

Appendix B

Conceptual Management Plan

Proposed Expansion
San Joaquin River National Wildlife Refuge
San Joaquin, Stanislaus, and Merced Counties, California

United States Department of the Interior

U.S. Fish & Wildlife Service

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**CONCEPTUAL MANAGEMENT PLAN
PROPOSED EXPANSION
SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE
San Joaquin, Stanislaus, and Merced Counties, California**

B. Conceptual Management Plan

Introduction

This Conceptual Management Plan (CMP) presents a general outline of how the U.S. Fish and Wildlife Service (Service) proposes to manage lands we acquire within the proposed expansion boundary of the San Joaquin River National Wildlife Refuge (Refuge). Our management of existing Refuge lands is described in a 15-year Comprehensive Conservation Plan (CCP) completed in 2006. Until a revised CCP is completed, this CMP would guide restoration, habitat management, and public use activities on lands within the expansion area. The Service proposes to acquire a fee title or conservation easement interest on up to 21,156 acres.

As a conceptual plan, this plan does not provide extensive detail or pinpoint exactly where habitat improvements could be made or show where public use would be allowed. Those details would be included in formal Refuge management planning with input from the public and in accordance with the National Environmental Policy Act (NEPA), as well as the compatibility requirements in the National Wildlife Refuge System Administration Act and the Refuge Recreation Act.

However, this plan should answer general questions about continued Refuge land management and the role the Service would play in carrying out the terms of conservation easements within the proposed expansion area.

The proposed San Joaquin River National Wildlife Refuge expansion area is located in the San Joaquin Valley in San Joaquin, Stanislaus, and Merced Counties, California (Figure 1). The purposes of expanding the Refuge are to 1) protect and restore a diversity of rare and native habitats and their associated populations of fish, wildlife, invertebrate, and plant species of the San Joaquin River; 2) protect, restore, and develop a diversity of habitats for migratory birds such as neotropical songbirds, wading birds, and shorebirds; 3) protect and restore floodplain values and benefits associated with the San Joaquin River, including improved water quality, flood storage, and increased water recharge; 3) protect, restore, and develop habitats for and otherwise support recovery of federally and State listed endangered and threatened species and help prevent the listing of candidate species and species of management concern; and 4) provide high-quality opportunities for wildlife-dependent recreation.

The proposed expansion would also complement management and restoration efforts by numerous agencies, partners, and conservation groups to create a “blueway” for recreation and migratory linkage for species along the San Joaquin River. The Service plans to protect and restore native habitats, knowing these habitats are essential to the life history of species dependent on the San Joaquin Valley’s native riparian ecosystem. Riparian habitats have been identified as the most important habitats to landbird species in California (Manley and Davidson 1993, Davidson 1995). Due to their biological wealth and severe degradation, riparian areas are the most critical habitat for conservation of neotropical migrants and resident birds in the West (Miller 1951, Gaines 1974, Manley and Davidson 1993, Rich 1998, Donovan et al. 2002).



U.S. Fish & Wildlife Service

San Joaquin River National Wildlife Refuge

Location

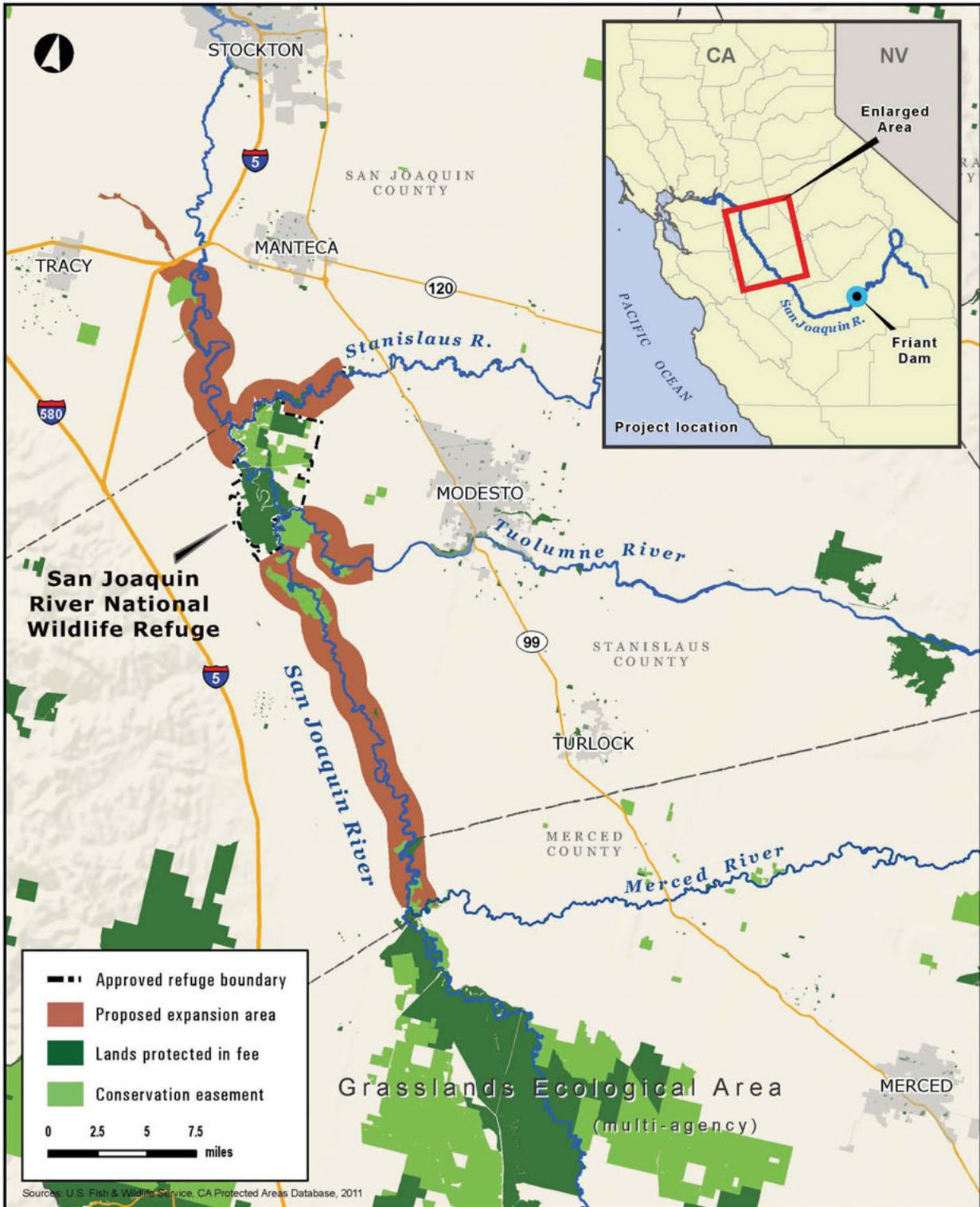


Figure 1. Location of San Joaquin River National Wildlife Refuge

National Wildlife Refuge System

While the proposed expanded San Joaquin River National Wildlife Refuge would likely be a mix of government and private ownership, the interest acquired would become a component of the National Wildlife Refuge System (Refuge System) and would be subject to those laws and regulations pertaining to the system that are applicable to the interest acquired. The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (National Wildlife Refuge System Improvement Act of 1997). The Refuge System is a network of protected lands and waters dedicated for fish and wildlife. Since the Refuge System's inception in 1903, with the establishment of the Pelican Island National Wildlife Refuge in Florida, the System has grown to more than 500 refuges, with at least one refuge in every state. California has 37 national wildlife refuges covering more than 400,000 acres.

The Goals of the National Wildlife Refuge System

- To fulfill our statutory duty to achieve refuge purpose(s) and further the Refuge System mission.
- To conserve, restore where appropriate, and enhance all species of fish, wildlife, and plants that are endangered or threatened with becoming endangered.
- To perpetuate migratory bird, interjurisdictional fish, and marine mammal populations.
- To conserve a diversity of fish, wildlife, and plants.
- To conserve and restore, where appropriate, representative ecosystems of the United States, including the ecological processes characteristic of those ecosystems.
- To foster understanding and instill appreciation of fish, wildlife, and plants, and their conservation, by providing the public with safe, high-quality, and compatible wildlife-dependent public use. Such use includes hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

Purpose and Goals of the San Joaquin River National Wildlife Refuge

The Refuge was established in 1987 to provide winter forage and roosting habitat for the threatened Aleutian cackling goose (formerly known as the Aleutian Canada goose, since delisted), protect other species federally listed as threatened, improve and manage habitat for migratory birds, and conserve native fauna and flora. The Refuge lands encompass a mosaic of valley oak riparian forest, riverine and slough habitats, seasonal and permanent wetlands, vernal pools, natural uplands, and agricultural fields. The Refuge has restored over 1,650 acres of riparian habitat, and great potential for riparian and wetland restoration exists in the proposed expansion area.

The Refuge was established under the authority of the Endangered Species Act. Other Refuge lands were also acquired under the Migratory Bird Conservation Act and the North American Wetlands Conservation Act.

The Refuge is the primary wintering site of Aleutian cackling geese and protection/management of the area has been identified as a critical element in the Aleutian cackling goose recovery plan. In addition, the Refuge is a major wintering and migration area for lesser and greater sandhill

cranes, cackling geese, and white-fronted geese. The riparian forest at the Refuge contains a large heron/egret rookery and provides important migration and breeding habitat for neotropical migratory land birds. Federally listed vernal pool invertebrates have been documented within the Refuge, and valley elderberry longhorn beetles may be present (USFWS 1991)

The endangered riparian brush rabbit was nearly wiped out in 1997 when a severe flood threatened the largest existing population, and a successful captive breeding program was set up. There are a few small known populations, though 90-95 percent of their natural habitat has been destroyed. Initially, 16 captive bred riparian brush rabbits were released into their new home at the San Joaquin River National Wildlife Refuge, and later, 249 offspring rabbits were translocated to the Refuge's West Unit, East Unit (Buffington Tract), and the Faith Ranch, which has a Service easement.

The Refuge purposes are:

“To conserve fish or wildlife which are listed as endangered species or threatened species or plants... 16 U.S.C. 534 (Endangered Species Act of 1973).

“...For use as an inviolate sanctuary, or for any other management purpose, for migratory birds. 16 U.S.C. 715d (Migratory Bird Conservation Act)

“...For the development, advancement, management, conservation, and protection of fish and wildlife resources. 16 U.S.C. 742f(a)(4)

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

Goals of the Refuge

The Refuge has five broad goals that were developed during the Comprehensive Conservation Planning process. They are consistent with the Refuge purpose and vision, ecoregion goals, Refuge System goals, the National Wildlife Refuge System Improvement Act of 1997, Service policy, and international treaties.

Goal 1 (Biological Diversity) *Conserve and protect the natural diversity of migratory birds, and resident wildlife, fish, and plants through restoration and management of riparian, upland, and wetland habitats on Refuge lands.*

Goal 2 (Threatened and Endangered Species) *Contribute to the recovery of threatened and endangered species, as well as the protection of populations of special status wildlife and plant species and their habitats.*

Goal 3 (Aleutian Cackling Goose) *Provide optimum wintering habitat for Aleutian cackling geese to ensure the continued recovery from threatened and endangered species status.*

Goal 4 (Ecosystem Management) *Coordinate the natural resource management of the San Joaquin River National Wildlife Refuge within the context of the larger Central Valley/San Francisco Ecoregion.*

Goal 5 (Public Use of the Refuge) *Provide the public with opportunities for compatible, wildlife-dependent visitor services to enhance understanding, appreciation and enjoyment of natural resources at the San Joaquin River National Wildlife Refuge.*

Refuge Management

The Refuge may operate certain programs under an interim management plan. Additional public use opportunities would be limited until acquisition and restoration can provide a safe, quality experience. Those properties that remain in private ownership would not be open to the general public.

The management focus of the proposed expanded Refuge would be to promote natural biological processes that benefit the conservation of fish, wildlife, and plants. Subsequent to acquisition of an interest in the land (fee, easement, or agreement), the Service would maintain and likely restore native habitats essential to the survival of riparian dependent species on the Refuge. Management direction for the fee lands would be to restore the riparian habitat. Management direction for easement properties would be guided by the terms of the conservation easements developed and negotiated with the landowners. Following are the types of activities that presently occur on Refuge lands and would likely occur on lands within the proposed Refuge expansion.

Restoration

The Service would also focus on additional habitat restoration and enhancement of the remaining Refuge units. A general goal of restoration is to reestablish an ecosystem's ability to maintain its function and organization without continued human intervention. The restoration would aim to maintain the range of conditions produced by natural disturbance regimes and encourage natural patterns of succession. Site-specific plans would be developed for restoration activities. Additional NEPA compliance documents may be needed depending on the size and scope of the restoration activities. The Service would continue to allow researchers to conduct research and actively pursue further investigations and long-term monitoring on the Refuge.

A flow chart for site specific restoration planning and implementation was developed for the Riparian Habitat Joint Venture by Thomas Griggs of River Partners, a river restoration organization. This flow chart and an explanation detailing the process follow (Riparian Habitat Joint Venture 2009):

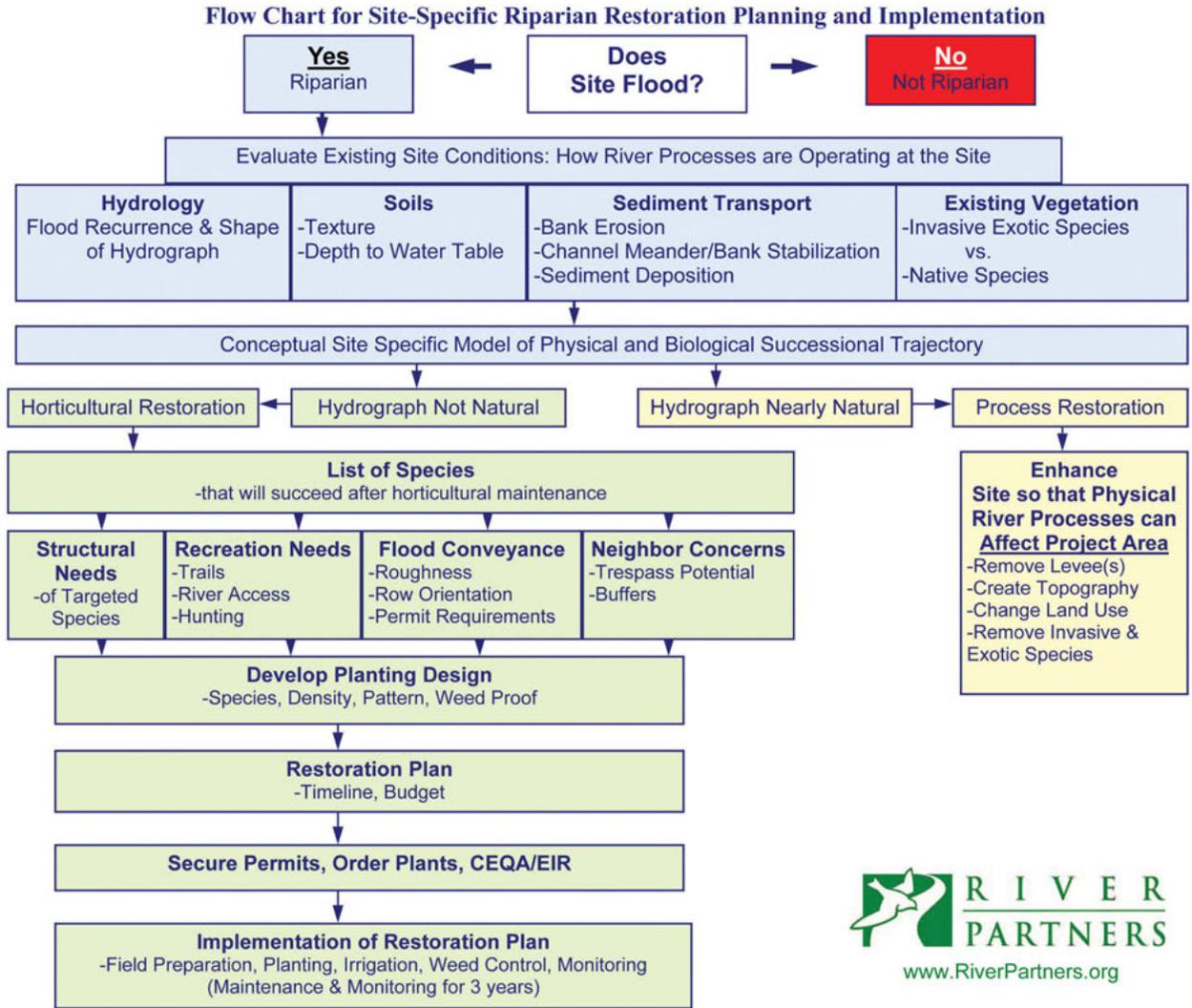


Figure 2. Flow Chart for Site-Specific Riparian Restoration Planning and Implementation

Flow Chart Planning Process and Explanation (RHJV 2009)

The following descriptions of each step in the flow chart provide more detail about the factors to be considered at each stage of restoration planning and implementation.

Does the Site Flood?

This is a fundamental question. If the site does not flood, then river processes are not operating on it, and it will not function as riparian habitat.

Evaluate Existing Site Conditions

Determine how river processes affect the site. Existing site conditions will determine the growth and reproduction of each species that will be planted. What is the potential for future changes to existing conditions?

Land Use History

Interviews with former land owners and neighbors, agriculture records of the site, and Federal and State agency personnel familiar with the site can provide a history of land use that can be useful in current plant design. If the site was previously farmed, the farmer might have useful tips, such as what crops grew well in which locations and where the problem areas of the site (e.g., poor soils, patterns of flooding, sediment deposition) were that needed extra irrigation or were avoided altogether. This information can give a head start on selecting the appropriate planting design.

Hydrology

Using several sources of information, such as stream flow data, aerial photos, and input from hydraulic engineers, evaluate the flood recurrence interval on the site, both currently and historically. Flood events have been photographed from the air over the Central Valley since 1937. Certain areas (e.g., around the Delta) have had detailed land surveys carried out since the early 1900s such that channel locations are known from that time.

Soils

Evaluation of soil features will be the most important ecological factor that determines the growth of each individual plant of all species. Backhoe pits or soil auger holes should be excavated at several locations across the restoration site with guidance from a Natural Resource Conservation Service (NRCS) soil survey map. Particular attention should be given to depth of water table (winter versus summer levels) and stratification of soil textures (presence of sand lenses or clay layers) from the top to the bottom of the pit. This information, coupled with knowledge for each species about its rooting depth and patterns of root growth in various soil textures, will allow the restoration planner to develop a palette of species that will likely grow on the site.

Sediment Transport

Evaluation of bank erosion rates on the site and consequent channel meander across the site is needed. Sediment deposition across the site after a flood should be evaluated. The existence and age of point bars will tell much about the magnitude of sediment transport at the current time.

Existing Vegetation

Map out the existing vegetation on the site. Native trees and shrubs can be incorporated into the planting design, whereas invasive species should be targeted for removal. Do not forget about native herbaceous understory species.

Conceptual Site Specific Model of Biology and Physical Succession

Based upon the site evaluation, a conceptual model can be developed for plant succession under the influence of current physical river processes. This model is essentially a synthesis of the information gathered during the site conditions evaluation. The conceptual model helps visualize the biological trajectory of the site under the current conditions with and without restoration.

State of the Hydrograph

All plants and animals that reside on the floodplain of a river are adapted to the timing of flows throughout the year. The seasonality, frequency, and duration of flood events today should be compared with historical data. A natural hydrograph shows low flows during the summer and fall, with higher flows during the winter and spring. It is the springtime recession limb of the hydrograph (moving from spring into summer) that is ecologically critical for seed dispersal and seedling establishment on exposed mineral substrate of several important riparian plant species. Existing site conditions and local knowledge should be sufficient to determine which path to take for effective restoration. However, a way to obtain an independent source of information would be to study historical and current records of river flows. All rivers and streams in California have gaging stations located somewhere along them that continuously measure the water-elevation of the river. Real-time water data for California is available from the U.S. Geological Survey (USGS 2009) and the California Department of Water Resources Data Exchange Center (CDWR 2009). Plotting the daily water surface elevation for the entire year will reveal a graph that rises during rainfall events and remains higher during the winter and spring compared to summer and fall elevations. If the hydrograph indicates smooth rising and falling relative to rainfall and runoff, then the river has a natural hydrograph. On rivers with dams, the hydrograph can be a straight, horizontal line through the entire season or even have higher flows during the summer than in the winter, and peak stream flows may be much less variable over time. Native plants will never reestablish under a flat-line hydrograph because the timing and duration of flooding is not natural or is non-existent (flat line hydrograph). Horticultural restoration would be called for on such heavily managed rivers. Process restoration would be indicated where the flows mimic the natural hydrograph.

Horticultural vs. Process Restoration

Based upon the site evaluation, specifically the existing hydrology as displayed by the hydrograph, the restoration planner can determine the probability that the site can “restore itself.” Typically, a river in California with a dam will require horticultural restoration because the river processes cannot provide the needed conditions for regeneration of most species (seedling establishment and growth). Process restoration may be a viable way to restore a site if river processes are still functioning. Intervention in the form of levee removal, modification of topography, land use changes, and removal of non-native weeds may be required to initiate natural biological processes. The proposed restoration of lands adjacent to the San Joaquin River would primarily involve horticultural restoration.

List of Species

Based upon the conceptual model, develop a list of plant species that will survive and grow on the site after three years of irrigation and weed control.

Structure Needs of Target Species

With the list of plant species that will grow on the site and knowledge of the habitat needs of the target wildlife, the restoration planner can arrange individuals of each plant species into a pattern that the target wildlife will use. That is, the planner can design groves of trees, shrub thickets, and herbaceous openings at whatever area or proportion of the site might be needed. Work with a broadly trained wildlife ecologist to apply information in restoration planning efforts. Plenty of good qualitative and quantitative information is available in the scientific literature and published species accounts describing wildlife habitat preferences, such as the California Partners in Flight focal bird species and recovery plans.

Refuge restoration design includes the needs of target bird species, the riparian brush rabbit, the riparian woodrat, and anadromous fish, among others. For the riparian brush rabbit, elevated flood refugia mounds have been constructed and vegetated for individual rabbits to survive severe flood conditions. Levee slopes have also been planted with native brushy plants to provide a long linear high ground flood refugia habitat, and densely vegetated uplands outside of and adjacent to the flood control levees provide another escape from floodwaters. Riparian woodrats should also benefit from these actions.

Recreation Needs

As part of the restoration, recreational facilities may be included. Hiking trails, river access, and hunting may be incorporated into the planting design.

Flood Conveyance

On the large rivers that function as floodways, a restoration design must be flood neutral, that is, the planting must not change the depth of flood waters both upstream and downstream of the site, and the planting must not direct flows into bridges, levees, etc. Planting designs can be developed to assist in flood and sediment conveyance by directing flows away from structures or protecting levees from erosion. A certified civil engineer, specializing in flood conveyance, may be needed to verify the flood neutrality. This may involve a hydraulic model examination of the planting design.

Neighbor Concerns

How does the project affect adjoining lands and other conservation efforts? Neighbors of a restoration planting can usually offer useful information about the site. They may also have concerns about wildlife and human trespass. Often trespass concerns can be mitigated by planting buffers or borders along the edges of the planting that will discourage human trespass, such as rose, blackberry, and poison oak hedgerows that also have wildlife benefits.

Develop Planting Design

The evaluations should provide sufficient information to develop the final planting design. Proportions of each species across the site, density of plants, pattern of the plants across the site, and understory planting that will prevent non-native weed species from colonizing and/or spreading on the site can be determined from this information.

Restoration Plan

Develop a document that pulls together and explains ecology and implementation aspects of a restoration project, provides a project timeline and a budget, describes implementation methods, and describes monitoring and adaptive management protocols for the site.

Implementation of the Planting Design

Implementation involves planting, effective weed control, irrigation, and monitoring over a three-year period. (RHJV 2009).

Monitoring and Research

The Refuge conducts annual and periodic surveys as described in the following text. In addition, Point Reyes Bird Observatory (PRBO) Conservation Science, in collaboration with The Nature Conservancy and Audubon California, has designed and implemented a new regional monitoring program for riparian breeding birds in the Central Valley.

The Refuge staff is also involved with population and survival monitoring of captive-bred translocated riparian brush rabbits using radio telemetry. Very little is known about the distribution of riparian woodrats on the Refuge. Nearly all of the individual woodrats captured were done so incidentally to riparian brush rabbit surveys.

Annual Surveys/Monitoring (Refuge Specific)

Operational surveys/monitoring are conducted by Refuge staff on certain species and habitats on an annual basis. Frequency and time of year surveyed vary by species as appropriate. Purposes, frequencies, and timing of individual surveys are variable and are conducted to meet local monitoring needs. These include monitoring long-term population trends in relation to Refuge water supply/quality (e.g., Heron and egret rookery surveys), meeting requirements of interagency management agreements (e.g., quarterly tule elk surveys), population response to habitat management (e.g., waterbird use of seasonal wetlands), and monitoring annual/long-term population status of listed/special status species (e.g., Colusa grass). In addition, waterfowl use of upland and wetland habitat is monitored so that actions can be taken to minimize wildlife disease loss (e.g., avian cholera surveys).

Annual Surveys/Monitoring (Landscape Level)

Other surveys/monitoring are conducted not only to gather information needed at the Refuge level, but also to contribute to Pacific Flyway or nationwide data needs or aid in endangered species recovery. These include monitoring annual/long-term populations of special status species (e.g., tricolored blackbird colony monitoring), contributing population data to Pacific Flyway management (e.g., white goose surveys, Aleutian goose banding and collar observations), and monitoring response to habitat restoration (e.g., least Bell's vireo breeding surveys).

Periodic or Special Project (Selected Years) Survey/Monitoring

Certain survey/monitoring efforts are conducted on a periodic basis or as special projects. Surveys conducted periodically include those that require a high level of staff time (using existing staff/funding) that preclude an annual effort (e.g., kit fox surveys) and those in which results are best evaluated over longer time increments (e.g., avian response to restoration/management of

riparian areas). Other monitoring efforts have to be opportunistic by nature. Sampling of vernal pool invertebrates can only occur in winters where there is sufficient rainfall to fill the pools. White-faced ibis nest very infrequently on the refuge. Formation of nesting colonies is easily detected by Refuge staff conducting normal wetlands management duties. Formal nest monitoring would only be done on years that nesting colonies are initiated. Special projects include those in response to the Service's national inventory priorities (e.g., mourning dove banding), those with special funding (e.g., kangaroo rat population surveys, giant garter snake population surveys), and participation in larger-scale survey efforts (e.g., Aleutian goose neck collar observations for Service indirect population estimation surveys, or statewide avocet/black-necked stilt breeding survey). Any of these could be changed to become part of the annual survey/monitoring program if appropriate (such as occurred with least Bell's vireo).

Mosquito Abatement

Issues concerning mosquitoes and their associated problems (i.e., nuisance biting and vector-borne diseases) are frequently encountered with aquatic habitats, particularly when they are in proximity to human habitations (Pratt and Moore 1993). Aquatic habitats and wetlands, as well as irrigated pasture, provide conditions for breeding mosquitoes on the Refuge. The existing San Joaquin River National Wildlife Refuge is situated within two local mosquito control agencies (Turlock and Eastside Mosquito Abatement Districts). Both are active districts and conduct mosquito monitoring programs (both larvae and adults), as well as disease monitoring programs (i.e., encephalitis, malaria and West Nile virus) on the Refuge. Both districts also conduct larvaciding programs on the Refuge with the approval of the Refuge manager and when conditions warrant. The proposed expansion area includes the San Joaquin Mosquito and Vector Control District and the Merced County Mosquito Abatement District. In the past 15 years, no public health emergencies have been declared concerning a mosquito-borne disease at the San Joaquin River National Wildlife Refuge or its vicinity. Mosquito abatement on Refuge lands will require the Service to ensure that mosquito programs do not negatively affect natural resources and addresses legitimate mosquito issues in neighboring communities. The Service plans to adopt mosquito control best management plans as promulgated by the California Department of Public Health and the Central Valley Joint Venture's Mosquito Control Working Group.

Law Enforcement

Enforcement of State and Federal laws on national wildlife refuges is important to protect private property and to conserve and protect natural resources. Two or more Refuge staff people usually have law enforcement training and authority. Refuge officers would work closely with State and local police, California Department of Fish and Game wardens, and/or California Department of Parks and Recreation rangers to control trespassing, violation of wildlife laws, and other violations of law.

Public Use

Fee title lands within the National Wildlife Refuge System are managed as primary use areas (i.e., managed first and foremost for the benefit of fish, wildlife, and their habitat; and secondarily for other uses). As a first priority, refuges are intended to fulfill the Refuge System mission, as well as the specific purpose(s) for which the refuge was established. In addition, refuges are closed to other uses unless specifically and formally opened (National Wildlife Refuge System Administration Act of 1966 [NWRSA of 1966, 16 U.S.C. 668dd]). This contrasts with units of other Federal land management systems that are managed under a multiple-use mandate (e.g., national forests administered by the U.S. Forest Service and public lands administered by the U.S. Bureau of

Land Management). In the case of the expanded San Joaquin River National Wildlife Refuge, restoration must occur before any increased public use can begin on the newly acquired lands.

Appropriate Refuge Uses Policy

The initial decision-making process a refuge manager follows when first considering whether or not to allow a proposed use on a refuge involves an evaluation of the appropriateness of a given activity on a refuge. The refuge manager must find a use to be appropriate before undertaking a compatibility review of the use. If a proposed use is not found to be appropriate, the refuge will not allow the use and will not prepare a compatibility determination. By screening out proposed uses that are not appropriate to the refuge, the refuge manager avoids unnecessary compatibility reviews. By following the process for finding the appropriateness of a use, the refuge manager strengthens and fulfills the Refuge System mission.

The Compatibility Standard

Before activities or uses are allowed on a national wildlife refuge, Federal law requires that uses be formally determined to be compatible with the mission of the Refuge System and the purposes of the refuge (National Wildlife Refuge System Improvement Act of 1997). A compatible use is a use of a refuge that, in the sound professional judgment of the refuge manager, will not materially interfere with or detract from fulfillment of the mission of the Refuge System and the purpose of the Refuge.

Compatibility determinations are documents written, signed, and dated by the refuge manager and the regional chief of refuges that signify whether proposed or existing uses of national wildlife refuges are compatible with their establishing purposes and the mission of the National Wildlife Refuge System. All recreational activities and economic or other uses of a refuge by the public or other non-Service entity require compatibility determinations, which must include our analysis of all facilities, structures, and improvements associated with the uses. Economic uses must also contribute to achieving refuge purposes and the mission of the Refuge System. Compatibility determinations are not required for such refuge management activities as surveys, historic preservation, law enforcement, or the maintenance of refuge management facilities, structures, or improvements.

We reevaluate compatibility determinations for existing wildlife-dependent recreational uses when we prepare or revise a comprehensive conservation plan, or every 15 years, whichever is sooner. We reevaluate other uses every 10 years or sooner, if conditions change or significant new information about the use or its effects becomes available.

Compatible uses of the San Joaquin River National Wildlife Refuge would be dictated by the terms of the negotiated conservation easements with individual landowners. Since lands held under an easement remain as private property with the property owner controlling access, the Service cannot authorize public uses on easement lands.

The Service is required by Executive Order 12996 to identify, prior to acquisition of new refuges or refuge additions, existing public recreational activities that would be allowed to continue following the Service's acquisition of the land. Due to the unknown nature of recreational land use at this time, it is difficult to speculate on existing uses, if any, on lands within the project area. Prior to acquisition of any interest in lands, an interim compatibility determination will be performed, and the results would be posted at the Refuge for public comment.

Wildlife-Dependent Recreational Uses

For fee-title lands, The National Wildlife Refuge System Improvement Act (1997) identifies six wildlife dependent recreational uses that foster an appreciation for fish and wildlife and are generally compatible with the Refuge System. These six uses are hunting, fishing, wildlife observation and photography, and environmental education and interpretation. When compatible with refuge purposes, these wildlife-dependent recreational uses are to receive enhanced planning and management consideration over other general public uses and are to be generally encouraged on national wildlife refuges. Conservation easement lands are not subject to these public use mandates.

Hunting and Fishing

Hunting and fishing of wildlife would be permitted in compliance with applicable local, State, and Federal laws and regulations and in a manner that does not significantly deplete the wildlife resources or damage the natural landscape. The Refuge does not presently provide direct access to the San Joaquin River for fishing, although the Comprehensive Conservation Plan for the Refuge does prescribe constructing one or more walk-in car-top boat launching facilities.

The Refuge does not provide direct access for fishing, although anglers occasionally fish from boats in the San Joaquin River, a navigable waterway. There are no boat launching facilities or fishing from land opportunities on the Refuge. Fishing may be considered as a wildlife-dependent public use after improvements such as additional land acquisition, access development, and habitat restoration, which has the potential to increase populations of fisheries.

The San Joaquin River National Wildlife Refuge does plan to develop a recreational hunt program, as described in the Comprehensive Conservation Plan for the Refuge. Before a Refuge hunting program can be developed, the Refuge must develop water management infrastructure and secure funding to flood and drain wetlands.

Wildlife Observation and Photography

Wildlife viewing and nature photography comprise the majority of public visitation at the Refuge. The Refuge currently provides two areas that are open regularly for wildlife observation and photography – the 4-mile Pelican Nature Trail that is open daily year-round and the Beckwith Road wildlife viewing area that is open in the fall and winter.

Wildlife viewing opportunities can be improved through continued land acquisition and restoration, particularly if restoration targets rare, threatened, and endangered avian species.

Environmental Education and Interpretation

The Refuge hosts field trips for school groups throughout the year, often in conjunction with NGO partners. Field trips often involve planting native trees and other service learning-type activities. The Refuge provides interpretive tours and presentations to a variety of groups including the general public, university students, and professional organizations. Interpretive amenities include the Pelican trailhead's information kiosks, with interpretive panels explaining wildlife and habitat issues on the Refuge, and an information kiosk and interpretive panels at the Beckwith Road wildlife viewing area.

Administration

Facilities Development and Management

Boundaries of any lands acquired by the Service will be posted with Refuge signs at regular intervals. Fencing or other types of barriers are often constructed to control illegal trespassing that could damage habitat or to manage domestic livestock. River access for fishing and water related recreation is planned after restoration is completed.

Funding

Refuge staff would maintain a current inventory of management needs in the Service Maintenance Management System database and update their costs and priorities annually. This database provides a mechanism for each unit of the Refuge System to identify mission-critical projects and major needs and to form a realistic assessment of the funding needed to meet each station's goals, objectives, and strategies.

Staffing

At full staffing, personnel dedicated to the Refuge would include a Refuge manager, assistant manager, maintenance worker, tractor operator, and wildlife biologist. A public use specialist is shared with the other units comprising the San Luis National Wildlife Refuge Complex. The other staff positions of the Complex are also shared among the different units.

The staffing pattern and base funding for the proposed expanded Refuge are dependent on the Refuge size and boundary alternative (Environmental Assessment). Although, currently, there is no approved staffing plan for the proposed Refuge expansion, staff at the San Luis Complex would not be expected to change significantly. The Refuge is also anticipated to enjoy the support of volunteers from the local community and outside researchers with an interest in long-term management of the Refuge.

Management of Easements

Under the terms of the conservation easements, the property owners would retain the rights to maintain and repair improvements on their property, including roads, fences, trails, etc. Property owners would also reserve the right to control access to the properties and to prevent trespass on the property. The private property owners may exercise and enjoy all rights as owners of the properties, including the right to use the property for any purpose which does not adversely impact the conservation value and which is consistent with the purposes of the conservation easements. The conservation easements do not, however, exempt the property owners from compliance with applicable laws and regulations. The language presented here is general. Specific terms will be agreed to, prior to approval and finalization of the easement with the landowner.

Interagency and Public Coordination

The Service acknowledges the strong support of the California Department of Fish and Game, River Partners, PRBO Conservation Science, The Tuolumne River Trust, The Nature Conservancy, the Bureau of Reclamation, the U.S. Army Corps of Engineers, and the San Joaquin River Partnership, among others. The Service will continue to work with these and other agencies to maximize resource protection, enhancement, and public education for the expanded San Joaquin River National Wildlife Refuge.

The Refuge project area encompasses or lies adjacent to private, State, and federally owned or managed lands. Therefore, the opportunity for a coordinated approach to resource management

exists. The Service would seek partnerships with neighboring landowners to meet mutual goals and objectives whenever possible. These may include partnerships with neighboring private landowners to encourage wildlife protection. The Service would also pursue other partnerships to benefit resource management and public use, including environmental education on Refuge lands.

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