery Plan identifies the East Grasslands study area as important to the recovery to these two species. Under "Recovery Action," the Recovery Plan specifically recommends protection of "...natural lands along Sandy Mush Road and in the wildlife refuges and easement lands of Merced County . . . through acquisitions, easement, or safe harbor initiatives."

### 3.2.6 Wintering Migratory Waterfowl

Between 500,000 and one million migratory waterfowl or 25 percent of the Central Valley's population winters in the grassland complex of Merced County including 19 species of ducks and 6 goose species. Fifteen species of waterfowl commonly use San Joaquin habitats in winter. Concentrations of five species of waterfowl have been recorded as greater than 50% of the wintering waterfowl in California. These five species using grasslands' habitats extensively in winter are gadwall (65%), green-winged teal (79%), cinnamon teal (94%), northern shoveler (58%), and Aleutian Canada goose (98%). The area also provides important habitat for the Pacific white-fronted goose, cackling Canada goose, Ross goose and tundra swan populations. The proposed Grasslands WMA expansion area is considered an

important part of this grassland complex.

The waterfowl that use the grasslands during the nonbreeding period use the grasslands' habitats either (1) as a southern terminus for their annual movements or (2) as a stopover site as they move to or from habitats at more southern locations. Species such as the cackling Canada goose, Aleutian Canada goose, lesser snow goose and Ross goose use the grasslands as a southern terminus during their annual movements. In contrast, species such as the northern pintail, white-fronted goose and cinnamon teal use the grasslands' habitats as a southern terminus but also as a stopover during migration to wintering habitats in Mexico. Waterfowl also breed in the grasslands, the most common nesting species are mallard, gadwall, and cinnamon teal (Fredrickson and Laubhan, 1995)

### 3.2.7 Shorebirds

In winter and spring, the Central Valley supports more shorebirds than any other inland site in western North America, supporting tens of thousands of shorebirds. In fall, it is the second most important inland site to shorebirds after Great Salt Lake, Utah (Page and Shuford, 2000). Within the Central Valley, the Grasslands Ecological Area has been designated an "International Reserve for Migrant and Wintering Shorebirds" by the Western Hemispheric Shorebird Reserve Network. The National Audubon Society has listed the entire Grassland area as an "Important Bird Area" and the Grasslands Water District, California Department of Fish and Game, and the Fish and Wildlife Service have nominated the area as an "Internationally Important Wetland" under the Ramsar Convention.

Species with regionally important populations in the Central Valley are the black-bellied plover (winter, spring), snowy plover (winter), killdeer (winter, summer), mountain plover (winter), black-necked stilt (fall-spring), American avocet (fall-spring), greater yellowlegs (fall, winter), whimbrel (spring), long-billed curlew (fall, winter), western sandpiper (spring), least sandpiper (winter), dunlin (winter), and long-billed dowitcher (fall-spring).

The Central Valley is one of only a few key wintering areas in the world for the mountain plover, which is proposed for federal listing under the Endangered Species Act. The Central Valley also hosts two other bird species of special concern in California, the snowy plover and the long-billed curlew (CDFG, 1992). Three shorebirds, American avocet, black-necked stilt and killdeer remain on grasslands habitats to breed.

At least fifteen waterbird species other than shorebirds and waterfowl use grasslands habitats, eight of which breed in the area. The most abundant are great blue heron, common moorhen, and sora.

### 3.2.8 Other Wildlife Use

Birds of Conservation Concern (USFWS, *in prep*), California Bird Species of Special Concern, and other priority species rely on habitats in the Grasslands, including burrowing owl, tricolored blackbird, white-faced ibis, in addition to several species of shorebirds already mentioned. Several grassland species that could benefit from this expansion are also focal species in the Partners in Flight Grassland Bird Conservation Plan, including white-tailed kite, northern harrier, ferruginous hawk, grasshopper sparrow, and savannah sparrow.

Mammalian residents of the grasslands include the endangered San Joaquin kit fox, black-tailed jack rabbits, cotton tailed rabbits, coyotes, muskrats, raccoon, opossum, striped skunk, and California ground squirrel. Various small rodents are also common residents.

The sloughs, creeks and canals contain such fish species as bullhead and channel catfish, striped bass, threadfin shad and carp. These species also occur in the various marsh areas when they are flooded. Invertebrates, such as freshwater clams, crayfish, and numerous insects also occur in the grasslands study area.

## 3.3 Social and Economic Environment

There are no urban incorporated communities within the proposed addition boundaries. The following describes the surrounding community:

### 3.3.1 Merced County

Merced County covers approximately 1,234,490 acres. The 1995 populations estimate for Merced County totaled 202,789 people. The City of Merced, the nearest urban center to the study area, is the County seat and had a year 2000 population of 65,000 (City of Merced, 2002).

Employment figures in 1997 for Merced County area as follows: services, 13,155; retail trade 12,262; manufacturing, 10,368; farming, 9,310; agricultural services, 4,343; real estate, 4,029, military, 3,519; construction, 2,759; wholesale trade, 1,993; and federal civilian, 1,010 (Merced County Economic Profile).

The new University of California, Merced campus, now in the planning stages, is projected to have a student population of 25,000 and would be expected to provide a strong beneficial effect to the economy of Merced County. The project is likely to result in both an increase in jobs and job diversity as well as contribute to the urban growth of Merced.

### 3.3.2 Merced County General Plan and Williamson Act Program

The County General Plan designates lands in the study area as open space with value as pasture land, row crops, and wildlife habitat. On July 25, 2000, the Merced County Board of Supervisors approved

implementation in Merced County of the *California Land Conservation Act of 1965*, better known as the *Williamson Act*. The program, in place in a majority of California's 58 counties, provides tax reductions for lands under contract in exchange for maintaining land in agricultural uses for a period of ten years. Under the Act the state provides payments to the county to cover lost property tax revenues. The agricultural preserve established by Merced County for the Williamson Act program, overlaps with the Service's proposed expansion area for the Grasslands WMA.

In fact, the Service's conservation easement program and the Williamson Act agricultural preservation program overlap and complement each other in many counties throughout California. Properties within a WMA easement area remain eligible for the Williamson Act program. Landowners whose property falls within a Service WMA and the Williamson Act program can be compensated by both programs for maintaining their properties in agricultural production while providing benefits to California's wildlife.

### 3.3.3 Agricultural Production

Merced County consistently ranks as one of the state's top ten agricultural counties, producing in excess of $1.5 billion in gross annual income. Merced County is a leading producer of milk, almonds, chickens, cotton, and alfalfa, grapes (wine), tomatoes, cattle, eggs, and sweet potatoes. There are approximately 2,879 farms in Merced County on 978,831 acres of land. In the year 2000, the total value of agricultural production in Merced County was over $1.5 billion (National Agricultural Statistics Service, 2001).

In addition to wildlife compatible crop lands, much of WMA expansion area supports the cattle industry by providing both native grassland and irrigated pasture land.

### 3.3.4 Land Ownership

Alternative 2 encompasses 48 privately owned tracts. Alternative 3 includes those tracts within alternative 2, plus an additional 108 privately owned tracts. The Land Protection Plan includes a listing of these individual parcels (Table 1). No new or additional zoning or land-use regulations would be created by the Service within the approved Refuge boundary of the proposed addition or on neighboring lands. For lands incorporated into the Wildlife Management Area, land use would remain largely the same.

### 3.3.5 Property Tax

Merced County collects property taxes on private land within the proposed addition to the Grasslands Wildlife Management Area. The California Land Conservation Act, also known as the Williamson Act, enables counties and cities to designate agricultural preserves and offer preferential taxation to agricultural landowners based on the income-producing value of their property in agricultural use, rather than on its assessed value. In return for the preferential tax rate, the landowner is required to sign a contract with the county or city agreeing not to develop the land for a minimum 10-year period. Contracts are renewed annually for 10 years unless a party to the contract files for nonrenewal or

petitions for cancellation. In 2001, there were approximately 333,000 acres of Williamson Act lands in Merced County (Department of Conservation).

The purchase of conservation easements on private land by the Service would not reduce property tax revenues to Merced County, because the lands would remain in private ownership and subject to state or local taxes or assessments.

### 3.3.6 Public Use and Wildlife Dependent Recreational Uses

All lands within the proposed study area are privately owned. The current landowners do not allow recreational use by the general public. Public use of these lands would remain closed to the general public, because the Service would not purchase public access rights. Wildlife viewing on these lands is available along the network of county roads that cross the study area. Hunting opportunities would remain under the landowners control.

This Page Intentionally Left Blank

# CHAPTER 4

# Environmental Consequences

## 4.1 Alternative 1 - No Action

The No Action Alternative represents no change from the existing management of lands in the study area. Under this alternative, the Service would not acquire interest in the lands in the study area for the purpose of expanding the Grasslands WMA.

The distribution, general location, and extent of land use in the study area and vicinity would be guided by the Merced County General Plan and zoning codes. The General Plan is the official overall policy statement of the County relating to land use and planning issues and provides a broad outline of future land use patterns. The zoning ordinance regulates land use by dividing the unincorporated areas of the County into districts or zones and specifies the uses that are permitted or prohibited within each district. Under the No Action Alternative, existing land use patterns in the study area would remain under the authority of Merced County.

Long-term protection and restoration of the area's wildlife habitat would not be likely without some type of incentive to the landowner. Fragmentation of the existing natural habitat is likely to continue without landowner incentives. Two forces are at work in removing suitable wildlife compatible habitats from within the Grasslands; 1) Urban expansion and; 2) Conversion of agricultural lands to non wildlife compatible crops, such as orchards, vineyards, poultry farms, and dairies. Other agricultural conversions such as to cotton, sugar beets, tomatoes, are not wildlife compatible, but can be converted to wildlife compatible with relative ease and little expense.

### 4.1.1 Urban Expansion

In the City of Merced's General Plan (1997), the statement that "As the city grows, expansion will inevitably encroach upon productive crop land" sums up the threat. Urban expansion such as development of wider transportation corridors, new roads, construction of new electric transmission lines, golf courses, and expansion of wastewater treatment facilities, and other urban impacts are only a few examples of developments that can or have contributed to loss of wildlife habitat and habitat fragmentation.

Another form of urban expansion is land parceled into small rural holdings or "ranchettes" for residential use, where 5 to 20 acres or more are taken out of agricultural production for a single home. These areas are often less hospitable for wildlife due to changes in agricultural types, or harassment of wildlife by children or dogs. With the proposed University of California campus in the City of Merced, increased urbanization is likely to occur.

According to the Merced County Association of Governments and the Federal Highway Administration

(1997), the capacity needs of Highway 99 are predicted to translate into a need for eight lanes through the Merced/Atwater area. Intersections at Highway 99 along the edge of the study area (e.g., Sandy Mush Road) are also scheduled for enlargement. The current amount of traffic and weather conditions such as fog, make this intersection unsafe. Upgrading these interchanges by increasing the distance of the on-ramps and off-ramps is expected to occur within the next two years. These are two specific examples of how urbanization incrementally expands into the rural landscape. This expansion affects other areas as well. The creation of surfaces impervious to water infiltration increases with the developments such as the Highway 99 corridor. This increased impervious surface area leads to changes in the quantity and quality of stormwater and can lead to further impacts to streams, wetlands, and the biota that utilize these areas.

### 4.1.2 Agricultural Crop Conversion

Irrigated farmland lost ground to large new urban increases as the California Department of Conservation's Farmland Mapping and Monitoring program (FMMP) conducted its 1998 biennial land use inventory. The San Joaquin Valley Region ranked second in the growth of new urban land during 1996-1998 period, with Merced County losing 2,566 acres of farmland during the 1998-2000 period, 2,154 acres during the 1996-1998 period, 2,203 acres during the 1994-1996 period, and 1,393 acres during the 1992-1994 period. Conversion of wildlife compatible crops to orchards, dairies, poultry farms, fish farms and vineyards is also occurring at a relatively rapid pace in the grasslands.

### 4.1.3 Impacts of Habitat Loss

If the existing wetland habitat were to diminish in size or be further degraded, the impacts could influence not only the local area but also have an impact on all the migratory species that use the grasslands as a summer terminus during their annual cycle, exploit grasslands' resources during their annual movements between wintering and breeding grounds, or depend on these habitats for breeding (Fredrickson and Laubhan, 1995).

If existing habitats are not protected from conversion or development, waterfowl and shorebirds could be forced into to other areas and/or concentrate in increasingly crowded conditions, which, when combined with poor habitat quality and adverse weather conditions have contributed to the spread of disease. Botulism and avian cholera are chronic waterfowl disease problems. In some years, deaths attributed to botulism in the California have exceeded 250,000 (Hunter et al. 1970). Similarly, avian cholera losses in California during one winter exceeded 70,000 birds (Rosen 1971). According to Friend (1981), the Central Valley, along with three other areas in North America, has developed into an avian cholera enzootic area. More than 33,000 waterfowl killed by disease were picked up during the 1980-81 winter season on public and private lands in California (U.S. Fish and Wildlife Service, unpublished report).

### 4.1.4 New Traffic, Noise, and Air Quality

If this Alternative is selected, major additions to the existing levels and patterns of traffic within or adjoining the study area are likely to occur, regardless of Williamson Act provisions. In addition, the Service anticipates increases in noise levels as a result of not acquiring of conservation easements for the proposed expanded WMA. According to the Merced County Association of Governments (MCAG 1997), the highest vehicular noise levels are associated with Highway 99. Current noise levels range from 65 LdN to 75 LdN at 532 feet and 149 feet, respectively, from the center of the highway, and future levels are projected to increase approximately 3 dB(A) LdN at the same distances.

With Highway 99 proposed to be widened, Caltrans is planning for the movement of kit foxes through culverts under the highway. Unless the land is protected on the other side of these culverts, their usefulness is reduced. Alternative 1 does not protect these lands.

Merced County has a moderate to high concentration of air pollutants due to growth, its topography and the warm climate. Many pollutants are blown into Merced County from the San Francisco Bay area and the northern San Joaquin Valley. The San Joaquin Valley does not meet air quality standards for ozone ($O_2$) and particulate matter ($PM_{10}$).

Air pollution is not only a health hazard, it also diminishes the production and quality of many agricultural crops in the valley. Air pollution reduces visibility, degrades soil and water, and damages native vegetation.

A new campus of the University of California is scheduled for the City of Merced, and with it, an associated population increase, including a projected student population of 25,000. As long as Merced County and the San Joaquin Valley populations continue to grow, efforts to control and reduce pollution will be partially offset by increased emissions from more sources (Merced County, 1997).

### 4.1.5 Soil Erosion and Hydrological Resources

The acquisition of lands for the proposed expanded Grasslands WMA is not expected to expose any public infrastructure to geological hazards or unstable geological features. The acquisition of lands would not result in a major increase in soil erosion, nor would demand for surface water or groundwater, relative to existing and proposed urban and agricultural developments. These determinations have been made based on existing conditions associated with now established Grasslands WMA. The No Action alternative is likely to result in changes to the hydrologic cycle of the study area. If these agricultural lands are not protected, the area is likely to follow the trend of increased urbanization, as made evident by the earlier discussion of the traffic needs and the subdivisions along the eastern edge of the study area.

Increased impervious surface area in the watershed (from building construction, roadways, and parking lots), removal of vegetation, and soil compaction can increase the quantity of urban stormwater runoff (Schueler, 1987). Water velocity also increases, in general, as the degree of urbanization increases (Viessman et al., 1977). These same activities will potentially cause decreased infiltration of

stormwater to groundwater, resulting in decreased base flow. Increased impervious surface areas have the effect of increasing flood peaks during storms and decreasing low flows between storms (Stockdale, 1991). Larger peak flows can result in scoured stream beds as the beds enlarge to accommodate larger flows. Associated impacts include increased sediment loading to bordering vegetated wetlands and reduction of fish spawning habitat (Canning, 1988). Urban stormwater input has the potential to change the PH and redox potential of soils, rendering many toxins available from the storage pool so they can have an immediate effect on wetland soils, both in situ and potentially downstream (Cooke, 1991).

There are approximately seven named streams flowing through the study area. Four of these streams are influenced by urban runoff (Black Rascal, Bear, and Owens Creeks, and Hartley Slough), while two are rural in origin (Duck Slough and Deadman Slough). Hartley Slough is the discharge point of the City of Merced's water treatment plant, which flows to Owens Creek and later flows into the Eastside Canal. There is a weir on the opposite side of the Eastside Canal, which when there is excess water, allows Owens Creek water to continue toward the San Joaquin River. Many of these watercourses have been channelized, diverted, have been armored with rock (riprap). Vegetation along the creeks has been removed at points and exotic vegetation is present at others.

Based on current trends in the country, if No Action is taken (Alternative 1), stream alteration to protect lands affected by upstream urbanization and the associated impacts of increased peak flows is likely to continue. Stream armoring methods such as riprap and other ways to harden and protect the stream banks from increased erosion are likely to occur, often requiring removal of vegetation which often results in decreased natural habitats available for wildlife.

## 4.2 Alternative 2 - 13,800-Acre Expansion

Under Alternative 2, the Service would expand the approved WMA boundary by approximately 13,800 acres from approximately 36,550 acres to 50,350 acres. The goal of this alternative is to protect wildlife and native habitats through acquisition of conservation easements on native grassland and wetlands (see Figure 2). Under this alternative, the Service would seek habitat protection through the purchase of conservation easements. With the protection of these additional native grasslands and vernal pool habitats, the Service would also be contributing to protection and recovery of migratory waterfowl populations, shorebirds and landbirds of North America's Pacific Flyway, and federally listed threatened and endangered species.

Although this proposal is designed to protect native habitats and the species that use these habitats within the expanded Grasslands WMA, by not incorporating a large block of land such as Alternative 3, the foremost effect of fragmentation is likely to occur, and that is the loss of connectivity of biological processes. The isolation of native habitats can disrupt the interacting functional components of the larger system. Riparian habitats connecting these parcels are not proposed to be protected nor managed for maximum wildlife benefits. One of the purposes for action is to "establish a protective corridor across a portion of California's Central Valley." This goal would be not be achieved under Alternative 2. With Alternative 2, farmers would not have the incentive to use wildlife friendly crops,

and conversion to other, less wildlife-compatible uses could become financially appealing, thus, furthering fragmentation.

The Central Valley Habitat Joint Venture (CVHJV) is a cooperative effort of conservation organizations and federal and state agencies formed to implement the North American Waterfowl Management Plan (NAWMP), which sets goals for restoring waterfowl populations. The CVHJV Goals are to: enhance wetland habitats on approximately 300,000 acres of public and private lands; enhance waterfowl habitats on 443,000 acres of agricultural lands; protect 80,000 acres of existing wetlands through acquisition in fee-title or perpetual conservation easements; restore 120,000 acres of historic wetlands acres and protect them in perpetuity by acquisition of fee-title or conservation easements; secure an incremental, firm water supply that is of suitable quality and is delivered in a timely manner for use by national wildlife refuges, state wildlife areas, and the Grasslands Resource Conservation District; and secure Central Valley Project power for national wildlife refuges, state wildlife areas, the Grasslands Resource Conservation District and other public and private lands dedicated to wetland management.

Expanding the Grasslands WMA by 13,800 would make a sizable contribution to the habitat protection and management goals of CVHJV and NAWMP.

Within the Central Valley, the Grasslands Ecological Area has been designated an "International Reserve for Migrant and Wintering Shorebirds" by the Western Hemispheric Shorebird Reserve Network. The National Audubon Society has listed the entire Grassland area as an "Important Bird Area." The Grasslands Irrigation District, California Department of Fish and Game, and the Fish and Wildlife Service have also nominated the Grassland area as an "Internationally Important Wetland" under the Ramsar Convention. Expansion of the Grassland WMA would contribute to protection of this internationally recognized shorebird habitat.

The predominate use of these 13,800 acres of native grasslands is for grazing. Under this alternative it is expected that land use within the project area would remain essentially the same. The local farm economy and rural lifestyle and open space would be maintained in this area due to the Service acquiring perpetual conservation easements. As stated previously, there are many pressures to convert these lands for other uses.

### 4.2.1 New Traffic, Noise, and Air Quality

The proposed expanded Grasslands WMA is not expected to generate any major additions to the existing levels and patterns of traffic within or adjoining the study area. In addition, the Service does not anticipate any major increases in noise levels as a result of acquisition of conservation easements for the proposed expanded wildlife management area. Similarly, the Service does not anticipate any changes to air quality within the 13,800 acre expansion area because land use would remain largely the same as existing conditions. These determinations have been made based on existing conditions associated with the now established Grasslands WMA. However, increases in traffic, air and noise are expected under to occur on lands not incorporated into the proposed expanded WMA. This

alternative would lead to the Service implementing a program that is expected to maintain the status quo of more than 13,800 acres.

If this Alternative is selected, continued additions to the existing levels and patterns of traffic adjoining the study area are likely to occur. As more development occurs along Highway 99, the creation of surfaces impervious to water infiltration will likely increase. According to the Merced County Association of Governments (MCAG) and the Federal Highway Administration (1997), the capacity needs of Highway 99are predicted to translate into a need for eight lanes through the Merced/Atwater area. The Service anticipates increases in noise levels as a result of not acquiring conservation easements for the proposed 49,000 acre expanded WMA. Intersections at Highway 99 along the edge of the study area (e.g., Sandy Mush Road) are scheduled for enlargement due to current traffic patterns and safety concerns. The highest vehicular noise levels are associated with Highway 99. Current noise levels range from 65LdN to 75 LdN at 532 feet and 149 feet, respectively, from the center of the highway, and future levels are projected to increase approximately 3 dB(A) LdN at the same distances (MCAG 1997).

With Highway 99 proposed to be widened, Caltrans is planning for the movement of kit foxes through culverts under the highway. Unless the land is protected on the other side of these culverts, their usefulness is reduced. Alternative 2 does not protect these lands.

Merced County has a moderate to high concentration of air pollutants due to growth, its topography and the warm climate. Many pollutants are blown into Merced County from the San Francisco Bay area and the northern San Joaquin Valley. The San Joaquin Valley does not meet air quality standards for ozone ($O_2$) and particulate matter ($PM_{10}$).

Air pollution is not only a health hazard, it also diminishes the production and quality of many agricultural crops in the valley. Air pollution reduces visibility, degrades soil and water, and damages native vegetation.

A new campus of the University of California is scheduled for the City of Merced, and with it, an associated population increase, including a projected student population of 25,000. As long as Merced County and the San Joaquin Valley populations continue to grow, efforts to control and reduce pollution will be partially offset by increased emissions from more sources (Merced County, 1997).

### 4.2.2 Soil Erosion and Hydrological Resources

The acquisition of lands for the proposed expanded Grasslands WMA is not expected to expose any public infrastructure to geological hazards or unstable geological features. The acquisition of lands would not result in a major increase in soil erosion, nor would demand for surface water or groundwater, relative to existing and proposed urban and agricultural developments. These determinations have been made based on existing conditions associated with now established Grasslands WMA. The 13,800 acre expansion (Alternative 2) is not likely to result in changes to the hydrologic cycle of the study area. Alternative 2 does not protect the riparian areas from further

development, nor does it promote the restoration of riparian areas. If these agricultural lands containing riparian areas are not protected, stream armoring methods such as riprap and other ways to harden and protect the stream banks from increased erosion are likely to continue, often resulting in decreased natural habitats available for wildlife.

If Alternative 2 is selected, lands within the study area that are not protected by a conservation easement could be developed, leading to increased impervious surface area. Increased impervious surface area in the watershed (from building construction, roadways, and parking lots), removal of vegetation, and soil compaction can increase the quantity of urban stormwater runoff (Schueler, 1987). Water velocity also increases, in general, as the degree of urbanization increases (Viessman et al., 1977). These same activities will potentially cause decreased infiltration of stormwater to groundwater, resulting in decreased base flow. Increased impervious surface areas have the effect of increasing flood peaks during storms and decreasing low flows between storms (Stockdale, 1991). Larger peak flows can result in scoured stream beds as the beds enlarge to accommodate larger flows. Associated impacts include increased sediment loading to bordering vegetated wetlands and reduction of fish spawning habitat (Canning, 1988).

There are approximately seven named streams flowing through the study area. Four of these streams are influenced by urban runoff (Black Rascal, Bear, and Owens Creeks, and Hartley Slough), while two are rural in origin (Duck Slough and Deadman Slough). Hartley Slough is the discharge point of the City of Merced's water treatment plant, which flows to Owens Creek and later flows into the Eastside Canal. There is a weir on the opposite side of the Eastside Canal, which when there is excess water, allows Owens Creek water to continue toward the San Joaquin River. Many of these watercourses have been channelized, diverted, have been armored with rock (riprap). Vegetation along the creeks has been removed at points and exotic vegetation is present at others.

Based on current trends in the country, if Alternative 2 is selected, stream alteration to protect lands affected by upstream urbanization and the associated impacts of increased peak flows is likely to occur. Stream armoring methods such as riprap and other ways to harden and protect the stream banks from increased erosion are likely to occur, often requiring removal of additional vegetation which could result in decreased natural habitats available for wildlife.

## 4.3 Alternative 3 - 49,000-Acre Expansion (Preferred Alternative)

Alternative 3 includes lands identified in Alternatives 2, with the addition of 34,680 acres including local creeks and sloughs (see Figure 2). Including these lands within the conservation easement program would increase protection to wetlands, wildlife compatible crop lands and pasture lands which will connect the large blocks of grasslands and wetlands included in Alternative 2, in addition to providing a corridor for wildlife migration across the study area. These agricultural lands would be protected through perpetual conservation easements and would assist in achievement of recovery goals of migratory waterfowl populations, shorebirds and landbirds of North America's Pacific Flyway, and federally listed threatened and endangered species which occur within the study area (for specific parcels included see Appendix A, Table 1).

A significant number of farms utilize wildlife compatible crops in the study area, and since most harvesting equipment leaves behind some waste grain or crop, migratory waterfowl, cranes, and other migratory birds take advantage of this bounty. There are many farming practices that benefit wildlife, such as; managing specific crops, timing of harvest, using fallowed fields, taking advantage of non-farmed areas, or utilizing water as a management tool. Many farmers in the study area do use these practices already. By promoting these practices with the use of a perpetual conservation easement program and promoting restoration of riparian habitats, the farming community would benefit by monetary incentives, and the American people would benefit by protection of valuable wetlands and other habitats for use by sensitive resident species, migratory waterfowl populations, shorebirds and landbirds of North America's Pacific Flyway.

Alternative 3 incorporates large blocks of land which allows for the connectivity of biological processes thus increasing the opportunities for reducing fragmentation. Streams with the potential for riparian restoration flow through the area, connecting farmland and native habitats. These streams are proposed to be protected and allowed to benefit wildlife. These benefits will be in the form of a corridor for movement and as habitat for use as a food source and cover. The incorporation of wildlife-friendly farmlands would support the interacting functional components of the larger ecosystem. Alternative 3 allows the Service to "establish a protective corridor across a portion of California's Central Valley, " which is one of the purposes of the action. The Recovery Plan for Upland Species of the San Joaquin Valley specifically identifies the need for a linkage between natural land and farmland in the area of Sandy Mush Road, and Alternative 3 meets this need. With Alternative 3, more farmers would have a monetary incentive to use wildlife friendly crops, and conversion to other, less wildlife-compatible uses could be less financially appealing than any other alternative considered.

The Central Valley Habitat Joint Venture (CVHJV) is a cooperative effort of conservation organizations and federal and state agencies formed to implement the North American Waterfowl Management Plan (NAWMP), which sets goals for restoring waterfowl populations. The CVHJV Goals are to: enhance wetland habitats on approximately 300,000 acres of public and private lands; enhance waterfowl habitats on 443,000 acres of agricultural lands; protect 80,000 acres of existing wetlands through acquisition in fee-title or perpetual conservation easements; restore 120,000 acres of historic wetland acres and protect them in perpetuity by acquisition of fee-title or conservation easements; secure an incremental, firm water supply that is of suitable quality and is delivered in a timely manner for use by national wildlife refuges, state wildlife areas, and the Grasslands Resource Conservation District; and secure Central Valley Project power for national wildlife refuges, state wildlife areas, the Grasslands Resource Conservation District and other public and private lands dedicated to wetland management.

The proposed expansion of the Grasslands WMA by up to 49,000 acres would make a substantial contribution to the habitat protection and management goals of CVHJV and NAWMP.

Within the Central Valley, the Grasslands Ecological Area has been designated an "International Reserve for Migrant and Wintering Shorebirds" by the Western Hemispheric Shorebird Reserve

Network. The National Audubon Society has nominated the entire Grassland area as an "Important Bird Area." The Grasslands Irrigation District, California Department of Fish and Game, and the Fish and Wildlife Service have nominated the Grassland area as an "Internationally Important Wetland" under the Ramsar Convention. Expansion of the Grassland WMA would contribute to protection of this internationally recognized shorebird habitat.

### 4.3.1 New Traffic, Noise, and Air Quality

The proposed expanded Grasslands WMA is not expected to generate any major additions to the existing levels and patterns of traffic within or adjoining the study area. In addition, the Service does not anticipate any major increases in noise levels as a result of acquisition of conservation easements for the proposed expanded WMA. Similarly the Service does not anticipate any changes to air quality due to this Alternative because land use would remain largely the same as existing conditions. These determinations have been made based on existing conditions associated with the now established Grassland WMA. However, increases in traffic, air and noise would be expected under to occur on lands not incorporated into the WMA. This alternative would lead to the Service implementing a program that is expected to maintain the status quo on 49,000 acres.

With Highway 99 proposed to be widened, Caltrans is planning for the movement of kit foxes through culverts under the highway. Alternative 3 protects the land on the west side of Highway 99. Caltrans has expressed an interest in furthering the ability for kit foxes and other wildlife to cross Highway 99 from east to west at culverts near drainages. Only Alternative 3 includes the potential proposed sites for these culverts.

Merced County has a moderate to high concentration of air pollutants due to growth, its topography and the warm climate. Many pollutants are blown into Merced County from the San Francisco Bay area and the northern San Joaquin Valley. The San Joaquin Valley does not meet air quality standards for ozone ($O_2$) and particulate matter ($PM_{10}$). Air pollution is not only a health hazard, it also diminishes the production and quality of many agricultural crops in the valley. Air pollution reduces visibility, degrades soil and water, and damages native vegetation.

The Service anticipates negative changes to air quality because lands outside the study area would be expected to follow the trend of areas in California that are growing in population, particularly since a new campus of the University of California is scheduled for the City of Merced (Merced County, 1997).

As more development occurs along Highway 99, the creation of surfaces impervious to water infiltration will likely increase. According to the Merced County Association of Governments and the Federal Highway Administration (1997), the capacity needs of Highway 99 are predicted to translate into a need for eight lanes through the Merced/Atwater area. Intersections at Highway 99 along the edge of the study area (e.g., Sandy Mush Road) are also scheduled for enlargement. The current amount of traffic and weather conditions such as fog make this intersection unsafe. Upgrading these

interchanges by increasing the distance of the on-ramps and off-ramps is expected to occur within the next two years. These are two specific examples of how urbanization incrementally expands into the rural landscape. This expansion affects other areas as well. The creation of surfaces impervious to water infiltration increases with the developments such as the Highway 99 corridor. This increased impervious surface area leads to changes in the quantity and quality of stormwater and can lead to further impacts to streams, wetlands, and the biota that utilize these areas.

### 4.3.2 Soil Erosion and Hydrological Resources

The acquisition of lands for the proposed expanded Grasslands WMA is not expected to expose any public infrastructure to geological hazards or unstable geological features. The acquisition of lands would not result in a major increase in soil erosion, nor would demand for surface water or groundwater, relative to existing and proposed urban and agricultural developments. These determinations have been made based on existing conditions associated with now established Grasslands WMA. Alternative 3 is not likely to result in changes to the hydrologic cycle of the study area. If these agricultural lands are placed under the conservation easement program, the cycle of armoring streams to withstand upstream urbanization is likely to decrease, and naturalization of stream courses for wildlife use will be encouraged.

Under Alternative 3, more farmland would be protected from development and increased impervious surface area than Alternative 2. Increased impervious surface area in the watershed (from building construction, roadways, and parking lots), removal of vegetation, and soil compaction can increase the quantity of urban stormwater runoff (Schueler, 1987). Water velocity also increases, in general, as the degree of urbanization increases (Viessman et al., 1977). These same activities will potentially cause decreased infiltration of stormwater to groundwater, resulting in decreased base flow. Increased impervious surface areas have the effect of increasing flood peaks during storms and decreasing low flows between storms (Stockdale, 1991). Larger peak flows can result in scoured stream beds as the beds enlarge to accommodate larger flows. Associated impacts include increased sediment loading to bordering vegetated wetlands and reduction of fish spawning habitat (Canning, 1988). Urban stormwater input has the potential to change the PH and redox potential of soils, rendering many toxins available from the storage pool so they can have an immediate effect on wetland soils, both in situ and potentially downstream (Cooke, 1991).

There are approximately seven named streams flowing through the study area. Four of these streams are influenced by urban runoff (Black Rascal, Bear, and Owens Creeks, and Hartley Slough), while two are rural in origin (Duck Slough and Deadman Slough). Hartley Slough is the discharge point of the City of Merced's water treatment plant, which flows to Owens Creek and later flows into the Eastside Canal. There is a weir on the opposite side of the Eastside Canal, which when there is excess water, allows Owens Creek water to continue toward the San Joaquin River. Many of these watercourses have been channelized, diverted, have been armored with rock (riprap). Vegetation along the creeks has been removed at points and exotic vegetation is present at others.

Under the 49,000-acre expansion (Alternative 3), The effects of upstream urbanization and the

associated impacts of increased peak flows can be offset by restoring the stream utilizing native vegetation, restoring the natural sinuosity and a using a more "wildlife friendly" approach to deal with these impacts, rather than stream armoring methods which are generally less wildlife compatible.

As a result of a conference of experts on animal movement corridors, a report on linkages throughout California was published that addresses this area (Penrod, 2000). The missing linkages report states that in the Central Valley Ecoregion, "waterways have become critical movement corridors," and that underpasses and culverts were identified as linkages. As Caltrans plans to widen Highway 99 and improve culverts for kit fox and other wildlife movement beneath this Highway, the protection of these lands leading to the Merced National Wildlife Refuge and the San Joaquin River become even more important.

**Table 1. Summary of Impacts By Alternative**

| Impact Topics | Alternative 1 No Action | Alternative 2 13,800-Acre Expansion | Alternative 3 49,000-Acre Expansion (Preferred Alternative) |
|---|---|---|---|
| Streams & Waterways | Minimal protection through existing regulations. | Minimal protection through existing regulations | Water quality and habitat quality improvements under voluntary easement program, linkages promoted and protected. |
| Sensitive Species & Wetlands | Minimal protection through existing regulations. | Native habitats and associated wildlife protected; habitat gaps detrimental to non-avian wildlife | Native habitats and associated wildlife supported by protected habitats and wildlife- friendly crops under conservation easements. Connected habitats supports movement of non-avian wildlife. |
| Agricultural Crop Conversion | Some farmland conversion for other uses | Up to 13,800 acres of wildlife-friendly land uses protected from conversion, gaps allow development. | Up to 49,000 acres of wildlife-friendly land uses protected from conversion, monetary incentive to conserve land uses. |
| Wintering Waterfowl Habitat | No additional habitats protected | Up to 13,800 acres of habitat protected; gaps allow development. | Up to 49,000 acres of habitat protected. Gaps reduced or eliminated. |
| Property Taxes | No Change | No Change | No Change |
| Ownership and public access | No Change | No Change | No Change |
| Urban Expansion/ Ranchettes | Projected increased farmland conversion | Up to 13,800 acres of farm lands protected; gaps allow development. | Up to 49,000 acres of farm lands protected |
| Property values | No Change | May affect resale value. | May affect resale value. |

# CHAPTER 5

# Coordination, Consultation, and Compliance

## 5.1 Agency Coordination

The proposed expansion of the Grassland Wildlife Management Area has been discussed with landowners, conservation organizations; federal, state, county and city governments; and other local agencies, interested groups, and individuals.

The Service has invited and continues to encourage public participation through the public involvement program consisting of public notices, meetings with potential affected landowners, government agencies, and private organizations.

The EA will be available for a 30-day public review and comment period from the date of release. A public meeting will be scheduled during that 30-day comment period. Notice of this meeting will be mailed out under a separate cover.

## 5.2 Environmental Review and Consultation

### 5.2.1 National Environmental Policy Act

As a federal agency, the Service must comply with provisions of the National Environmental Policy Act of 1969 (NEPA). An environmental analysis is required under NEPA to evaluate reasonable alternatives that will meet the stated objectives, and to assess the significance of possible environmental, social, and economic impacts to the human environment. The environmental assessment serves as the basis for determining whether implementation of the proposal would constitute a major federal action significantly affecting the quality of the human environment. The environmental assessment facilitates involvement of government agencies and the public in the decision making process.

### 5.2.3 National Historic Preservation Act

The Service has considered the potential effects of expanding the acquisition boundary for the Grasslands WMA on cultural resources of the area. Effects on archeological and historic resources from implementing the action alternative would not be expected to differ significantly from the "No Action" Alternative. A copy of the EA has been provided to the California State Historic Preservation Officer for review and comment. The Service will be required to complete additional compliance under the National Historic Preservation Act and other cultural resource preservation laws for any future restoration and management actions if the proposed WMA is established.

### 5.2.4 Endangered Species Act

The Service's Division of Planning initiated an informal "Intra-Service Section 7 Consultation, under the requirements of the Endangered Species Act for the expansion of a boundary for the Grasslands WMA.

The Service's Endangered Species Division has issued its concurrence that the proposed project boundary for Alternative 3 is not likely to adversely affect federally listed species and their habitat. The Service will be required to complete additional consultation under Section 7 of the Endangered Species Act for any restoration or management program that would be developed subsequent to expansion of the WMA.

### 5.2.5 Other Federal Laws, Regulations, and Executive Orders

In undertaking the proposal, the Service would comply with the following federal laws, executive orders, and legislative acts: Floodplain Management (Executive Order 11988); Intergovernmental Review of Federal Programs (Executive Order 12372); Protection of Historical, Archaeological, and Scientific Properties (Executive Order 11593); Protection of Wetlands (Executive Order 11990); Responsibilties of Federal Agencies to Protect Migratory Birds (Executive Order 13186); Management and General Public Use of the National Wildlife Refuge System (Executive Order 12996); Departmental Policy on Environmental Justice (Executive Order 12898); Hazardous Substances Determinations (Secretarial Order 3127); Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, as amended; Refuge Recreation Act, as amended; Refuge System Administration Act, as amended; and the National Wildlife Refuge Improvement Act.

### 5.2.6 Distribution and Availability

Copies of this environmental assessment, and land protection plan have been sent to federal and state legislative delegations, agencies, county and city governments, affected landowners, private groups, and other interested individuals (see Appendix C for distribution list). Copies of the draft and final documents will also be mailed to local libraries throughout the region and will be made available to anyone who may wish to review them. Additional copies of this document are available from the U.S. Fish and Wildlife Service, Division of Refuge Planning, 2800 Cottage Way, Suite W-1916, Sacramento, California 95825 (telephone 916-414-6500); and the U.S. Fish and Wildlife Service, Division of Refuge Planning, 911 N.E. 11th Avenue, Portland, Oregon 97232-4181 (telephone 503-231-2231).

## 5.3 References

Allen, Bob, (lead author). 2000. The Draft Grassland Bird Conservation Plan: A Strategy for Protecting and Managing grasslands and Associated Birds in California. Version 1.0. California Partners in Flight. Point Reyes Bird Observatory, Stinson Beach, CA.

Brown, S., C. Hickey, B. Harrington, and R. Gill, eds. 2001. The U.S. Shorebird Conservation Plan, 2nd ed. Manomet Center for Conservation Sciences, Manomet, MA.

California Department of Fish and Game. 1992. *Bird Species of Special Concern.* Unpublished list July 1992. Nongame Bird and Mammal Section, Wildlife Management Division, California Department of Fish and Game, Sacramento.

Canning, D.J. 1988. *Urban runoff quality: effects and management options*. Shorelands Technical Advisory paper no. 4, 2nd ed. Shorelands and Coastal Zone Management Program, Washington Department of Ecology, Olympia, WA.

City of Merced. 1997. *Merced Vision 2015 General Plan*. The City of Merced Development Services Department, Future Planning Division. Merced, California.

Cooke, S.S. 1991. The effects of urban stormwater on wetland vegetation and soils-A long term ecosystem monitoring study. In *Puget Sound Research '91 Proceedings, January 4-5, 1991, Seattle, Washington*. pp. 43-51. Puget Sound Water Quality Authority.

Fredrickson, Leigh H., and Laubhan, Murray K. 1995. *Land Use Impacts and Habitat preservation in the Grasslands of Western Merced County, California.* Prepared for the Grasslands Water District. 83p.

Friend, M. 1981. *Waterfowl management and waterfowl disease: Independent or cause and effect relationships?* Trans. N. Amer. Wildl. and Natur. Resour. Conf. 46:94-103.

Holland, R.F. 1978. *The geographic and edaphic distribution of vernal pools in the Great Central Valley, California*. California Native Plant Society, Special Publication 4:1-12.

Hunter, B.F., W. E. Clark, P. J. Perkins, and P. R. Coleman. 1970. *Applied botulism research including management recommendations*. Wildl. Manage.Progress Rep. Calif. Dept. of Fish and Game. Sacramento. 87pp.

Merced County. 1990. *Merced County General Plan*. Department of Planning. Merced, CA.

Merced County Association of Governments. 1997. *State Route 99 Merced/Atwater Corridor Major Investment Study*.

Page, Gary W., and Shuford, David. 2000. *Southern Pacific Coast Regional Shorebird Conservation Plan, Version 1.0.* Point Reyes Bird Observatory. Stinson Beach, CA .

Pashley,D.N., C.J. Beardmore, J.A. Fitzgerald, R.P. Ford, W.C. Hunter, M.S. Morrison, and K.V. Rosenberg. 2000. Partners in Flight: Conservation of the Land Birds of the United States. American Bird Conservancy, The Plains, VA.

Penrod, Kristeen. 2000. *Missing Linkages: Restoring Connectivity to the California Landscape*. Proc. of The Missing Linkages Conference, Nov. 2, 2002, San Diego, CA. 75 pp.

Riparian Habitat Joint Venture. 2000. The Riparian Bird Conservation Plan: A strategy for reversing the decline of riparian associated birds in California. Version 1.0. California Partners in Flight. Point Reyes Bird Observatory, Stinson Beach, CA.

Rosen, M. N. 1971. Avian cholera. Pages 59-74 *in* J. W. Davis, R. C. Anderson, L. Karstad, and D. O. Trainer. eds. *Infectious and parasitic diseases of wild birds.* Iowa State Univ. Press. Ames, Iowa. 344pp.

Schueler, T.R. 1987. *Controlling urban runoff: A practical manual for planning and designing urban BMP's.* Metropolitan Washington Council of Governments. Washington, D.C.

Stockdale, E.C. 1991. *Freshwater wetlands, urban stormwater, and nonpoint source pollution control: A literature review and annotated bibliography*. Washington State Department of Ecology, Olympia, WA..

U.S. Fish and Wildlife Service. 1998. *Recovery Plan for Upland Species of the San Joaquin Valley, California.* Region 1, Portland, OR. 319pp.

U.S. Fish and Wildlife Service. In prep. Birds of Conservation Concern, 2002. U.S. Fish and Wildlife Service.

Veissman, W., J.W. Knapp, G.L. Lewis, and T.E. Harbaugh. 1997. *Introduction to hydrology*. IEP, New York.