Evaluation of Environmental Effects Associated with Wildlife Habitat Restoration on Seven Tracts along the Sacramento River between Colusa and Princeton

CEQA Initial Study for the Colusa Subreach Wildlife Habitat Restoration Project

SCH No. 2008052098

August 2008

Prepared for:

State of California
Department of Fish and Game
Region 2–North Central Region
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Prepared by:

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MITIGATED NEGATIVE DECLARATION
Colusa Subreach Wildlife Habitat Restoration Project
State Clearinghouse No. 2008052098

The California Department of Fish and Game, Region 2 (Department), has reviewed the Colusa Subreach Wildlife Habitat Restoration Project (Project) as a project under the California Environmental Quality Act (CEQA) to determine whether the Project could have a significant effect on the environment. Under CEQA, "significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project (CEQA Guidelines Section 15382). This declaration and the attached documentation describe why the Project will not have a significant effect on the environment.

PROJECT IDENTIFICATION

Name of Project: Colusa Subreach Wildlife Habitat Restoration Project at Seven Tracts along the Sacramento River between Colusa and Princeton

Lead Agency: California Department of Fish and Game, Region 2

Project Location: The Colusa Subreach project area is primarily located in Colusa County, with a small area on the north end in Glenn County (Figure 1). The project involves restoration of seven non-contiguous tracts along a 21-mile reach of the Sacramento River between the unincorporated community of Princeton and the City of Colusa (RM 145.5 to RM 162). The seven restoration tracts from north to south are identified as Womble, Jensen, Stegeman, 1000-Acre Ranch, Boeger, Colusa-North, and Cruise n' Tarry. The total area of the seven tracts is approximately 825 acres. Summary information for the seven tracts is provided in the table below.

Tract (Restoration Site Name)	Section, Township, Range	County Assessor Parcel (AP) Number(s)	Owner	Total Area (Acres)	Restoration Area (Acres)
Womble	Section 29, T18N, R1W	012-120-045-000, 001, 002 (Colusa); 013-340-006-000 (Glenn)	State/CDFG	320	54
Jensen	Section 31, T18N, R1W	012-120-019-000	TNC[1]	98	81
Stegeman	Section 6, T17N, R1W	012-160-064-000	State/CDFG	69	8
1000-Acre Ranch	Section 6, T17N, R1W	012-160-062-000	TNC[1]	60	49
Boeger	Section 8, T16N, R1W	015-030-070-000	TNC[2]	125	51
Colusa-North	Sections 7 and 18, T16N, R1W	015-070-114-000	State/CDFG	143	5
Cruise n' Tarry	Sections 17 and 20, T16N, R1W	015-070-085-000	State/DWR	10	3

Notes: 1. Tract is adjacent to State land managed by the Department. Future transfer to a State agency is anticipated.
2. Future transfer to a State agency is anticipated.

***PROJECT DESCRIPTION*:** The Nature Conservancy (TNC) in association with the Sacramento River Conservation Area Forum (SRCAF) and other partners propose restoration of approximately 251 acres of wildlife habitat on portions of seven tracts within the levees of the Sacramento River between the unincorporated community of Princeton and the City of Colusa. The wildlife habitat restoration activities are proposed through a planning and stakeholder involvement called Colusa Subreach Planning (CSP). Three of these tracts currently owned by TNC – Jensen, 100-Acre Ranch, and Boeger – are proposed to be acquired by the State of California. The restored sites would be managed for long-term conservation and public recreation purposes.

The objectives of the proposed Project are:

- to improve wildlife habitat by contributing to the creation of large, contiguous blocks of riparian habitat along the Colusa Subreach of the Sacramento River; and
- to enhance existing riparian vegetation and improve habitat quality by removing and controlling invasive species.

The purpose of the proposed Project is to restore the ability of the Colusa Subreach tracts to support native wildlife, including species listed under the state and federal endangered species acts and other special-status species. Restoration activities include removal of non-native vegetation; site preparation; installation of irrigation systems and use of surface water or groundwater supplies; planting of native trees, shrubs, and grasses; interim irrigation of plants as they become established; and construction of minor public access improvements. The seven restoration tracts may be restored individually, at different times in the future, depending upon the availability of funding.

MITIGATION MEASURES: Mitigation measures are included in the Project and identified in the Initial Study, as summarized below. The Department has determined that these mitigation measures reduce the potentially significant effects of the Project to levels that are less than significant. These measures are incorporated into the Mitigation Monitoring and Reporting Program for the Project.

Biological Resources

Mitigation Measure #1 – Valley Elderberry Longhorn Beetle (VELB)

(i) Surveys shall be conducted at each of the seven tracts prior to implementation of restoration activities to identify, and mark for protection, elderberry shrubs potentially affected by activities.

(ii) Prior to restoration at each tract, a Worker Environmental Awareness Program for restoration workers shall be conducted by a qualified biologist. The program shall provide all workers with information on their responsibilities with regard to sensitive biological resources, including the federally listed VELB and the need to protect its elderberry host plant.

(iii) Measures to protect buffer areas shall be instituted prior to construction and will include fencing and signs. The distance of the buffer area from the drip line of elderberry shrubs with one or more stems measuring 1.0 inch or greater in diameter at ground level shall be set at the greatest distance practicable without compromising the goal of planting native vegetation. The distance of the buffer area shall extend at least 20 feet from the drip line of the elderberry plant.

(iv) No insecticides, herbicides, fertilizers, or other chemicals associated with the proposed project that might harm the beetle or its host plant shall be used within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.

(v) Any damage to the buffer area during construction shall be restored following construction primarily using re-vegetation with native riparian plants as appropriate.

Mitigation Measure #2 – Nesting Raptors and Other Nesting Birds

(i) The removal of orchard trees and native trees at the Womble, Stegemen and Colusa-North tracts, shall be conducted outside of the nesting season (nesting season is February 15 to August 30) to the maximum extent practicable.

(ii) For all proposed Project activities conducted during the nesting season that have a potential to disrupt nesting birds, pre-construction surveys shall be conducted. Pre-construction surveys for nesting raptors and migratory birds, including but not necessarily limited to yellow-billed cuckoo, California warbler, yellow-breasted chat, and loggerhead shrike, shall be conducted by a qualified biologist. A minimum of one survey must be conducted no more than 14 days prior to the initiation of Project activities. If an active nest is found in close proximity to (i.e., within 250 feet) an active restoration area that will be disturbed by proposed Project activities, a qualified biologist shall determine the extent of a construction-free buffer zone to be established around the nest.

Mitigation Measure #3 – Bats

(i) In the event that native trees greater than or equal to 12 inches in diameter at 4.5 feet above grade within the Colusa-North Tract would be removed, a pre-construction survey for roosting bats shall be conducted prior to removal. No activities that would result in disturbance to active roosts of special-status bat species shall proceed prior to the completed survey. If no active roosts are found, then no further mitigation is needed. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified biologist will determine the extent of a construction-free zone to be established around the roost; access and time limits shall also be identified. If either a maternity roost or hibernaculum (i.e., a location used for hibernation) is present, the following measures shall also be implemented. CDFG shall also be notified of any active nurseries or hibernacula identified in the survey.

- If active maternity roosts or hibernacula are found, the Colusa-North temporary access road will be relocated to avoid the loss of the tree occupied by the roost, if feasible.
- If an active nursery roost is located and the access road can not be relocated to avoid removal of the occupied tree or structure, demolition of that tree or structure should commence before maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31) and the disturbance-free buffer zones described above shall be observed during the maternity roost season (March 1 to July 31).
- If a non-breeding bat roost or hibernacula is found in a structure or tree scheduled to be removed, the individuals shall be safely evicted, under the direction of a qualified biologist (as determined by a Memorandum of Understanding with the Department), by opening the roosting area to allow air flow through the cavity. Demolition shall then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for airflow and the demolition). This action should allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed shall first

be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.

Mitigation Measure #4 – Riparian Habitat at Colusa North Tract

(i) If a temporary access road is constructed at Colusa-North, the impact to existing habitat shall be minimized by implementing the following measures:

- The access road shall be designed with the minimum width needed for tractors and other equipment and the minimum length needed from the existing levee road to the site.
- Upon completion of Project activities at the Colusa-North Tract, the land surface affected by the access road shall be restored as closely as practicable to preconstruction contours and revegetated with native riparian species.

Mitigation Measure #5 – Wetlands

(i) Prior to the initiation of any ground-disturbing activities at the Womble and Colusa-North tracts, a qualified biologist shall identify all features that may exhibit wetland characteristics (i.e., suspected of meeting wetland criteria, including waters subject to US Army Corps of Engineers (USACE) jurisdiction, as well as other waters not subject to USACE jurisdiction but subject to the jurisdiction of the Regional Water Quality Control Board (RWQCB)). These features plus an appropriate protective buffer shall be flagged or fenced prior to the start of start of site preparation, irrigation system installation, or other ground disturbance.

(ii) Mechanized equipment operation in and within 100 feet of identified features shall be avoided to the extent practicable. If avoidance of discharge of dredged or fill material is not practicable, the following measures shall be implemented.

- Conduct a wetland delineation pursuant to USACE requirements to determine the nature and extent of "waters of the United States" that are subject to restoration activities within the Womble and Colusa-North tracts.
- Prior to any discharge of dredged or fill material into "waters of the United States," including wetlands, authorization under a Nationwide Permit or Individual Permit shall be obtained from the USACE. For fill requiring a USACE permit, water quality certification shall be obtained from the RWQCB prior to discharge of dredged or fill material.
- Prior to any activities that would obstruct the flow of or alter the bed, channel, or bank of any intermittent or ephemeral creeks, notification of streambed alteration shall be submitted to the CDFG, and, if required, a Streambed Alteration Agreement shall be obtained.
- Construction activities that would have an impact on "waters of the United States" shall be conducted during the dry season to the extent practicable to minimize erosion.
- All measures contained in permits or associated with agency approvals shall be implemented.

Cultural Resources

Mitigation Measure #6 – Construction Worker Training and Inadvertent Discoveries

Prior to initiation of construction or ground-disturbing activities, TNC shall provide worker awareness training and informational materials to all construction workers regarding the possibility of discovering prehistoric or historic cultural resource materials. Personnel shall be instructed that if materials are encountered that may represent archaeological material, work within 50 feet of the find shall be halted and a professional archaeologist shall be consulted. Once the find has been identified, TNC's project archaeologist will make the necessary plans for treatment of the cultural resources and for the evaluation and resolution of any adverse effect to such properties pursuant to the NHPA and CEQA. Work may continue on other parts of the proposed Project while mitigation for historical or unique archaeological resources takes place.

Mitigation Measure #7 – Protection of Known Cultural Site

A professional archaeologist shall be present during ground-disturbing activities on the one tract (identified in the confidential cultural resources investigation) where cultural materials are suspected. The archaeologist shall have authority to stop work if needed. If potentially significant cultural materials are detected, all work shall halt within a 100-foot radius of the find until clearance is provided by the archaeologist. The Department, in consultation with TNC's project archaeologist, shall determine the need for additional cultural resources monitoring in areas removed from the identified feature.

Mitigation Measure #8 – Monitor for Known Cultural Site

An experienced Native American monitor, representing a local group such as the Cortina Band of Indians (Cortina Indian Rancheria, Wintun Tribe) shall be present during ground-breaking activities on the one tract (identified in the confidential cultural resources investigation). In the event of the inadvertent discovery of human remains, the monitor will facilitate Native American consultation, but will not replace the required protocol outlined in Mitigation Measure CR-4, below. The Department, in consultation with TNC's project archaeologist, shall determine the need for additional cultural resources monitoring in areas removed from the identified feature.

Mitigation Measure #9 – Inadvertent Discovery of Remains

If human remains are encountered during construction, work in the affected portion of the Project shall stop and the County Coroner's Office shall be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by Public Resources Code, Section 5097. The NAHC will notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains.

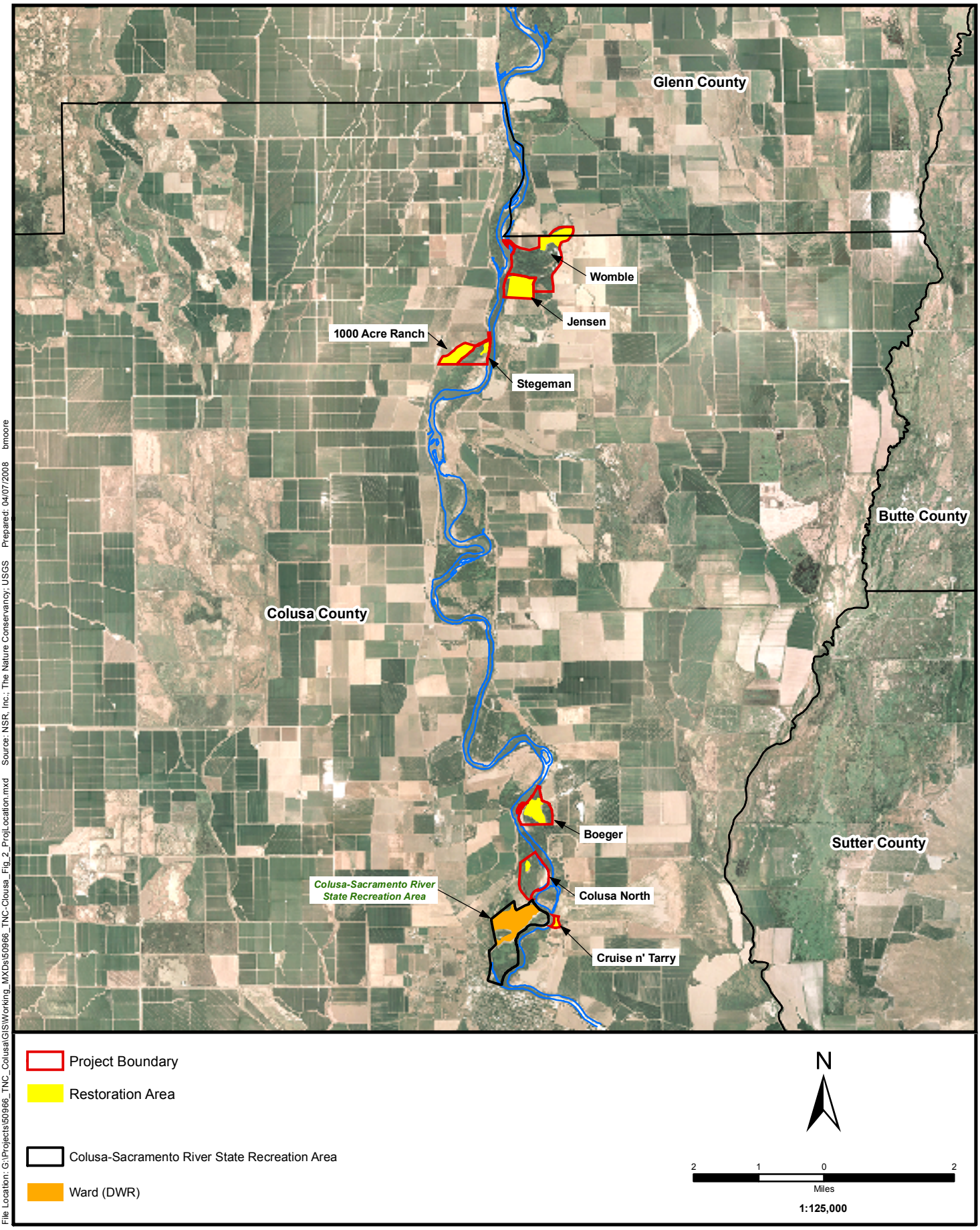
***PUBLIC REVIEW PERIOD*:** The Notice of Intent to Adopt a Mitigated Negative Declaration, the Initial Study[1], and supporting documents were made available for review during an extended public review period from May 22, 2008, to July 31, 2008. The documents were also made available on the Internet at www.sacramentoriver.org/ during this public review period. Additional copies are available from the Department and TNC.

***FINDINGS*:** This Mitigated Negative Declaration and supporting documentation reflect the independent judgment of the Department as lead agency for this Project. In light of the whole record before the Department, including the Initial Study, supporting documents, and incorporated mitigation measures, the Department finds that there is no substantial evidence that the Colusa Subreach Wildlife Habitat Restoration Project will have a significant effect on the environment within the meaning of CEQA. Therefore, the Department has determined that preparation of an Environmental Impact Report (EIR) is not required, and the Department has adopted this Mitigated Negative Declaration for implementation of the Project.

Kent Smith
California Department of Fish and Game
Region 2 – North Central Region

Date 8/24/08

1 *Evaluation of Environmental Effects Associated with Wildlife Habitat Restoration on Seven Tracts along the Sacramento River between Colusa and Princeton – CEQA Initial Study for the Colusa Subreach Wildlife Habitat Restoration Project.* Prepared by North State Resources, Inc. for the California Department of Fish and Game and The Nature Conservancy. May 2008.



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North State Resources, Inc.

Colusa Subreach Wildlife Habitat Restoration Project

Figure 1
Project Location

Evaluation of Environmental Effects Associated with Wildlife Habitat Restoration on Seven Tracts along the Sacramento River between Colusa and Princeton

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August 2008

Prepared for:

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Evaluation of Environmental Effects Associated with Wildlife Habitat Restoration on Seven Tracts along the Sacramento River between Colusa and Princeton

CEQA Initial Study for the Colusa Subreach Wildlife Habitat Restoration Project

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Evaluation of Environmental Effects Associated with Wildlife Habitat Restoration on Seven Tracts along the Sacramento River between Colusa and Princeton

CEQA Initial Study for the
Colusa Subreach Wildlife Habitat Restoration Project

SUMMARY

This document assesses the potential environmental effects and discusses environmental issues associated with wildlife habitat restoration activities at seven non-contiguous tracts along a 21-mile reach of the Sacramento River between the unincorporated community of Princeton and the City of Colusa, California (proposed Project), along a river corridor identified as the "Colusa Subreach." The restoration activities are proposed through a planning and stakeholder involvement program called Colusa Subreach Planning (CSP), which is funded by a grant from the California Bay-Delta Program (CALFED). The Nature Conservancy (TNC) is conducting the Project in association with the Sacramento River Conservation Area Forum (SRCAF) and other partners and stakeholders.

This document serves as the Initial Study for the project under the California Environmental Quality Act (CEQA). It also provides "expanded" information on the background of the CSP program and a number of critical issues known to be of concern to landowners and other stakeholders. This expanded initial study is supported by a number of other technical reports and studies, prepared under the CSP program, including baseline reports for each restoration tract, a study of fiscal and economic impact analysis of habitat restoration at all of the tracts proposed for restoration under the CSP program, a pest and regulatory effects study, and a Colusa Subreach recreation access plan.

Proposed Project

TNC and Project partners proposed to restore approximately 251 acres of wildlife habitat on portions of seven tracts within the levees of the Sacramento River between Princeton and Colusa. The seven restoration tracts from north to south are identified as Womble, Jensen, Stegeman, 1000-Acre Ranch, Boeger, Colusa-North, and Cruise n' Tarry. Except for the northern portion of the Womble Tract, which is located in Glenn County, the proposed restoration sites are located in Colusa County. Three of these properties currently owned by TNC are proposed to be acquired by the State of California. The restored tracts would be managed for long-term conservation and public recreation purposes.

The proposed Project would convert the existing land cover to native plants and wildlife habitats. Proposed activities include removal of non-native vegetation, including orchards; site preparation, including land surface treatment with mechanized equipment; installation of irrigation systems and use

of surface water or groundwater supplies; planting of native trees, shrubs, and grasses; interim irrigation of plants as they become established; construction of minor public access improvements, such as parking areas, signage, and information kiosks; and long-term maintenance and weed control. Additional information, included details of proposed planting plans, is provided in Section 4 and Appendix A.

Evaluation of Environmental Impacts

The conversion of 251 acres from former or existing orchards and fields to native vegetation and wildlife habitat on seven sites along the Colusa Subreach of the Sacramento River would result in primarily beneficial effects to the environment, particularly in the long term. No "potentially significant impacts" under CEQA were identified.

In two resource areas, biological resources and cultural resources, impacts were indentified for which mitigation was specified. The proposed Project involves ground-disturbing activities that would be limited in extent and duration and commonly occur in rural areas in regional proximity to agricultural operations. In preparing the active restoration sites, developing an access road, installing irrigation systems, and other activities, complete avoidance of all impacts would not be possible. In terms of biological resources, mitigation measures were specified to protect the Valley Elderberry Longhorn Beetle, nesting raptors and migratory birds, bats, existing riparian habitat, and wetlands. In terms of cultural resources, mitigation measures were specified for inadvertent discoveries of resources or remains and for protection of one known resource site at one of the restoration tracts.

Determinations of "less than significant impacts" and "no impacts" were made under CEQA in the areas of aesthetics, agriculture resources, air quality, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems. No mitigation was required for these resource areas.

Summary of Findings

The proposed Project does not threaten to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. This initial study finds that, overall, these resources would be protected and enhanced by the proposed Project.

The effects of the proposed Project are generally limited in all areas. In several areas, the Project may contribute an additional increment to cumulative environmental effects. The permanent conversion of agricultural land to non-agricultural uses is an ongoing adverse trend in the State of California; however, the Project's effects would not be irreversible. The lands are located in a designated floodway, and the total acreage is relatively small within the County agricultural land base. Construction equipment and activities would generate emissions and particulate matter in air basin that is already impacted; these emissions include greenhouse gasses that contribute to climate change. However, these effects would be short-term and would be reduced by best management practices.

Similarly, potential erosion of exposed soils and sedimentation of surface waters is a possible cumulative effects concern; however, the proposed active restoration sites are for the most part located at some distance from the river channel, with intervening vegetated lands, and after the planted native vegetation is established, the restored sites would typically be less prone to erosion. The Project also incorporates best management practices for reducing erosion and sedimentation. Re-establishing native vegetation (and, in hydraulic terms, modifying the "roughness") at the seven restoration sites has implications for flood flow velocity changes and possible erosion or deposition in the floodway. Such concerns were examined in detail in a separate hydraulic analysis and found to be less than significant, both individually as well as cumulatively. Therefore, this initial study finds that the environmental effects associated with the Colusa Subreach Project are individually limited and not cumulatively considerable.

The proposed Project would not be associated with any activities that conceivably could have direct or indirect adverse effects on human beings. The Project would not result in, or indirectly promote, people residing in the floodplain, nor would existing communities be disrupted, nor would the Project create substantial new demands on services or utilities. Therefore, the Colusa Subreach Project would not be associated with substantial adverse effects on human beings, either directly or indirectly.

Additional Project Information

Lead Agency Name and Address:

California Department of Fish and Game
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Contact Person and Phone Number:

Kent Smith
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Project Sponsor's Name and Address:

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Contact Person and Phone Number:

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Other Public Agencies Whose Approval Is or May Be Required

- Approval by the Wildlife Conservation Board or another state agency of the transfer of three of the tracts now owned by TNC;
- Authorization of state funding for the restoration of riparian habitat on the seven tracts by the Wildlife Conservation Board or another state agency;
- Approval of encroachment permits by the Central Valley Flood Protection Board for restoration of habitat within the Sacramento River floodway;
- Coordination with the County of Colusa regarding the continuation or cancellation of a Williamson Act contract on one tract;
- Other discretionary approvals as may be needed as part of the permit and approval processes for various Project elements, including, if required, U.S. Army Corps of Engineers (Clean Water Act Section 404 nationwide permit); Central Valley Regional

Water Quality Control Board (Clean Water Act Section 401 and 402 permits/certification).

Public Review Process

This expanded initial study is being made available to public agencies, stakeholders, landowners, organizations, and other interested parties for a period of 30 days. The review period begins on May 22 and ends on June 22, 2008. As lead agency, the Department of Fish and Game, proposes to adopt a Mitigated Negative Declaration, based on this initial study. Public notice of this intent has been given as required under CEQA; a copy of the notice is included with this document.

At the end of the 30-day public review period and prior to making decisions on the proposed Project, the Department will consider the proposed Mitigated Negative Declaration together with any comments received during the public review process and, if appropriate, adopt the Mitigated Negative Declaration (CEQA Guidelines, Section 15074).

After deciding to carry out or approve a project, the Department will file a Notice of Determination with the State Clearinghouse (SCH), Office of Planning and Research. The filing of the Notice of Determination with SCH starts a 30-day statute of limitations on court challenges to approval under CEQA (CEQA Guidelines, Section 15075). Copies of the notices and other project documents are available from the Department or from TNC through the contacts listed above.

SECTION 1: INTRODUCTION

Wildlife habitat restoration activities are proposed by The Nature Conservancy (TNC) at seven non-contiguous tracts along a 21-mile reach of the Sacramento River between the unincorporated community of Princeton and the City of Colusa, California (proposed Project), along a river corridor identified as the "Colusa Subreach." The Colusa Subreach is primarily located in Colusa County, with a small area on the north end in Glenn County (Figure 1). The seven restoration tracts from north to south are identified as Womble, Jensen, Stegeman, 1000-Acre Ranch, Boeger, Colusa-North, and Cruise n' Tarry. The restoration activities are proposed as part of a planning and stakeholder involvement program called Colusa Subreach Planning (CSP), which is funded by a grant from the California Bay-Delta Program (CALFED).

This document provides information about the environmental issues and potential environmental effects associated with the proposed Project. Because the restoration activities would require approvals from state agencies for actions that may have an effect on the physical environment, compliance with the procedural and documentation requirements of the California Environmental Quality Act (CEQA)[1] and the Guidelines for Implementing CEQA (CEQA Guidelines)[2] is required.

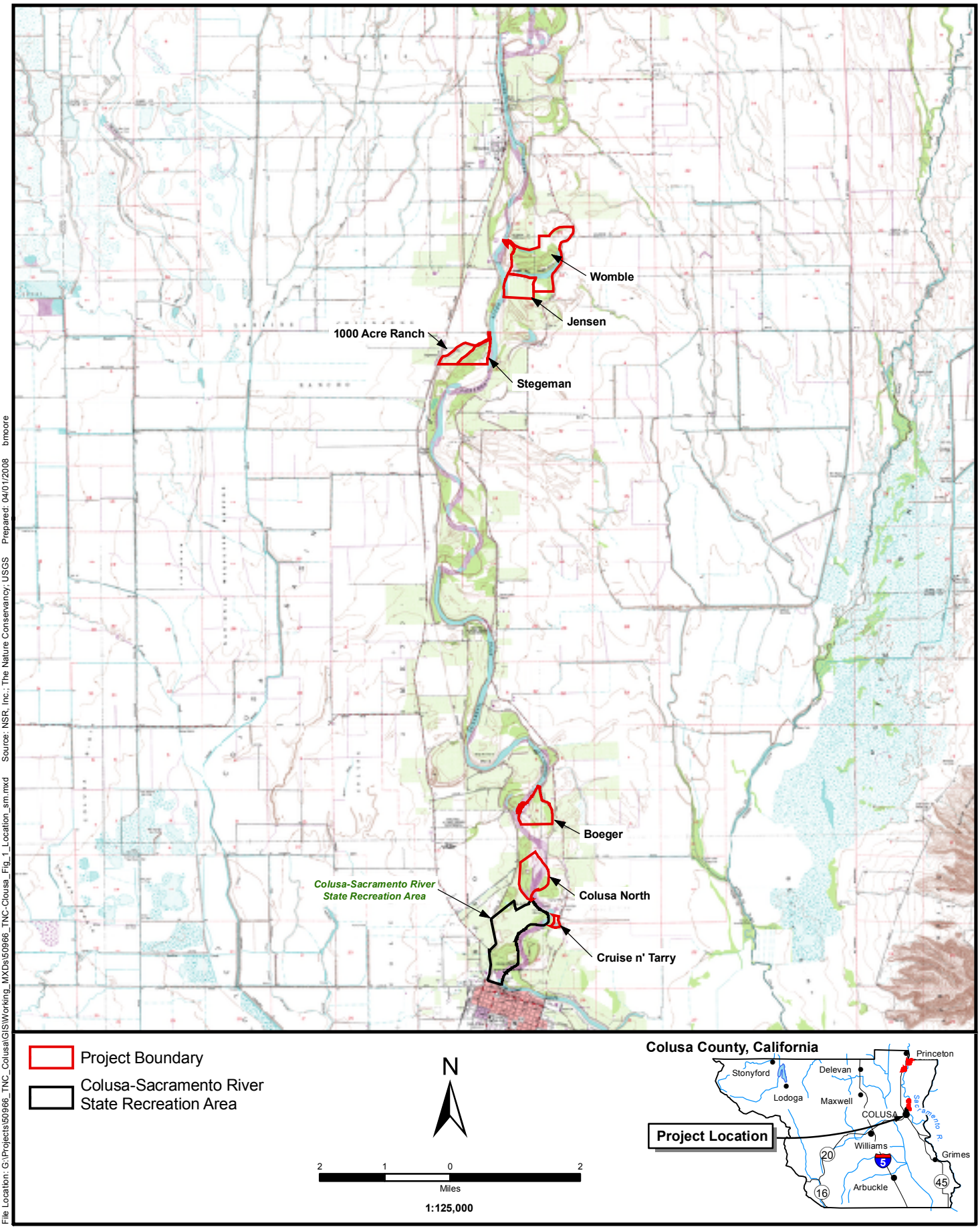
1.1 Purposes and Uses of This Document

This document serves as the CEQA Initial Study for the proposed Project. In order to explain this Project more thoroughly to decision makers, stakeholders, other agencies, and interested members of the public, this document is "expanded" from the traditional Initial Study format to provide additional information on the background of the proposed Project, the proposed restoration activities, and the substantive issues known to be of concern to agencies and stakeholders.

The lead agency under CEQA is the California Department of Fish and Game (CDFG). The State Reclamation Board, Wildlife Conservation Board, and Central Valley Water Quality Control Board (CVWQCB) are responsible agencies. Discretionary approvals requiring CEQA review that are anticipated to be required prior to Project implementation include the following:

- approval of habitat restoration plans by CDFG;
- transfer of three of the tracts now owned by TNC to the Wildlife Conservation Board or another state agency prior to the commencement of restoration activities;
- authorization of state funding for the restoration of riparian habitat on the seven tracts by the Wildlife Conservation Board or another state agency;
- approval of encroachment permits by the Central Valley Flood Protection Board for restoration of habitat within the Sacramento River floodway;
- other discretionary approvals as may be needed as part of the permit and approval processes for various Project elements.

[1] California Public Resources Code Section 21000—21178.
[2] California Code of Regulations, Title 14, Chapter 3, Sections 15000—15387.



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Colusa Subreach Wildlife Habitat Restoration Project

Figure 1
Regional Location Map

1.2 Organization

This document is organized into eight sections: Section 2, which follows this introduction, provides an overview of CSP activities and goals, a description of the planning area, and the roles of Project partners, land management agencies, and other participants. This section also describes the public outreach and stakeholder participation activities conducted by TNC and its partner organization, the Sacramento River Conservation Area Forum (SRCAF).

Section 3 describes the existing environmental conditions along the Colusa Subreach and at the seven individual restoration tracts. Section 4 describes the proposed Project, including the Project objectives and the restoration techniques and activities and the proposed plant composition common to all seven tracts.

Section 5 provides an analysis of the potential environmental impacts of the proposed Project in the form of an "Environmental Checklist" (Appendix G of the CEQA Guidelines). This section also includes mitigation measures that would avoid or reduce the potentially significant impacts of the proposed Project. In addition, Section 5 provides the mandatory findings of significance required under CEQA.

Section 6 provides the lead agency's determination that the appropriate level of environmental documentation will be a mitigated negative declaration. Section 7 identifies the preparers of this document. Section 8 provides full citations for the references cited in this document.

The document includes five appendices. Appendix A provides additional, more detailed information regarding the proposed planting plans at each of the seven restoration tracts. Appendix B provides supplemental information regarding biological resources. Appendix C provides a copy of the letter and additional documentation from the State Clearinghouse regarding the review of the document by state agencies, as well as a copy of the one comment letter received. Appendix D provides a copy of the Notice of Determination, and Appendix E is the Mitigation Monitoring and Reporting Program.

SECTION 2: BACKGROUND

2.1 Colusa Subreach Planning Overview

CSP is a program conducted by TNC, SRCAF, and other partners to develop a strategy for ecosystem restoration in the Colusa Subreach. In 2004, TNC received a 3-year grant from CALFED to fund the CSP program. The grant supports planning for habitat restoration along the Colusa Subreach, including the preparation of this environmental document; it does not include funding for the actual restoration activities.

Tasks conducted under CSP include coordination and outreach, baseline assessments of proposed restoration tracts, hydraulic modeling, preparation of focused plans and studies, responding to landowner questions and concerns, developing restoration strategies, and compliance with CEQA. An Advisory Workgroup composed of local and agency stakeholders identified the principal questions and concerns of local landowners and selected research and planning projects to address these topics.

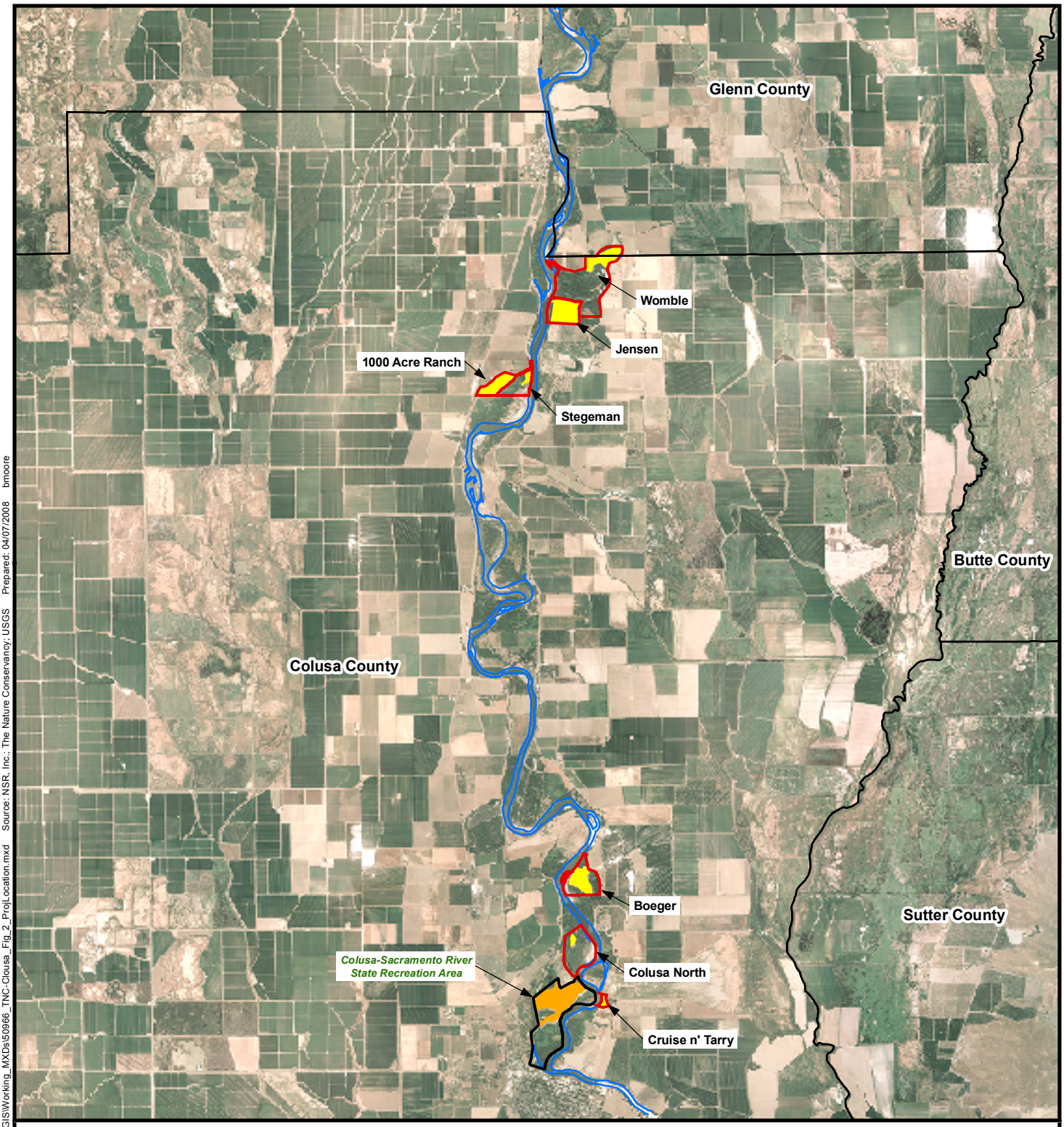
The overall goal of the proposed habitat restoration is to restore the ability of the Colusa Subreach to support native wildlife, including species listed under the state and federal endangered species acts and other special-status species. The habitat restoration activities will be integrated with other critical functions along the Sacramento River, including flood management, agricultural operations, water supply conveyance, and recreation. Stakeholder involvement is an essential component of the CSP program with a focus on the landowners that adjoin restoration tracts and would be most directly affected.

2.2 Planning Area Description

The Colusa Subreach planning area includes the flood protection levees and the land located inside the levees from River Mile (RM) 164.5 on the north downstream to RM 143.5 on the south. The northern boundary of the planning area is the site of the former Princeton Ferry, and the southern boundary is the Colusa Bridge. The Sacramento River Flood Protection System is designed to limit river-related flood damage by restricting "design" flows to the area inside the levees.

The subreach area totals approximately 5,466 acres, of which approximately 5,094 acres are located in Colusa County and 372 acres are located in Glenn County. Figure 2 depicts the CSP area on a 2006 aerial photo. Approximately 55 percent of the land provides wildlife habitat, and 43 percent is used for agriculture (EDAW 2007a). Small areas are used for recreation, flood control, and water supply facilities. Agricultural lands along the river are an important part of the local agricultural economy in Colusa County and Glenn County. Areas inside of the levees are planted primarily with orchards and field crops, while rice tends to dominate in the areas further away from the river.

Within the planning area, eight tracts were identified for restoration at the beginning of CSP in 2004. The seven restoration tracts that are addressed in this document are identified, from north to south, as Womble, Jensen, Stegeman, 1000-Acre Ranch, Boeger, Colusa-North, and Cruise n' Tarry. The



File Location: G:\Projects\50966_TNC_Colusa\GIS\Working_MXDs\50966_TNC-Clousa_Fig_2_ProjLocation.mxd Source: NSR, Inc.; The Nature Conservancy; USGS Prepared: 04/07/2008 bmoore

North State Resources, Inc.

Colusa Subreach Wildlife Habitat Restoration Project

Figure 2
Project Location

eighth restoration site, the Ward Tract, was included in Colusa Subreach Planning but is not included in this assessment. The Ward Tract is the northerly 238 acres of the Colusa-Sacramento River State Recreation Area. The California Department of Water Resources (DWR) has proposed to restore 139 acres of the tract to native riparian habitat as mitigation for the loss of riparian vegetation as part of the Tisdale Bypass Sediment Removal Project. That restoration is proposed to be initiated in 2009, in advance of the other restoration tracts. The Ward Tract restoration project was the subject of a separate CEQA review, which was certified in 2007 by DWR. An encroachment permit for that restoration was also approved by the Central Valley Flood Protection Board in December 2007.

The Colusa Subreach corridor is an ecologically rich mosaic of aquatic habitat, oxbow lakes, sloughs, seasonal wetlands, and riparian forests within the most diverse and extensive river ecosystem in California (The Nature Conservancy 2005). The river and riparian environment support numerous wildlife species, including a number of special-status species, critical breeding areas for neo-tropical migrant birds, and one of the largest populations of anadromous fish in California. The river and its adjoining areas also support activities that contribute to the agricultural economy and provide important recreational opportunities to local residents and visitors (The Nature Conservancy 2005). The Sacramento River is the largest source of water in California, and its health is important to the economic and environmental well-being of the state.

The Sacramento River has been greatly altered by the flood control system, land reclamation, water supply and delivery improvements, and other human activities. Historically, 500,000 acres of riparian forests occupied the Sacramento River floodplain (North State Resources, Inc. 2005), with valley oak woodland covering the higher river terraces. The harvesting of trees for lumber and fuel, particularly as cordwood for steamboats during the 1800s, reduced the extent of the riparian forests in the Sacramento Valley. Since then, urbanization and agricultural conversion have been the primary reasons for the loss of riparian habitat. Water development and reclamation projects, including channelization, dam and levee construction, bank protection, and streamflow regulation, have altered the riparian corridor and have also contributed to vegetation loss (North State Resources, Inc. 2005).

Changes to the Sacramento River ecosystem, including the loss of riparian habitat, have adversely affected wildlife species, including species listed as threatened or endangered under the state and federal endangered species acts. At present, special-status species affected by the loss of riparian habitat include 43 different fish, raptors, songbirds, and other animals.

2.3 Project Partners and Participants

2.3.1 California Bay-Delta Program

CALFED, a joint state and federal program, was established to reduce conflicts over California's limited water supplies and to address water supply reliability, water quality, levee system integrity, and ecosystem restoration. The California Bay-Delta Authority manages the program, overseeing 25 state and federal agencies working cooperatively through the CALFED program to improve the quality and reliability of California's water supplies while restoring the Bay-Delta ecosystem. The California Bay-Delta Act of 2003 established CALFED and charged it with providing accountability; ensuring balanced implementation, tracking, and assessment of program progress; using sound

science; ensuring public involvement and outreach; and coordinating and integrating related government programs.

In August 2000, CALFED issued a Record of Decision that set forth a 30-year plan to address ecosystem health and water supply reliability problems in the Bay-Delta watershed. The document laid out specific actions and investments over the first 7 years to meet program goals. It also described a strategy for implementing the plan and identified complementary actions to be pursued by the CALFED agencies. Included within that strategy are plans to restore the ecosystem of the Sacramento River. The *Ecosystem Restoration Program Plan. Volume II: Ecosystem Management Zone Visions* (California Bay-Delta Program 2000) details the actions that have been identified to achieve ecosystem restoration for the Sacramento River, including along the Colusa Subreach.

2.3.2 Sacramento River Conservation Area Forum

SRCAF, a non-profit corporation, is TNC's partner in implementing the CSP. The SRCAF adopted the following mission statement in 2004:

> The Sacramento River Conservation Area Forum brings communities, individuals, organizations and agencies together along the Sacramento River from Keswick to Verona to make resource management and restoration efforts more effective and sensitive to the needs of local communities. The Forum supports restoration done well, and serves as a forum for sharing, a facilitator of solutions, and a partner for projects that protect both the natural values of the Sacramento River and the communities it runs through.

The Sacramento River Conservation Area (SRCA) extends along 222 miles of the Sacramento River from its confluence with the Feather River near Verona to Keswick Dam just north of Redding. The SRCA includes land in Shasta, Tehama, Butte, Glenn, Colusa, Sutter, and Yolo counties. The Colusa Subreach lies in the lower half of the SRCA and includes land in both Colusa and Glenn counties.

The SRCA is a product of the effort initiated through State Senate Bill 1086, enacted in 1986. That legislation created the Sacramento River Advisory Council that completed the *Upper Sacramento River Fisheries and Riparian Habitat Management Plan* (Sacramento River Advisory Council 1989). The Riparian Habitat Committee of the Advisory Council also conducted an extensive public process that resulted in the completion of the *Sacramento River Conservation Area Forum Handbook* (Sacramento River Conservation Area Forum 2003). The handbook established the goal, basic principles, and management guidelines for the SRCAF. The handbook was developed as the basis for interagency cooperation and agreement on programs within the SCRA.

The handbook specifies the following overall goal for the SCRAF:

> Preserve remaining riparian habitat and reestablish a continuous riparian ecosystem along the Sacramento River between Redding and Chico and reestablish riparian vegetation along the river from Chico to Verona.

The handbook provides a detailed discussion of the dynamic river processes and the resulting habitat communities in the SRCA. It is available online at the SRCAF website[3] and should be consulted for additional information regarding the SRCAF. Consistency with the goal and principles of the handbook was also chosen as the review standard for CSP products when the proposed Project was first conceived in 2001.

2.3.3 The Nature Conservancy

The Nature Conservancy (TNC) is an incorporated, nonprofit conservation organization that has been active since 1951 in conservation activities nationally and internationally.[4] TNC has a 20-year history of promoting and conducting science-based habitat conservation and restoration efforts along the Sacramento River and in other parts of California. The Nature Conservancy's mission is "to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive."

The Sacramento River corridor has been identified by TNC, as well as by many other private, academic, and public entities, as an unusually diverse ecosystem that provides valuable habitat for plants and animals, including humans. TNC's approach to conservation along the Sacramento River is designed to accommodate both the human uses of the river, such as for agricultural water supply and recreation, as well as the natural resource benefits provided by the river.

TNC is one of many entities working to restore the Sacramento River ecosystem. The organization works in partnership with landowners, SRCAF, other local organizations, and local, state, and federal government agencies to implement conservation strategies in several key ways, including:

- developing the best available scientific information to help guide conservation,
- planning for habitat management and restoration in concert with stakeholders,
- acquiring land for conservation only from willing sellers,
- restoring native riparian habitat using local agricultural contractors, and
- preserving and restoring natural river processes.

Working with the SRCAF, TNC has developed subreach planning as a tool for involving local interests and other stakeholders in the planning of conservation actions along the Sacramento River. The overall CSP effort is managed from the TNC's Northern Central Valley Office in Chico, California.[5]

2.4 Public Outreach and Stakeholder Participation

Stakeholder participation is an essential element of TNC's approach to ecological restoration along the Colusa Subreach. Stakeholders were identified as landowners owning properties adjacent to the proposed restoration tracts, other local landowners, business interests, local government officials, the interested public, and federal and state land management agencies.

[3] The SRCAF website is *www.sacramentoriver.org*.
[4] The TNC website is http://www.nature.org/
[5] Further information regarding TNC is available online at www.tnc.org

TNC has partnered with SRCAF to conduct a comprehensive public outreach process as part of the CSP. Outreach to landowners and other stakeholders includes forming an Advisory Workgroup, holding public meetings and workshops, publishing a newsletter, creating a CSP website, and conducting a survey of landowners. These outreach forums are described in the following sections.

Advisory Workgroup. An Advisory Workgroup was formed that includes representatives of TNC, the SRCAF, local landowners and business interests, and local, state, and federal agencies. Outreach conducted by the Advisory Workgroup sought to build trust and relationships among Project participants, identify and address concerns of area landowners and other local interests, develop a shared understanding of pertinent information, and generate agreement about the form of restoration and related uses within the Colusa Subreach. Members of the Advisory Workgroup are listed on CSP's website. The original 21 members of the Advisory Workgroup began meeting in November of 2004 and held twelve meetings, identifying landowner questions and concerns and selecting planning and research projects. In February of 2006, eight members resigned from the Advisory Workgroup. Thereafter, the Workgroup continued to direct the planning process in its smaller form.

Public Meetings and Workshops. CSP has held a series of public meetings to allow members of the public to provide input regarding the CSP process. These meetings included the following:

- an initial public information meeting in February 2005;
- a subreach tour workshop in March 2005;
- three recreation planning workshops in May, August and December 2006;
- a public information meeting on hydraulic analysis in November 2007;
- 22 Advisory Workgroup meetings for Project update and direction; and
- six subgroup meetings on hydraulic analysis and pest and regulatory effects.

Newsletter. CSP has published an annual newsletter, the *Colusa Subreach News*, since February 2005. The newsletter has kept stakeholders informed about the CSP process, opportunities for public input, and studies being performed to address stakeholder concerns.

CSP Website. A CSP website was established as part of the SRCAF website at *www.sacramentoriver.org/SRCAF/index.php.* The CSP website provides information about CSP, pertinent documents, and notices of public involvement opportunities.

Landowner Survey. The SRCAF and TNC contracted with the Institute for Social Research, California State University, Sacramento, to conduct a telephone survey of landowners in the Colusa Subreach concerning their awareness of and attitudes toward CSP, the SRCAF, and agencies involved in planning for the wildlife habitat restoration activities along the Colusa Subreach. The survey also solicited landowners' opinions and attitudes concerning the possible effects of the restoration activities on adjacent lands. Complete findings from the survey are compiled in *Colusa Subreach Planning Project Landowner Survey* (Jones 2005), which is available on CSP's website. A follow-up survey is scheduled for completion in May 2008, with a findings report anticipated in June 2008.

2.4.1 Stakeholder Concerns

Through a variety of means, including public meetings, meetings of the Advisory Workgroup, and the landowner survey, the Advisory Workgroup identified the primary concerns of stakeholders concerning the proposed habitat restoration activities along the Colusa Subreach. In response to some of these concerns, studies were conducted through the CSP program to provide more information about the topic and to determine solutions when possible. Some of the stakeholder concerns overlap with environmental issues under CEQA and are further addressed in Sections 4 and 5 of this document. The primary stakeholder concerns and TNC's efforts to address these concerns are described in the following paragraphs.

Effects of Pest Species on Crops

Agricultural interests expressed concern that the restored habitat would lead to increased populations of deer, rodents, and insects that could forage in and cause damage to their crops.

To address this issue, TNC contracted with an environmental consulting firm to prepare the *Pest and Regulatory Effects Study* (EDAW 2008). This study addresses two of the primary concerns expressed by stakeholders: effects of pest species on crops and the potential for adjacent landowners to be subject to additional regulatory requirements related to threatened and endangered species. The study's conclusions regarding regulatory requirements are described below under "Additional Regulatory Requirements."

The study concludes that "riparian habitat restoration proposed in the Colusa Subreach is likely to provide both benefits and some minimal risk in pest effect changes compared to existing conditions." The study points out that 55 percent of the subreach already consists of riparian habitat and that the proposed restoration of an additional 7 percent is unlikely to result in a substantial change in pest populations and effects. It further concludes that there could be an overall decrease in pest effects from existing conditions because riparian habitat does not support most agricultural pests. The study acknowledges, however, that there is limited information available concerning the ecology of pest species in relation to riparian habitat uses and influences.

The study examined 25 species identified by the Advisory Workgroup and an external experts group as high or medium priority, concluding that short-term increases in pest effects on adjacent or nearby lands are likely for four of these species: California ground squirrel, western gray squirrel, California vole, and lygus bug (western tarnish). The study concludes, however, that none of these species are likely to lead to increased predation over the long term because mature riparian vegetation will not provide habitat for substantial populations of these species.

The study concludes that the pest effects of 11 of the high- and medium-priority species—mule deer, black-tailed jackrabbit, Audubon's cottontail, coyote, American beaver, northern river otter, common muskrat, Brewer's blackbird, European starling, American crow, and brown rot—are likely to remain the same as they currently are. It also concludes that the pest effects of 10 high- and medium-priority species—Botta's pocket gopher, codling moth, navel orangeworm, walnut husk fly, peach twig borer, fruit-tree leafroller, oblique-banded leafroller, omnivorous leafroller, walnut blight, and root and crown rot—are likely to decrease.

The study describes several possible solutions, based on expert information and best available science, to potential increases in pest species populations or in damage to crops caused by pest species. These solutions consist of strategies to prevent increases in pest populations and crop damage and abatement of established pest populations. The prevention strategies include restoration design strategies, biological controls, and adaptive management; the abatement strategies include pesticides, trapping, and shooting. The *Pest and Regulatory Effects Study* is available on the CSP website.

Additional Regulatory Requirements

Agricultural interests expressed concern that restoration of wildlife habitat would lead to increased involvement by state and federal agencies, which could lead to reduced local control of agricultural activities. A specific concern was that agricultural activities could be limited by laws and regulations protecting special-status species.

To address this issue, TNC contracted with an environmental consulting firm to prepare the *Pest and Regulatory Effects Study* (EDAW 2008). The study examined seven federal and eight California laws and regulations that could relate to agricultural operations and 14 special-status species and six protected habitats that have the potential to occur along the Colusa Subreach.

The study concluded that the only potential regulatory constraint on agriculture resulting from riparian habitat restoration along the Colusa Subreach involves the valley elderberry longhorn beetle (VELB), which is listed as threatened under the federal Endangered Species Act. Current protections for the VELB involve restrictions against activities within 100 feet of elderberry shrubs, the host plant for the VELB.

The study states that "because the open canopy types of riparian habitat (e.g., savannah) that are most suitable to the growth of elderberry shrubs constitute only a small percentage of the proposed restoration area and because only a small percentage of the proposed restoration perimeter borders agricultural land, the potential increase in valley elderberry longhorn beetle-related constraints on adjacent agricultural parcels is expected to be small." The restrictions do not apply to elderberries with stems smaller than 1 inch in diameter, which landowners can remove before they reach the size that would afford them protection under the federal Endangered Species Act. The U.S. Fish and Wildlife Service has proposed removing (delisting) the VELB from the endangered species list, although a final decision on delisting could take several years. If the species were delisted, there would be no regulatory constraints on adjacent agricultural lands involving the VELB.

The study examined eight potential solutions for the VELB issue and identified three as being the "most promising":

- maintained buffer zones,
- Programmatic Safe Harbor Agreement as part of the SRCAF Good Neighbor Policy, and
- memoranda of agreement/memoranda of understanding.

The study concludes that "riparian habitat restoration is not expected to increase agricultural regulatory constraints associated with the other 14 regulations, 14 protected species, and 6 protected

habitats analyzed in [the] study." The *Pest and Regulatory Effects Study* is available on the CSP website.

Effects on Local Economy Related to Reductions in Agricultural Operations

Agricultural interests expressed concern that the proposed habitat restoration could entail effects on local economy related to reductions in agricultural uses, including fiscal effects to local government from transfer of land to the state. The concern was also expressed that income from agricultural operations on land adjacent to the restoration tracts would decrease. Agricultural interests also expressed concern that it would become more difficult to lease adjacent agricultural lands and that property values would decrease. Local government representatives expressed concern that taxes paid to local government would decrease as private lands are purchased for public use.

TNC contracted with Economic and Planning Systems, Inc. (EPS) to prepare a fiscal and economic impact analysis of habitat restoration all of the eight tracts proposed for restoration under the CSP program (including the Ward Tract) (Economic and Planning Systems, Inc 2006). Not all tracts, however, were in agricultural use at the time (i.e., Stegeman, Colusa-North, and Cruise n' Tarry), and some tracts were in public ownership (i.e., Womble, Stegeman, Colusa-North, and Cruise n' Tarry); therefore, some tracts did not directly contribute to the identified fiscal and economic effects. The report summarizes its findings as follows:

1. *The overall impacts of the transfer and conversion of the five tracts are relatively small in scale compared to the overall scale of the agricultural industry in both counties and to the size of the Colusa County budget.* The annual economic losses of about $380,000 each year associated with agricultural land conversion, the annual economic gains of about $185,000 associated with increased recreational activities in both counties and the annual loss of $4,800 in property taxes to Colusa County are relatively small. This is not surprising given the total size of the converted portion of the five tracts—389 acres—relative to the acres in agricultural production in the two counties—about 900,000 acres.

2. *The results of the study should be considered in the broader context of the counties' agricultural industries and public finances.* Although the overall impacts of the tracts studied in this analysis are small, the impacts should be considered in light of the existing conditions in the counties' agricultural industries and the counties' public finances as well as the cumulative impacts of conservation efforts. For example, although Colusa and Glenn Counties have experienced real growth in their farm gate production value over the last decade, the agricultural industry faces numerous challenges, including the loss of agricultural land due to rural residential development, urbanization, and conservation.

3. *With the recent lack of funding for the State DFG's Payment in Lieu of Taxes (PILT) program and the lack of any program for filling lost property taxes for DPR [California Department of Parks and Recreation] land, the fiscal impacts on the County from the ownership transfer to the State will continue to be negative.* Recognizing the typically negative fiscal impacts associated with the transfer of ownership from a private party to the state, the PILT program was established in 1965 to compensate affected local governments. Given the lack of other funding available to balance these impacts, such transfers of ownership, including those

evaluated in the analysis, will continue to be fiscally negative from the perspectives of local governments.

The *Fiscal and Economic Analysis* report is available on the CSP website.

Need for Public Recreation Opportunities / Related Effects on Neighboring Lands

The concern was expressed that public lands in the Colusa Subreach should be available to the public for recreation use. Landowners also expressed concern that increased public access to land along the river would lead to increased trespassing on private property and that such trespassing could affect the safety and privacy of area residents. To address this issue along with other issues related to access for recreation along the Colusa Subreach, TNC contracted with EDAW to prepare the *Colusa Subreach Recreation Access Plan*. The purpose was to develop a concept plan for public access and recreation that is compatible with private and public land ownership, existing agricultural practices, and wildlife habitat conservation within the Colusa Subreach.

Three public meetings were held to solicit comments from the public on the draft recreation access plan and to review alternatives for public access. Among the issues raised was the adequacy of resources for managing public recreation in the subreach, including law enforcement personnel such as game wardens and park rangers as well as managers and maintenance personnel. Adequate resources were seen as essential for controlling trespassing, vandalism, and other disruptive activities on adjoining agricultural properties.

In response to the opinion that public agencies that own land in the Colusa Subreach currently lack sufficient law enforcement, site management, and maintenance resources to adequately support additional land access sites, no new land access points were recommended in the access plan. There was general agreement at the second and third public input meetings that a new boat ramp at the site of the former Princeton Ferry is desirable because there is currently no public boat ramp facility between Colusa and Butte City, a distance of 25 river miles. The boat ramp is not part of the proposed Project analyzed in this document. The *Colusa Subreach Recreation Access Plan* is available on the CSP website.

Effects on Hydrologic Conditions and Flood Management

Flooding in the Colusa Subreach was cited as the most important concern of local landowners. Stakeholders expressed concerns that floodway capacity had diminished over time due to sedimentation and aggradation. Stakeholders also expressed concern that habitat restoration could further decrease the protection from flooding provided by the Sacramento River Flood Protection Project. Additional concerns included the potential for increased seepage through levees as a result of restoration and the impact of large woody debris (LWD) on flood flow levels.

To address these issues, Ayres Associates was retained to perform a detailed hydraulic analysis of the existing floodplain capacity in the Colusa Subreach and the effects of proposed restoration of riparian habitat within the floodway (Ayers Associates 2008). Two-dimensional hydraulic modeling was conducted of the entire Colusa Subreach from RM 142.5 to 164.5 (Colusa to Princeton), as requested by the Advisory Workgroup, to allow consideration of cumulative effects. The modeling tool used was a modified version of USACE's RMA-2V model, which has been used for similar projects on the

Sacramento River, including the Ward Tract within the Colusa Subreach. The procedures and results were peer-reviewed by DWR and other professional hydrologists.

The focus of the modeling analysis was to provide specific information regarding the capacity of the floodplain within the Colusa Subreach and to assess the potential effects of restoring native wildlife habitat within the 100-year floodplain between the levees. The model was used to compare the 1995 high flow and the 1957 Design Flow with the water surface profiles of the proposed tracts after restoration. The assessment incorporated four model runs in order to characterize the baseline conditions and provide an analysis of the restoration Project. These runs included a calibration run, an existing conditions run, a large woody debris run, and a restoration conditions run.

The concern that the flood-carrying capacity of the Sacrament River within the Colusa Subreach has been diminished as a result of aggradation was analyzed using a comparison of available data on the change in the channel over time. On this particular issue, the results proved to be inconclusive as to whether an overall trend of aggradation or degradation could be ascertained within this reach of the river. The study compared available historical data pertaining to channel depth and width. No clear trend could be ascertained from three sets of data pertaining to river depth. In summarizing historic river channel alignments since 1896, the study demonstrated that the river has migrated considerably over the years and is continuing to migrate.

To address the concern that channel capacity has been restricted over time by the accumulation of large woody debris, an inventory of large woody debris was developed for the entire Colusa Subreach through an on-the-water survey; then the hydraulic model was run to determine the effect that the large woody debris had on flood flow elevations. The analysis concluded that large woody debris made a very small contribution to flood flow levels, which ranged from 0 feet to 0.1 feet in the Colusa Subreach. The results were primarily attributed to the small portion of the overall flood flow cross-section occupied by the large woody debris.

Regarding the concern that habitat restoration could further decrease the protection from flooding afforded by the by the Sacramento River Flood Protection Project, the analysis concluded that the proposed habitat restoration would have no substantive effect on the flood levels affecting the levees or adjoining properties. In general, the computed water surface elevations for the proposed restoration sites were at or below either the existing conditions or the 1957 design profile. The exception was at the Jensen tract, where a small area on the downstream edge would be 0.05 feet above existing levels. The increase was confined to the center of the floodplain and did not extend to the levee.

The hydraulic study also concluded that there would be small changes in floodplain velocities on adjacent properties but that these changes would not result in erosion of the levees or neighboring properties. The analysis further determined that the proposed habitat restoration would have no effect on the seepage of floodwaters either through or under the levees.

The Ayres Associates report, *Two-Dimensional Hydraulic Modeling of Riparian Habitat Restoration from Colusa to Princeton: Sacramento River, RM 142.5 to 164.5, Glenn and Colusa Counties, CA,* is available on the TNC website. Environmental impacts related to hydrology and water quality under CEQA are discussed in Section 5.

Increased Mosquito Populations and Increased Incidence of West Nile Virus

Local interests expressed a concern that the restoration of natural vegetation may lead to increased populations of mosquitoes and increased incidence of West Nile virus, a disease transmitted by mosquitoes. It was clarified that no new wetland areas that would provide breeding habitat for mosquitoes are proposed as part of CSP. Also, the application of Central Valley Joint Venture Best Management Practices and coordination with local mosquito abatement agencies are proposed as part of CSP to limit mosquito populations.

Endangered Species Act Requirements

Local landowners indicated that there should be some means to streamline compliance with the state and federal endangered species acts. They also expressed the concern that habitat restoration could increase populations of listed species and thereby increase endangered species restrictions on adjoining agricultural lands.

In response to this concern, the SRCAF initiated development of a Programmatic Safe Harbor Agreement/Voluntary Local Program (PSHA/VLP). The PSHA/VLP is relatively new, voluntary program under federal and state regulations, which can protect private landowners from liability under state and federal endangered species acts in exchange for undertaking restoration and management activities for a specified time period to maintain baseline conditions for listed species. In exchange for voluntary management for endangered species, the agencies will issue incidental "take" permits for normal agricultural practices; participating landowners would be assured that no additional regulatory restrictions would be imposed. The SRCAF has developed the draft PSHA/VLF in conjunction with the U.S. Fish and Wildlife Service (USFWS) and CDFG. Public input and information meetings are planned for the spring of 2008; the final PSHA/VLF is expected to be completed in 2008.

2.5 Ecosystem Approach to Habitat Management

The SRCAF, TNC, CDFG, and other agencies and organizations support an ecosystem approach to restoring and managing riparian habitat along the Sacramento River. The ecosystem approach is directed toward achieving species management objectives by sustaining and enhancing the fundamental ecological structures and processes that contribute to the well being of the communities and species that comprise the ecosystem. The basic objective is to restore and rehabilitate, where feasible, the natural processes that create and sustain the important elements of the ecosystem structure.

The ecosystem approach differs fundamentally from the more traditional approach of single-species management, which seeks to manipulate specific environmental factors thought to limit the populations of target species. An example of single-species management would be the direct removal of predators from an environment to reduce predation levels on a target species.

In the context of the Colusa Subreach (and the entire SRCA), the ecosystem approach seeks to restore and support natural riverine processes and resolve impediments to restoration through the application of the best available scientific information and adaptive management of the habitat. The expectation is that restoration of the natural ecosystem will benefit the broadest range of wildlife, including special-status species, other native species, and game species.

2.6 Habitat Restoration and Management along the Colusa Subreach

Early in the planning process, several components of the ecosystem approach being implemented along various reaches of the Sacramento River were identified for consideration as part of the CSP. These components include:

- Restoration of natural riverine processes. This component would involve restoration of limited river meanders to create and sustain habitat through the natural processes of erosion and deposition.
- Reestablishment of the habitat corridor. This component involves reestablishing a habitat corridor along the river that is large enough and consists of the characteristics needed to support increased populations of wildlife. This objective would be achieved by preserving existing riparian habitat and restoring habitat through either natural recruitment or horticultural planting. Horticultural planting is necessary in higher terrace areas where natural recruitment is less likely.
- Control of nonnative, invasive plant species. Where allowed to proliferate, invasive species can dominate a site, precluding the establishment of the native riparian vegetation that provides valuable habitat for wildlife. Control of nonnative, invasive plant species is an important element in the restoration and maintenance of riparian habitat.

The primary components of the proposed Project include horticultural planting along the Colusa Subreach to achieve large, contiguous areas of riparian habitat and control of nonnative, invasive plant species to allow existing and planted riparian species to thrive. The proposed Project does not include specific actions to effect the restoration of natural riverine processes.

Oxbow lake and riparian habitat along the Colusa Subreach.

SECTION 3: ENVIRONMENTAL SETTING—COLUSA SUBREACH RESTORATION AREAS

The proposed Project involves restoration of seven non-contiguous tracts of land near the Sacramento River between Princeton and Colusa (RM 145.5 to RM 162) (Figure 2). The total area of the seven tracts is approximately 825 acres. Approximately 574 of these acres are occupied by native riparian vegetation and flood protection levees. The remaining 251 acres are proposed to be restored to native riparian vegetation to better support wildlife species that depend on riparian habitat.[6] Table 1 summarizes some of the basic attributes of the seven proposed restoration tracts.

Table 3-1. Summary of Proposed Restoration Tract Attributes

TRACT	TOTAL AREA (ACRES)	RESTORATION AREA (ACRES)	RIVER MILE	RESTORATION AREA EXISTING LAND USE	OWNER
Womble	320	54	RM 162	Agriculture: annual field crops	State/CDFG
Jensen	98	81	RM 161	Agriculture: walnut orchard	TNC[1]
Stegeman	69	8	RM 160	Abandoned orchard	State/CDFG
1000-Acre Ranch	60	49	RM 160	Agriculture: prune orchard	TNC[1]
Boeger	125	51	RM 148	Agriculture: annual field crops	TNC[2]
Colusa-North	143	5	RM 147	Abandoned orchard	State/CDFG
Cruise n' Tarry	10	3	RM 146	Former marina and former orchard	State/DWR
Total Area	825±	251±			

Notes: 1 Lands are adjacent to CDFG property. Future transfer to a state agency is anticipated.
2 Future transfer to a state agency is anticipated.

Source: The Nature Conservancy

The seven tracts addressed in this document are located entirely inside the Sacramento River flood protection levees and below the 100-year floodplain elevation; all are subject to inundation with a frequency of 1 to 5 years. The proposed restoration areas are in most cases on river terraces that have been cleared of riparian vegetation and converted to agricultural crops. Approximately 12 percent of the perimeters of the restoration tracts abut agricultural crops on adjoining ownerships (Table 3-2) (revised from EDAW 2008). There are no residential or urban uses within the restoration tracts.

[6] Acreage totals vary slightly from those cited in some previous Colusa Subreach Planning reports due to GIS refinements that occurred as part of the restoration planning process.

Table 3-2. Proposed Restoration Tracts and Adjoining Land Use Types

			RESTORATION AREA PERIMETER				
TRACT	TOTAL AREA (ACRES)	RESTORATION AREA (ACRES)	ADJOINING CROPLAND (FEET)	ADJOINING LEVEE (FEET)	ADJOINING RIPARIAN (FEET)	PERCENT ADJOINING CROPLAND	RESTORATION AREA DISTANCE FROM RIVER (FEET)
Womble	320	54	1,161	2,095	5,226	13.7%	2,300 to 5,100
Jensen	98	81	2,117	0	5,819	26.7%	200 to 2,400
Stegeman	69	8	0	0	3,044	0	50 to 600
1000-Acre Ranch	60	49	1,255	3,561	2,234	17.8%	1,200 to 3,800
Boeger	125	51	0	231	6,779	0%	50 to 2,000
Colusa-North	143	5	0	0	2,256	0	800 to 1,300
Cruise n' Tarry	10	3	0	538	2,173	0	20 to 500
Total Area	**825±**	**251±**	**4,533**	6,425	27,531	**11.8%**	**20 to 51,00**

Source: The Nature Conservancy

Currently, four of the tracts—Colusa-North, Stegeman, Womble, and Cruise n' Tarry—are publicly owned lands managed by the State of California, and three tracts—Jensen, 1000-Acre Ranch, and Boeger—are owned by TNC. The TNC-owned tracts were purchased from willing sellers to provide habitat for native wildlife species. It is anticipated that these three tracts will be transferred to the Wildlife Conservation Board or another state agency prior to restoration of these tracts. If they are transferred to the Wildlife Conservation Board, they will be managed as part of the Sacramento River Wildlife Area by CDFG.

Public use of the seven tracts would be determined by the public agencies that manage, or will manage, the tracts. Three of the tracts—Womble, Stegeman, and Colusa-North—are part of the Sacramento River Wildlife Area managed by the CDFG and are open to public use. Permitted public uses include hunting, fishing, hiking, wildlife observation, photography, beach activities, and environmental education. It is expected that following restoration, the three tracts anticipated to be managed by CDFG—Jensen, 1000-Acre Ranch, and Boeger—would also be open to public use. The Cruise n' Tarry Tract is currently closed to public use although it has recently been leased to Colusa County. County representatives have indicated that future public use is anticipated

All seven of the tracts are accessible from the river by boat. Two of the tracts—Womble and Cruise n' Tarry—are also accessible from River Road. Because of the limited access and the physical nature of riparian habitats, the intensity and frequency of public use are expected to be low, which would be similar to the public use of other public properties in the Colusa Subreach (EDAW 2007a).

The following subsections describe each tract in the Colusa Subreach, from north to south. Additional information on the tracts is provided in Appendix A, including figures depicting the existing remnant riparian vegetation in the vicinity of each restoration tract.

3.1 Womble Tract

The Womble Tract is located about 1 mile south of Princeton on the east side of the Sacramento River at RM 162 (Section 29, Township (T) 18 North (N), Range (R) 1 West (W)). Access to the tract is from River Road on the east. The 320-acre Womble Tract is owned by the Wildlife Conservation Board and is managed by CDFG. Approximately 54 acres of tilled agricultural row crop land (which includes a small patch of remnant riparian vegetation) are proposed for restoration. The southern part of the tract consists of forested riparian habitat and an oxbow lake that formed after the river channel was cut across Boggs Bend in about 1930 (The Nature Conservancy 2005).

Womble Tract

The restoration area is bounded by forested riparian habitat on the north and south, the levee on the east, and field crop land on the west. The restoration area is inundated in most years; ponding occurs adjacent to the levee annually because the area is lower than the property to the west (The Nature Conservancy 2005). The topography slopes gently to the north and south from the slightly elevated center of the proposed restoration area. The Womble Tract adjoins the Jensen Tract to the southwest.

Eight natural plant communities occur close to the restoration area (see Appendix A): buttonbush scrub, Great Valley cottonwood riparian forest, elderberry blackberry scrub, valley wildrye grassland/valley oak woodland, Great Valley mixed riparian forest, Great Valley valley oak riparian forest, Great Valley willow scrub, and herbland (Holland 1986 as quoted in Hubbell et al. (2006a)).

3.2 Jensen Tract

The Jensen Tract is located about 1.75 miles south of Princeton on the east side of the Sacramento River at RM 161 inside the river levees (Section 31, T18N, R1W) (Figure 2). The Jensen Tract is owned by TNC. Access to the site is across a private easement from River Road.

The Jensen Tract comprises 98 acres, of which 81 acres are proposed for restoration. The proposed restoration area is currently an active English walnut orchard that is nearing the end of its productive life. The restoration area is bounded by forested riparian habitat on the north, east, and west, and a walnut orchard on the south. The western boundary of the tract is the Sacramento River. The northern and northeastern boundaries are contiguous with the Womble Tract. The topography in the proposed restoration area is generally level, and the tract floods approximately every 1 to 2 years.

Eight natural plant communities occur close to the restoration area: buttonbush scrub, Great Valley cottonwood riparian forest, elderberry blackberry scrub, valley wildrye grassland/valley oak woodland, Great Valley mixed riparian forest, Great Valley valley oak riparian forest, Great Valley willow scrub, and herbland (Holland 1986 as quoted in Hubbell et al. (2006b)).

Jensen Tract

3.3 Stegeman Tract

The Stegeman Tract is located approximately 0.25 mile east of the 1000-Acre Ranch tract, about 2.85 miles south of Princeton (Figure 2). The tract is on the west side of the Sacramento River at RM 160 (Section 6, T17N, R1W) and is accessed via a private easement from Highway 45. The Stegeman Tract is owned by the State of California and is the northerly parcel of the Stegeman Unit of CDFG's Sacramento River Wildlife Area and adjoins the 1000-Acre Ranch Tract on the west (The Nature Conservancy 2005).

The Stegeman Tract comprises 69 acres, of which 8 acres are proposed for restoration. The restoration area consists of an abandoned walnut orchard, which is surrounded by riparian forest habitat. The remaining 61 acres are riparian habitat, including forests to the west and savannahs closer to the river. The tract is flooded about every 1 to 4 years. The topography of the 8 acres proposed for restoration is generally level, but the restoration area is situated slightly higher than the surrounding riparian habitat.

Stegeman Tract

Five natural plant communities occur close to the restoration area: Great Valley mixed riparian forest, Great Valley cottonwood riparian forest, Great Valley willow scrub, elderberry savanna, and herbland (Holland 1986 as quoted in Hubbell et al. (2006c)).

3.4 1000-Acre Ranch Tract

1,000-Acre Ranch Tract

The 1000-Acre Ranch Tract is located approximately 2.85 miles south of Princeton on the west side of the Sacramento River at RM 160 (Section 6, T17N, R1W) (Figure 2). This tract is owned by TNC and adjoins the Stegeman Tract on the east. Access to the tract is across a private easement from Highway 45.

The 60-acre tract includes approximately 11 acres of flood protection levees and access roads. The 49-acre restoration area is currently planted as a prune orchard that is nearing the end of its productive life. The restoration area adjoins the levee on the north and west, remnant riparian forest to the east, and a walnut orchard to the south. No significant native recruitment is evident along the southern, western, or northern boundaries or within the restoration area itself (Holland 1986 as quoted in Hubbell et al. (2006)). The topography is generally level, and the tract is inundated about every 2 to 4 years (The Nature Conservancy 2005).

Five natural plant communities occur close to the restoration area: Great Valley mixed riparian forest, Great Valley cottonwood riparian forest, Great Valley willow scrub, elderberry savanna, and herbland (Holland 1986 as quoted in Hubbell et al. (2006d)).

3.5 Boeger Tract

The Boeger Tract is located about 2.5 miles north of Colusa on the east side of the Sacramento River at RM 148 (Section 8, T16N, R1W) (Figure 2). The Boeger Tract is owned by TNC, and access to the site is across a private easement from River Road.

The proposed restoration area comprises 51 acres of the 125-acre tract; the restoration area is currently tilled agricultural field crop land. The restoration area is surrounded by remnant riparian habitat, except for two small sections: the levee in the northeast corner and a walnut orchard at the southern

Boeger Tract

boundary. The tract is bounded by the river to the west and northwest, the levee to the east, and remnant riparian habitat on privately owned land to the south. The topography is generally level, and the tract floods about every 1 to 4 years (The Nature Conservancy 2005).

Six natural plant communities occur close to the restoration area: blackberry scrub, Great Valley cottonwood riparian forest, Great Valley mixed riparian forest, Great Valley valley oak riparian forest, Great Valley willow scrub, and herbland (Holland 1986 as quoted in Hubbell et al. (2006e)).

3.6 Colusa-North Tract

The Colusa-North Tract is located approximately 2 miles north of Colusa on the west side of the Sacramento River at RM 147 (Sections 7 and 18, T16N, R1W) (Figure 2). The tract is owned by the state and managed by CDFG. The Colusa-North Tract is north of the Ward Tract, which is to be restored by DWR. The Colusa-North Tract is the most northerly subunit of the Colusa Unit of CDFG's Sacramento River Wildlife Area. Access to the site is across private easements.

Colusa-North Tract

Approximately 5 acres of the 143-acre tract are proposed for restoration. The proposed restoration area currently supports an abandoned walnut orchard that is completely surrounded by remnant riparian forest. The tract floods about every 1 to 2 years (The Nature Conservancy 2005). The topography of the proposed restoration area is generally level, with the southern half being slightly lower; however, there are moderately steep areas along the side channels that run along the toe of the levee and down the middle of the tract.

Four natural plant communities occur close to the restoration area: Great Valley cottonwood riparian forest, Great Valley mixed riparian forest, Great Valley valley oak riparian forest, Great Valley willow scrub, and herbland (Holland 1986 as quoted in Hubbell et al. (2006f))

3.7 Cruise n' Tarry Tract

The Cruise n' Tarry Tract is located about 1 mile north of Colusa on the east side of the Sacramento River at RM 145.5 (Sections 17 and 20, T16N, R1W) (Figure 2). This tract, which is the site of a former privately owned commercial marina, is now in state ownership. The state recently leased the tract to Colusa County for possible recreation use, although plans have not yet been developed for improvements or public access.

The Cruise n' Tarry Tract lies immediately adjacent to the river on the west, the Colusa Weir on the north, and the levee on the east and south and is accessed from River Road. The Ward Tract is located directly across the river to the west.

The approximately 10-acre Cruise n' Tarry Tract comprises a mixture of open area, abandoned orchard, an inlet that is the location of the former marina, and a remnant of riparian habitat. Approximately 3 acres in the southern half of the tract are proposed for restoration.

Cruise n' Tarry Tract

One acre adjoining the Colusa Weir at the northern edge of the tract would be used by the state for short-term storage of woody debris and silt cleared from the Colusa Weir.

The inlet, which is located in the center of the tract, is approximately at the level of the river surface. Flooding of the tract occurs about every 1 to 4 years (The Nature Conservancy 2005). The topography around the inlet is level, and the cut banks along the river are steep.

Six natural plant communities occur close to the restoration area: Great Valley mixed riparian forest, Great Valley cottonwood riparian forest, buttonbush scrub, Great Valley willow scrub, blackberry scrub, and herbland (Holland 1986 as quoted in Hubbell et al. (2006g)).

SECTION 4: DESCRIPTION OF THE PROPOSED PROJECT

The proposed Project involves:

- restoration of approximately 251 acres of wildlife habitat on portions of seven tracts (totalling approximately 574 acres) near the Sacramento River between the community of Princeton and the City of Colusa in Colusa and Glenn Counties;
- acquisition by the State of California of three of the seven tracts, which are currently owned by TNC (Jensen, 1000-Acre Ranch, and Boeger); and
- long term management of the tracts for conservation and public recreation purposes.

As used in this document, "restoration" refers to all activities involved in converting the existing land cover to native plants and wildlife habitats. These activities include removal of non-native vegetation, including orchards; site preparation, including land surface treatment with mechanized equipment; installation of irrigation systems and use of surface water or groundwater supplies; planting of native trees, shrubs, and grasses; interim irrigation of plants as they become established; construction of minor public access improvements, such as parking areas, signage, and information kiosks; and long-term maintenance and weed control. Additional detail is provided below and in Appendix A.

The transfer of the three tracts from TNC to the State of California is included in the proposed Project, although the transfer of ownership would not be directly associated with physical changes in the environment. Long-term management includes future uses, improvements, and activities by the state at the seven tracts to the extent that such management is reasonably foreseeable.

The final planting design will include buffers and other design features intended to reduce potential effects associated with land use incompatibility on adjacent lands that are in active agricultural use; approximately 12 percent of the perimeters of the restoration tracts are adjacent to agricultural crops on adjoining lands in other ownerships. Such buffers and design features would be determined in consultation with the owners of adjoining agricultural lands.

4.1 Project Objectives

The objectives of the proposed Project are:

- to improve wildlife habitat by contributing to the creation of large, contiguous blocks of riparian habitat along the Colusa Subreach of the Sacramento River; and
- to enhance existing riparian vegetation and improve habitat quality by removing and controlling invasive species.

The existing riparian habitat in the Colusa Subreach supports a broad range of wildlife species. Restoration of riparian habitat at the seven tracts would increase and improve wildlife habitat along the subreach by:

- increasing the amount of riparian forest and filling "gaps" in the native vegetation cover,
- connecting habitat fragments and extending corridors of protected habitat, and

- improving sediment and nutrient cycling between the riparian zone and the river.

Restoration of wildlife habitat at the seven tracts would be accomplished using a combination of active restoration techniques and natural vegetation recruitment. Natural recruitment is the process by which plants reestablish naturally. Because all seven tracts are periodically flooded, natural recruitment would occur to some degree; however, experience at similar sites along the Sacramento River has shown that reliance on natural processes alone is slow and may have undesired results, including the proliferation of non-native invasive species, such as yellow-starthistle, Johnson grass, and Bermuda grass.

Vegetative cover on active and abandoned agricultural lands generally tends toward the proliferation of non-native plant species to the limitation or exclusion of native riparian species. Active restoration would "jump start" succession in the restored areas and provide benefits to wildlife species in a relatively short time. (Succession is defined as the gradual and orderly process of change in an ecosystem brought about by the progressive replacement of one community by another until a stable climax is established.) In similar restoration projects, measurable increases in habitat use by bird species have been demonstrated to occur within 3 years after restoration (Small et al. 2000).

Restoration of existing and abandoned orchards and row crop fields to native riparian vegetation species would add an additional 251 acres of riparian habitat to the 21-mile Colusa Subreach, resulting in an approximately 7 percent increase in riparian habitat. Most of the proposed restoration tracts are contiguous with areas of established riparian habitat, which increases their ecological value after restoration.

4.2 Restoration Techniques and Activities

Baseline assessments have been prepared for TNC for each of the seven proposed restoration tracts (Hubbell et al., 2006a, 2006b, 2006c, 2006d, 2006e, 2007a, 2007b). The assessments characterized each tract in terms of soils, topography, geomorphology, hydrology, and remnant riparian vegetation. Potential restoration plant communities were selected for each tract based on the characteristics of the remnant riparian vegetation community, soils, and estimated elevation; the influence of historic channels and estimated flood frequency at each tract were also considered in selecting the plant communities. The proposed restoration plans were developed using topography data from the U.S. Army Corps of Engineers (USACE) 1997 digital elevation model (DEM) with 2-foot contours, as well as Light Detecting and Ranging (LIDAR) data. Specific restoration plans for each tract are described in Appendix A.

4.2.1 Plant Communities

The plant communities proposed for the restoration tracts are based on Holland's riparian communities (Holland 1986). Because enhancement of biodiversity is an important component of the proposed restoration goal, the species composition of the Holland communities has been adjusted to reflect nearby remnant riparian plant communities at each of the seven tracts and local differences in those plant communities (Hubbell and Efseaff 1998).

The frequencies of woody species in the restoration plans for each tract are based on the species frequency in the remnant riparian vegetation, visual dominance, and biodiversity concerns (Peterson et

al. 2003 and Wood 2003 as quoted in Hubbell et al. 2005, 2006a, 2006b, 2006c, 2006d, 2006e, 2007a, 2007b). For proposed plant communities for which no data are available concerning nearby remnant vegetation, data were used from baseline assessments prepared for other sites that included those community types (e.g., Hubbell et al. 2003), or estimates were made based on the expected frequency of a species in those communities (Hubbell et al. 2005, 2006a, 2006b, 2006c, 2006d, 2006e, 2007a, 2007b).

The species composition and abundance recommendations for herbaceous species were based predominately on local visual dominance in remnant riparian areas, ecologically based substitutions of native species for non-native species common in remnant areas, and biodiversity enhancement (Peterson et al. 2003 and Wood 2003 as quoted in Hubbell et al. 2005, 2006a, 2006b, 2006c, 2006d, 2006e, 2007a, 2007b).

The proposed plant communities are:

- Mixed riparian forest (MRF)
- Cottonwood riparian forest (CWRF)
- Valley oak riparian forest (VORF)
- Valley oak riparian forest/valley needlegrass grassland (VORF/VNG)
- Willow scrub (WS)
- Willow scrub/valley wildrye grassland (WS/VWG)
- Rose/baccharis scrub (RBS)
- Rose/baccharis scrub/valley wildrye grassland (RBS/VWG)
- Blackberry scrub (BBS)
- Mule fat scrub (MFS)
- Mule fat scrub/valley wildrye grassland (MFS/VWG)
- Elderberry scrub/valley wildrye grassland (ES/VWG)
- Valley oak/elderberry scrub/valley wildrye grassland (VOES/VWG)

The proposed acreages of these plant communities at each of the restoration tracts is shown in Table 4-1.

Table 4-1. Proposed Plant Communities (Acres*), Colusa Subreach Planning Area

UNIT NAME	MRF	CWRF	VORF	VORF/VNG	WS	WS/VWG	RBS	RBS/VWG	BBS	MFS	MFS/VWG	ES/VWG	VOE/VWG	TOTAL
Womble	32.4				8.7		7.9		4.7					53.7
Jensen	55.9	1.5						23.9						81.3
Stegeman	4.6	1.7			2.1									8.4
1,000-Acre Ranch	26.5		22.6											49.1
Boeger	6.5	7.2	4.9			1.0		20.6			4.7		6.2	51.0
Colusa-North	1.2		1.2		0.1					1.5		0.9		5.0
Cruise n' Tarry		0.7		1.8	0.1		0.3							2.8
Total	**127.1**	**11.1**	**28.7**	**1.8**	**11.0**	**1.0**	**8.2**	**44.5**	**4.7**	**1.5**	**4.7**	**0.9**	**6.2**	**251.3**

Source: The Nature Conservancy 2007; EDAW 2007c

* Acreages are approximate.

The plant communities dominated by trees—mixed riparian forest, cottonwood riparian forest, valley oak riparian forest—account for more than half of the proposed plantings. Proposed tree-dominated communities are prevalent in these areas because the sites generally have deep, well-drained soils that originally supported riparian forests. The scrub and grassland plant communities generally indicate poorer soils. The willow scrub communities are adapted to the sandy soils that are usually closest to the river channel.

Planting would be in curved rows about 20 to 30 feet apart and oriented to the direction of flood flows. Within the rows, the plants would be about 10 feet apart. The resulting plant densities range from about 130 to 200 plants per acre. The plant design may be adjusted prior to planting to address concerns of neighboring landowners; adjustments could include establishment of buffer zones along adjacent cropland.

4.2.2 Site Preparation, Irrigation, and Planting Plans

Restoration would occur over a four-year time period. During Project Year 1, plants would be propagated from native seeds at a nursery. Also during Project Year 1, the existing orchards would be removed from the Jensen, Stegeman, 1000-Acre Ranch and Colusa-North tracts. Throughout the fall and winter, weeds would be allowed to grow; before planting in the spring, the weeds would be sprayed through direct application with approved agricultural herbicides (e.g., glyphosate, triclopyr) using spray rigs on ATVs.

In spring of Project Year 2, the sites would be disked and land planed. An underground irrigation system would be installed using a trencher. A tractor and trencher would be used to dig multiple trenches across the sites approximately 12 to 18 inches deep for the main underground irrigation line, following which the above-ground drip irrigation system would be installed. Irrigation water would be obtained on each site from existing wells, new wells, riparian withdrawal of surface water (Boggs Bend Slough for the Womble tract), or through arrangements with off-site well-owners. Table 4.2 shows the irrigation source for each of the tracts.

After installation of the irrigation system, nursery stock plants would be planted using shovels to dig individual holes no more than 10 inches deep. Plants propagated via cuttings (e.g., willows) would also be planted during this season. All plants would be planted by hand.

In the fall or winter of Project Year 2, native grasses would be drill seeded in between the rows of the woody trees and shrub species. The timing of the seeding would depend on soil moisture conditions, but would be anticipated to occur in mid-December. The restoration plantings would be monitored for 3 years after planting. Trees and other species would be replanted if survival is less than 80 percent of the original planting. Maintenance for 3 years after planting would include irrigation, disking prior to grass seeding, and herbicide application to control weeds in the restoration area. By the end of Project Year 4, it is anticipated that the restoration plantings would be well established. At that time, the wells and roads on the sites would be decommissioned, and the surface irrigation lines removed.

4.2.3 Roads and Staging Areas

Existing farming access roads would be used to the extent practicable. Existing roads would be adequate for all the tracts except the Colusa-North Tract, where, under the higher restoration option (see section 4.2.5), a new 700-foot access road from the levee would be required for vehicles and equipment. No excavation for roadways would be required, and no fill material would be imported. Staging areas at all tracts would be graded with a land plane (see below); the locations of the staging areas would be near the primary entrance location for the tracts. Table 4-2 summarizes the access, staging areas, and irrigation source for each tract.

Table 4-2. Restoration Elements for the Proposed Restoration Tracts

TRACT	ACCESS	STAGING AREA	IRRIGATION SOURCE
Womble	Existing road on easement over the levee from River Road	Southeast corner adjacent to existing ramp	Pumping from Boggs Bend Slough
Jensen	Existing road on easement over the levee from River Road	Southeast corner adjacent to the access road	Existing onsite well in northwest quadrant
Stegeman	Existing road on easement over the levee from Highway 45	Same as 1000-Acre Ranch	Same as 1000-Acre Ranch
1000-Acre Ranch	Existing road on easement over the levee from Highway 45	Northeast corner adjacent to ramp	Existing onsite well in northeast quadrant
Boeger	Existing road on easement over the levee from River Road	Northeast corner adjacent to ramp	New onsite well or use of existing offsite well
Colusa-North	Easement on levee road, then a new access through remnant habitat	Northeast corner of site	New onsite well or use of existing offsite well
Cruise n' Tarry	Existing road from River Road	Northeast corner or in existing parking area	New onsite well or use of existing offsite well

4.2.4 Equipment for Site Preparation, Planting, and Maintenance

A bulldozer (such as a D-7) would be used to remove the walnut trees on the Jensen Tract; a backhoe would be used to remove orchards on the other sites. Removal would also involve the use of chain saws and a chipper; chippings would be removed using a tractor trailer.

Disking would involve a tractor pulling a 10-inch disk. Land planing could occur on each tract, including in areas that would serve as access routes. The land plane is towed behind a tractor to smooth and level irregularities following disking. Land planes can be also be used for clearing weeds, ground-shaping, preparing seed beds, scarifying hard ground, aerating top soil, and general clean up. Fields would not be completely leveled, and existing topographic contours would be maintained.

A tractor and trencher would be used to dig trenches approximately 10 inches deep for underground irrigation lines. Pickup trucks would bring equipment and plants to the planting sites. Herbicide spraying for weeds would be accomplished by direct application from ATVs equipped with spray rigs. A tractor and drill seeder would be used to plant grass seeds between the rows of plants in the forest, scrub, and savanna areas.

4.2.5 Minor Improvements for Public Access

The proposed Project includes the construction of minor public access and recreation-related facilities. At the Womble Tract, improvements would include a carry-in / car-top boat access ramp, delineated vehicle parking area, and interpretive sign system. Three tracts—Stegeman, Boeger, and Colusa-North—would include boat-in camping. The Cruise n' Tarry Tract would include the establishment of delineated vehicle parking area, carry-in/car-top boat access ramp, temporary restroom, and interpretive sign system (EDAW 2007a). At all sites signing for identification and regulatory purposes is proposed in the future.

4.2.6 Options in Restoration Techniques and Activities

The discussion above describes the proposed restoration techniques and activities. For CEQA purposes, higher rather than lower levels of restoration are assumed in terms of the areas proposed to be treated, amount of vegetation removed, degree of site preparation, relative amounts of each plant community, the amount of active restoration versus natural recruitment, the extent of the installed irrigation systems, and the types of equipment used.

Minor variations and site-specific adjustments in these components are possible, resulting in lower levels of active restoration. For example, the types of restoration activities may be adjusted in areas adjacent to agricultural crops on adjoining lands in other ownerships; these adjustments would be determined in consultation with the owners of adjoining agricultural lands.

At the Stegeman and Colusa-North tracts, restoration activities could be limited to the cutting and removal of non-native trees (orchards). At Colusa-North Tract, this approach would obviate the need to construct the access road to the restoration area. At the Cruise n' Tarry Tract, the recent lease of the site to Colusa County may result in future plans for improvement of the tract for recreation use, which may in turn reduce or eliminate the potential for restoration of the tract. The restoration plans for each

of these three sites recognize that these restoration areas are relatively small and that economic factors may dictate a less intensive form of restoration in the future.

4.2.7 Best Management Practices

The proposed restoration activities would incorporate a number of best management practices (BMPs) to minimize potential adverse effects to the environment. BMPs are standard methods used in many applications, for example, to prevent or reduce airborne particulate matter or to prevent or reduce the movement of sediment, toxic substances, nutrients, and other pollutants from the land to surface water or groundwater. BMPs incorporated into the proposed Project include, but are not necessarily limited to, the following.

- Restoration activities shall be planned in advance to protect existing vegetation.
- Vegetative buffer zones shall be maintained where possible to provide treatment for runoff and reduce erosion and sedimentation.
- If temporaty crossing of a swale, intemittent stream, or other natural drainage feature is required, identify and use one crossing, keep it to the minimum size, and restore the crosssing at the close of construction.
- Install silt-control or silt-trapping fabric barriers around ground-disturbing activities within 50 feet of a suspected wetland, the river channel, or other surface waters.
- All land planning and other mechanical soil disturbance shall be suspended when winds (as instantaneous gusts) exceed 20 miles per hour.
- Vehicle use shall be restricted to designated access roads and staging areas to the greatest extent practicable.
- No stockpiling of soil and other backfill material shall be allowed on the restoration sites.
- All public roadways used by the Project contractor shall be maintained free from dust, dirt, and debris caused by construction activities.
- No cleaning, fueling, or maintaining of vehicles shall occur on the restoraton sites.
- All herbicides shall be applied by a licensed operator. No cleaning of equipment or storage of chemicals shall occur on-site.
- Native soils, topographic forms, and natural drainage disturbed during clearing and land planing shall be restored, to the maximum extent practicable.
- Upon completion of restoration (i.e., at the end of Project Year 3), vehicles associated with the proposed Project shall be restricted to existing roadways.
- Open burning of cleared vegetation shall be prohibited. Cleared vegetation shall be treated by legal means other than open burning, such as chipping, shredding, or grinding.

4.2.8 Summary of Ground Disturbance

In summary, the following activities would involve ground-disturbance as part of the proposed Project:

Project Year 1

- Orchard removal.
- Disking following orchard removal.

Project Year 2

- Disking.
- Land planing.
- Trenching for underground irrigation.
- Planing of access roads and staging areas.
- Planting of trees and shrubs. If replanting is needed, hand tools would be used.
- Drill seeding of grass.

Project Year 3

- Replanting and maintenance.
- Minor public access improvements (e.g., unpaved parking area at Womble Tract).

Project Year 4

- Removal of surface irrigation lines.
- Decommissioning of wells.
- Decommissioning of roads.

SECTION 5: EVALUATION OF ENVIRONMENTAL IMPACTS

This section uses the CEQA Environmental Checklist (CEQA Guidelines, Appendix G) as a basis for assessing the potential environmental effects that could result from the proposed Project. The impact analysis provided in this section takes into account the whole of the action, as required by CEQA, including on-site, off-site, and cumulative impacts. It also addresses construction, operation, and maintenance impacts as described in the previous section of this document.

Each of the issue areas was evaluated and one of the following four determinations was made:

- **No Impact:** No impact to the environment would occur as a result of implementing the Project.
- **Less than Significant Impact:** Implementation of the Project would not result in a substantial and adverse change to the environment and no mitigation is required.
- **Less than Significant with Mitigation Incorporated:** Implementation of the Project could result in a "potentially significant impact," as described below, except that project-specific mitigation measures are identified that reduce the effect to a less-than-significant level.
- **Potentially Significant Impact:** Implementation of the Project could result in an impact that has a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project" (CEQA Guidelines Section 15382).

If a potentially significant impact is identified, mitigation measures are provided that would reduce the impact to a less-than-significant level.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
I. AESTHETICS **Would the project:**				
(a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
(b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
(c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
(d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion of Impacts

(a) ***Less than Significant Impact.*** Views of the restoration areas on the seven tracts are limited. No designated scenic vistas have been identified within or in close proximity to these areas. The proposed Project would alter mid-range views, such as those along limited access levee roads; the visual change would be from agricultural fields or orchards to a mosaic of riparian forest and grassland. In general, these changes in views would not be visible from nearby residences or by motorists using county roads adjacent to the levees. Implementation of the proposed Project would have a less-than-significant impact and would not adversely affect scenic vistas within the Project vicinity.

(b) ***No Impact.*** While the Colusa Subreach of the Sacramento River offers a variety of scenery, including river views, the seven tracts do not contain unique or extraordinary scenic resources. The proposed restoration activities can be expected in the long term to result in views that are similar to views of other areas of riparian vegetation along the river.

The proposed Project would not adversely affect scenic resources associated with any designated or eligible state scenic highway in the vicinity of the Project. The seven restoration tracts run parallel with State Route 45 (SR 45), which is not designated as a "State Scenic Highway" (California Department of Transportation 2007). Within Colusa County, State Route 20 (SR 20) and State Route 16 (SR 16) are eligible state scenic highways; however, these roadways have not been officially designated (California Department of Transportation 2007). These two highways are northwest of the proposed Project vicinity and would not be affected by implementation of the proposed Project. There are no officially designated or eligible scenic highways in Glenn County (California Department of Transportation 2007).

(c) ***Less than Significant Impact.*** The proposed Project would have a less-than-significant impact on the visual character of the restoration tracts and their surroundings. Views from levee roadways would change from agricultural to a mosaic of riparian forest and grassland. From the Sacramento River, views of the tracts are dynamic and offer diversity resulting from changes in location, season, and topography. In general, these changes in views would not be visible from nearby residences, motorists, or boaters.

(d) ***No Impact.*** The Project design does not include lighting, and no construction lighting would be needed. There would be no adverse effect on daytime or nighttime views in the area.

Mitigation Measures

No mitigation is required.

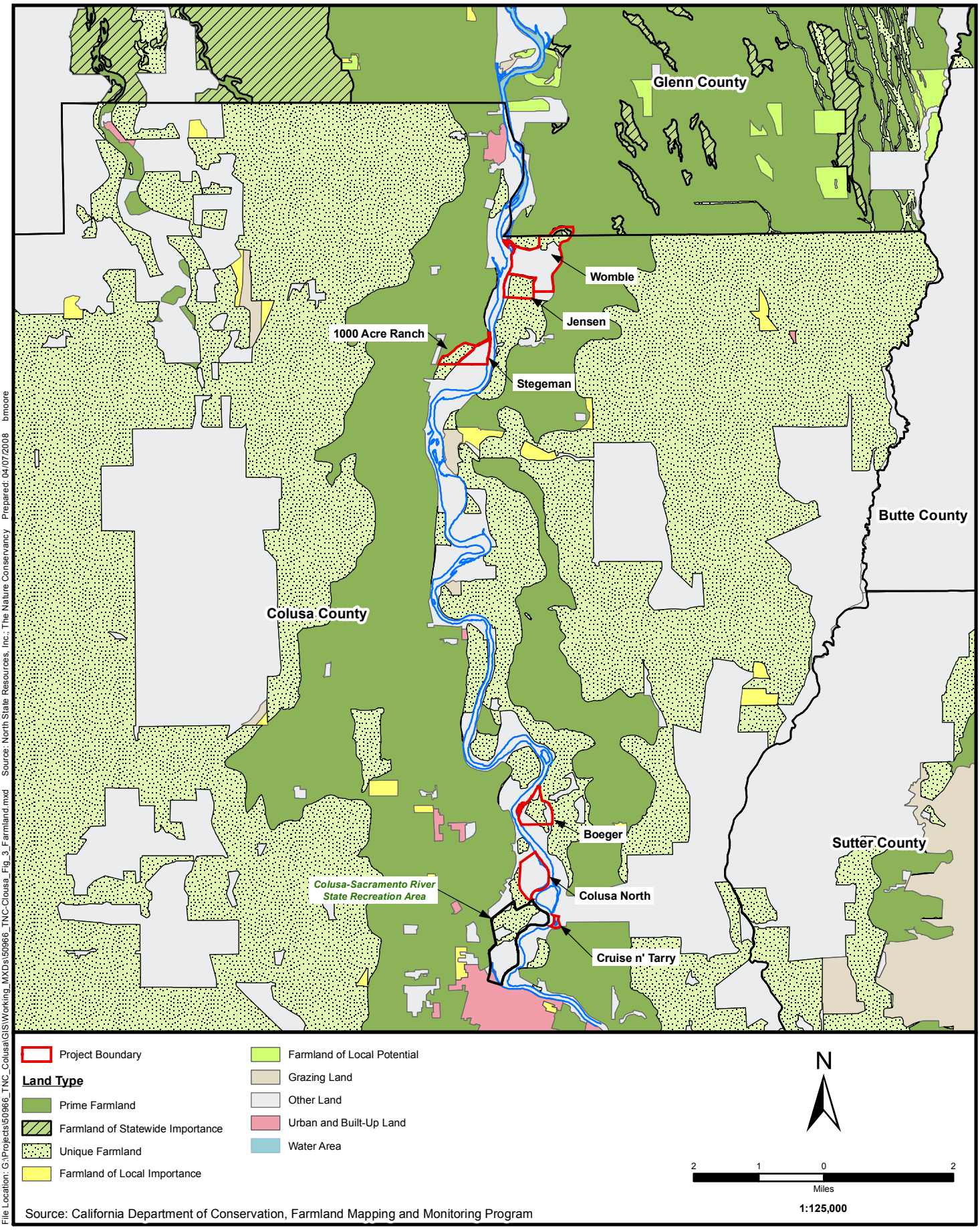
	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
II. AGRICULTURE RESOURCES Would the project:				
(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
(b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
(c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☒	☐

Discussion of Impacts

(a) ***Less than Significant Impact.*** The permanent loss of productive agricultural land in California, including in the Central Valley, is an ongoing environmental and socioeconomic concern monitored by federal, state, and local government agencies, farm bureaus and other agricultural organizations, non-government groups, conservation districts, and others.

The proposed Project includes changes in property ownership (at Jensen, 1000-Acre Ranch, and Boeger), as well as changes in vegetative cover and management approaches that would have implications for future agricultural use of the Colusa Subreach tracts. The proposed Project would involve removal of abandoned orchards and conversion of 251 acres of agricultural land to wildlife habitat. As shown on Figure 3, Farmland, all or portions of Womble, Jensen, 1000-Acre Ranch, and Boeger tracts include areas designated by the State Farmland Mapping and Monitoring Program as Unique Farmland. The Womble Tract also includes lands mapped by the state as Farmland of Statewide Importance. These tracts are owned by TNC and currently leased for agriculture.

Under the proposed Project, tracts that contain farmland would be converted from existing or potential agricultural use to native riparian vegetation. The annual change in the type and proportion of farmland acreage within Glenn and Colusa counties varies considerably per year (Economic and Planning Systems 2007), and 251 acres removed from production is not significant by itself. The tracts are located in the floodplain and subject to flood damage, which is a constraint for agricultural operations. The conversion would not be irreversible; unlike conversion to urban uses, the conversion to riparian habitat would not result in a permanent over-covering with developed land uses. However, there would be some obstructions to reestablishing agricultural uses because of the change in ownership to public land and because management approaches would be directed toward establishment and maintenance of wildlife habitat rather than agricultural production.



North State Resources, Inc.

Colusa Subreach Wildlife Habitat Restoration Project

Figure 3
Farmland

(b) ***Less than Significant Impact.*** The seven tracts are located entirely inside of flood control levees; this land is "Designated Floodway" (Loudon, pers. comm., 2008). "Designated Floodway" is defined as land that has been designated as a floodway by the State Reclamation Board. Areas between the Sacramento River and the levees are included in the Designated Floodway classification (Colusa County General Plan, Land Use Element, January 1989).

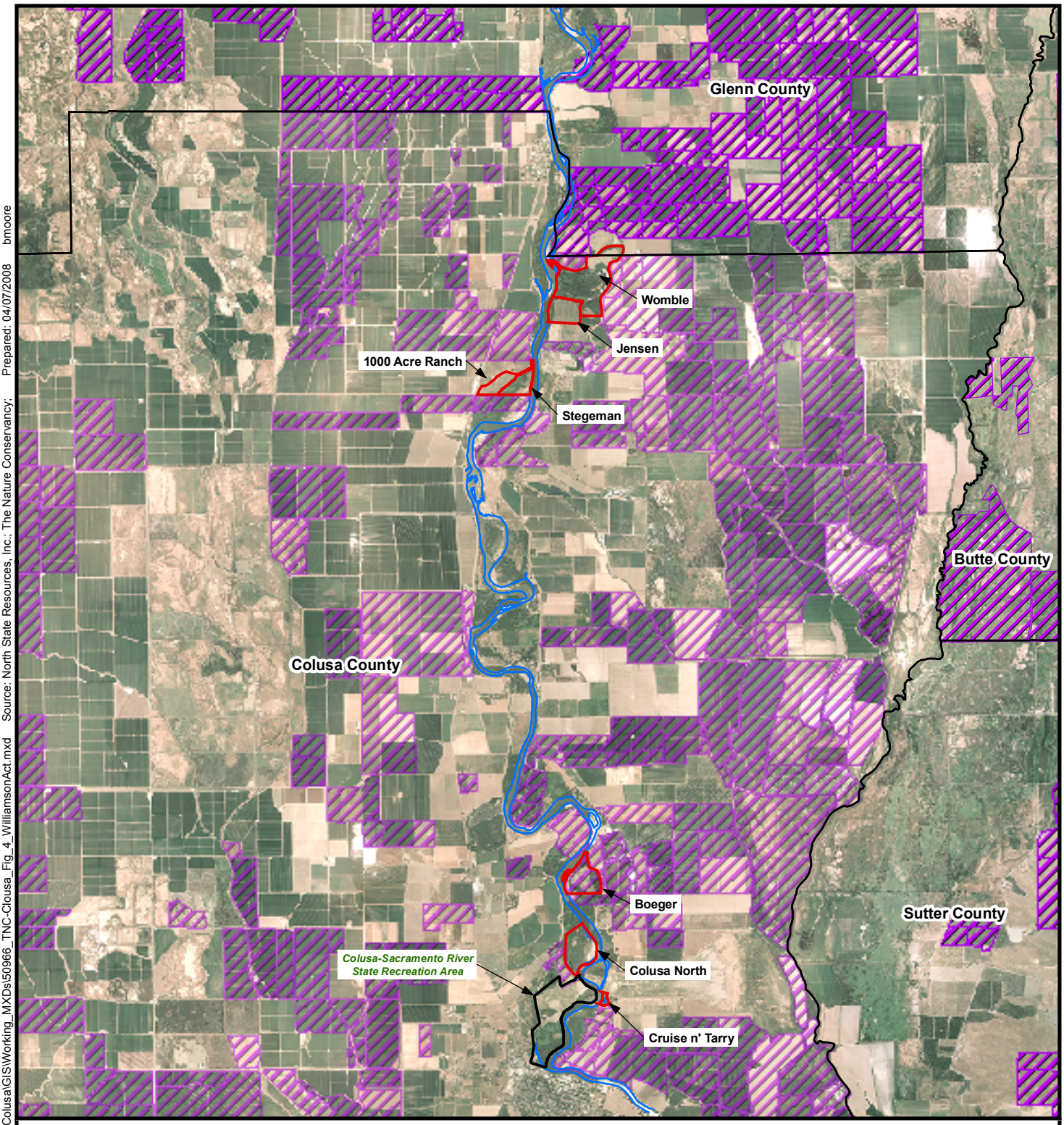
With the exception of the northern portion of the Womble Tract, the private lands included in the Project tracts are subject to Colusa County's zoning classification "Floodway or F-W zone" (Loudon, pers. comm. 2008). "Floodway" is intended to be applied to lands that lie within stream or tidal channels and to adjacent areas that are periodically inundated, or that would be inundated by a "design flood" (Colusa County Code, Section 4.1.3, 1991).

The northern portion of the Womble tract, which is located in Glenn County, is classified as Exclusive Agriculture (AE-40). This classification was established to provide areas for both intensive and extensive agricultural activities and to prevent the unnecessary conversion of agricultural land to urban uses (Glenn County Code, Chapter 330).

Currently, the Colusa County and Glenn County zoning designations apply to the three tracts owned by TNC (Jensen, 1000-Acre Ranch, and Boeger). The other four tracts are owned by the State of California and not subject to local agency zoning regulations. While the proposed conversion of these lands would occur coincident with title transfer, these lands will remain rural in character and not be incompatible with ongoing agricultural activities and other uses that are permitted on adjacent lands through County zoning regulations.

As shown on Figure 4, property associated with Boeger Tract is currently in a Williamson Act contract; parcels adjacent to the Stegeman and Womble tracts are also subject to Williamson Act contracts (Walker, pers. comm. 2008 and Nieheus, pers. comm. 2008). Under the provisions of the California Land Conservation Act of 1965, commonly known as the Williamson Act, landowners enter a restrictive-use contract to protect agricultural, recreational, and other open space lands in return for property tax incentives. Counties that adopt the program receive "subvention" payments from the state to partially make up for lost tax revenue. Williamson Act contracts run for ten years; the term renews each year unless one party submits a nonrenewal (cancellation) request.

Transfer of ownership of the Boeger Tract (or more specifically, the legal parcel of land associated with the tract) would trigger consideration of requirements under the Williamson Act, including the possible need to make certain findings as specified in California Government Code Section 51292. However, for CEQA purposes, potential changes in the Williamson Act contract do not in themselves constitute a physical impact on the environment. A potential change in status of a Williamson Act property may signify a loss in protection for agriculture resources, which could be indirectly associated with environmental impacts. As discussed above, the proposed Project does not represent this type of permanent loss of agricultural land. By restoring the property as wildlife habitat, the Project will ensure that the Boeger parcel would be maintained as open space and used for conservation purposes. Maintenance of these lands as open space is consistent with the general provisions of the Williamson Act contracts (Hackney, pers. comm. 2008; Murray, pers. comm. 2008). Therefore, the impacts would be considered less than significant.



Source: California Department of Conservation
Divsion of Land Resource Protection -
Williamson Act 2004-2006

File Location: G:\Projects\50966_TNC_Colusa\GIS\Working_MXDs\50966_TNC-Clousa_Fig_4_WilliamsonAct.mxd Source: North State Resources, Inc.; The Nature Conservancy; Prepared: 04/07/2008 bmoore

North State Resources, Inc.

Colusa Subreach Wildlife Habitat Restoration Project

Figure 4
Williamson Act Parcels

(c) ***Less than Significant Impact.*** The proposed Project involves conversion of 251 acres of the total 825 acres on the seven tracts. These tracts are entirely within the levees and are encompassed within the 100-year floodplain of the Sacramento River. Portions of these tracts have been used for agricultural purposes to varying degrees. Agricultural operations (orchards) within three of these tracts have been abandoned for variety of reasons, including reoccurring flooding, low productivity, and market conditions. While the proposed Project will change the character of 251 acres from agricultural to open space, this impact would be less than significant when placed in the context of the entire Colusa Subreach.

Mitigation Measures

No mitigation is required.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
III. AIR QUALITY Would the project:				
(a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
(b) Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☐	☒	☐
(c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
(d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
(e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion of Impacts

(a) ***No Impact.*** The Sacramento Valley Air Basin includes Butte, Colusa, Glenn, Shasta, Sutter, Tehama, and Yuba counties. These counties comprise the Northern Sacramento Valley Planning Area (NSVPA) districts (Northern Sacramento Valley Planning Area 2006). Each county within the NSVPA has its own individual air management district or air pollution control district. These districts are responsible for monitoring air quality, issuing and enforcing permits, inspecting businesses, and responding to complaints from the public within their jurisdiction. Colusa County is located in the Colusa County Air Pollution Control District, and Glenn County is located in the Glenn County Air Pollution Control District. Implementation of the proposed Project would not conflict with or obstruct implementation of the applicable air quality plan.

(b) and (c) ***Less than Significant Impact.*** Under State of California standards, Colusa County and Glenn County have been designated as "non-attainment/transitional" for ozone and "non-attainment" for particulate matter less than 10 microns (PM_{10}) (California Air Resources Board 2007). "Non-attainment/transitional" is defined as a subcategory of the non-attainment designation. An area is designated non-attainment/transitional to signify that the area is close to attaining the standard for that pollutant (Colusa County Air Pollution Control District 2000).

Under federal standards, Colusa County and Glenn County have been designated as "attainment/ unclassified" for ozone and "unclassified" for PM_{10} (California Air Resources Board 2007). "Unclassified" is any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant (Colusa County Air Pollution Control District 2000).

Various restoration activities would result in generation of PM_{10} from ground-disturbing activities and the emission of ozone precursor pollutants from internal combustion engines. Diesel- and gasoline-powered vehicles and equipment would be used during site preparation, installation of irrigation equipment, planting, and post-restoration maintenance, including the operation of diesel-powered pumps for water supply during the plant establishment period. A preponderance of evidence indicates that these emissions are "greenhouse gasses" (GHG) that contribute on a global scale to human-based changes in climate.

Current mandates, including the California Global Warming Solutions Act of 2006 and the Governor's Executive Order S-3-05, are aimed at reducing greenhouse gas emissions to levels that existed over a decade ago. With regard to CEQA, methodologies for analyzing climate change effects and identifying thresholds of significance are currently evolving and open to various interpretations. The effects of the proposed Project, however, would not be substantial. Project-related emissions would be kept to a minimum by compliance with air pollution control BMPs. In the longer term, restoration of habitat would result in the growth of additional vegetation that would aid in carbon sequestration, a beneficial effect. Implementation of the proposed Project would not violate or contribute substantially to an existing or projected air quality violation. Over time, the proposed Project would result in less airborne emissions and pollutants than similar areas maintained in agricultural operation. Revegetation of currently exposed fields under the proposed Project would reduce PM_{10} from wind erosion.

(d) ***No Impact.*** Fugitive dust (particulate matter/PM_{10}) and exhaust emissions (including PM_{10} and ozone) from vehicles and equipment used during restoration activities (e.g., orchard removal and site grading) are anticipated during Project Years 1 and 2.

Potential impacts to neighboring properties from fugitive dust caused during the initial clearing and grading activities would be analogous to existing onsite or nearby conditions (i.e., current agricultural operations). These activities would be associated with temporary and intermittent vegetation removal, site preparation, and associated maintenance within the first 4 years. The establishment of native vegetation would reduce the potential for wind erosion of soils exposed during agricultural operations.

Public recreational use of the tracts is not expected to result in a substantial increase in motor vehicle pollution compared to the existing traffic load and capacity. The proposed Project would therefore

have a less-than-significant impact on long-term local emissions associated with increases in mobile sources.

(e) ***No Impact.*** The proposed Project does not involve activities or uses that would generate objectionable odors affecting a substantial number of people.

Mitigation Measures

No mitigation is required.

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

Discussion of Impacts

(a) ***Less than Significant with Mitigation Incorporated.*** In the Colusa Subreach planning area, 42 plant, fish, and animal special-status species were identified that are known to occur or could occur in the project area. Appendix B identifies and assesses the habitat suitability and potential impacts for each of these 42 species (see Appendix B, Tables B-1 and B-2).

The proposed Project involves activities that would remove vegetation and disturb the ground surface, including vegetation removal, land planing, installation of irrigation systems, application of herbicides, and access by trucks and heavy equipment. Given that the primary objective of the proposed Project is to improve wildlife habitat, adverse impacts to special-status species would be expected to be minimal; however, complete avoidance may not be possible in all areas for all activities. Vegetation removal or degradation and ground-disturbing activities would be associated with implementation of the proposed Project.

As explained in Appendix B, the project would have a "less-than-significant impact" or "no impact" on 22 of the 42 species evaluated, including all of the special-status plants evaluated. Results of the assessment also indicate that Project-related activities could result in potentially significant impacts on 20 special-status species unless suitable mitigation is implemented. A brief discussion of the species is provided in the following paragraphs. Additional information on this topic is provided in Appendix B, along with a description of the suitable habitat present on the restoration tracts.

Invertebrates

- valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). Federally listed as threatened.

Blue elderberry (*Sambucus mexicana*) and (mountain) red elderberry (*S. racemosa var. microbotrys*) are the host plants for the valley elderberry longhorn beetle (VELB). No blue elderberries are planned to be removed as part of the project, but there could be a direct impact on VELB from accidental damage to elderberry shrubs during implementation and maintenance of the restoration plantings. Complete avoidance of VELB host plants may not be practicable, as the planting of native plants and maintenance would occur within 100 feet of blue elderberries in order to prevent the establishment of non-native invasive plants.

Fish

- green sturgeon, southern Distinct Population Segment (DPS) (*Acipenser medirostris*). Federally listed as threatened, designated Critical Habitat;
- central valley steelhead (*Onchorhynchus mykiss*). Federally listed as threatened, designated Critical Habitat;
- Chinook salmon, winter-run (*Onchorhynchus tshawytscha*). Federally and state listed as endangered, designated Critical Habitat and Essential Fish Habitat;
- Chinook salmon, spring-run (*Onchorhynchus tshawytscha*). Federally and state listed as threatened, designated Critical Habitat and Essential Fish Habitat;
- river lamprey (*Lampetra ayresii*). State species of special concern;
- hardhead (*Mylopharodon conocephalus*). State species of special concern;

- Chinook salmon, fall-run (*Onchorhynchus tshawytscha*). State species of special concern, designated Essential Fish Habitat;
- Sacramento splittail (*Pogonichthys macrolepidoptus*). State species of special concern.

The fish species listed above are known to occur in the Sacramento River and could inhabit portions of the tracts during overbank flooding. The Project would not involve any work in the active channel or on banks of the Sacramento River, nor would the Project be expected to result in conditions causing entrainment or entrapment of fish above current conditions; thus, no direct impacts to the fish species listed above are anticipated. Potential indirect impacts to these species related to sediment and pollutant contamination of the river could occur as a result of ground-disturbing activities and operation of equipment. These effects are found to be not significant.

Nesting Raptors

- Cooper's hawk (*Accipiter cooperii*). State species of special concern;
- western burrowing owl (*Athene cunicularia hypugaea*). State species of special concern;
- Swainson's hawk (*Buteo swainsoni*). State listed as threatened;
- white-tailed kite (*Elanus leucurus*). State fully protected;
- bald eagle (*Haliaeetus leucocephalus*). Federally threatened (delisted 2007), state listed as endangered and fully protected;
- osprey (*Pandion haliaetus*). State species of special concern.

Overstory vegetation associated with riparian habitat occurs at all seven tracts in varying proportions and provides suitable nesting habitat for the special-status raptors listed above. In the event that raptors use existing orchards for nesting habitat, orchard removal at the Stegeman and Colusa-North tracts could result in a significant direct impact to a nesting raptor if an orchard tree contained an active nest. The proposed construction of 700 feet (one-half acre) of temporary access road within the Colusa-North Tract would require removal of native riparian trees for the full implementation of planned restoration activities. The removal of riparian trees at this site could also result in a direct impact to nesting raptors. In addition, nesting raptors could be indirectly affected by noise from tree removal activities and road construction activities at certain tracts.

Other Nesting Birds

- western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). Candidate for federal listing, state listed as endangered;
- California yellow warbler (*Dendroica petechia brewsteri*). State species of special concern;
- yellow-breasted chat (*Icteria virens*). State species of special concern;
- loggerhead shrike (*Lanius ludovicianus*). State species of special concern.

Along the Sacramento River, these species make use of suitable nesting habitat associated with dense riparian habitat larger than 50 acres that contain willows and cottonwoods (Laymon and Halterman 1989). Suitable nesting habitat for these species is present within remnant riparian forests at six of the

tracts. The Cruise n' Tarry Tract is unique in terms of its small size and previous use as a recreational facility.

The Colusa-North Tract is the only site that would require construction of an access road. Construction of a 700-foot access road on this tract would result in the removal of an estimated one-half acre of native riparian trees for the full implementation of planned restoration activities. This is the only site where nesting birds could be subject to direct impacts resulting from the removal of a tree containing an active nest. Noise related to orchard removal and other mechanized ground-disturbing activities could indirectly affect nesting birds.

Bats

- pallid bat (*Antrozous pallidus*). State species of special concern;
- Townsend's western big-eared bat (*Corynorhinus townsendii*). State species of special concern.

Riparian vegetation occurring within the seven tracts provides varying amounts of suitable roosting habitat for the pallid bat and the Townsend's western big-eared bat. Bats could move into or out of this riparian vegetation at any time. Removal of large oak trees for the construction of the 700-foot temporary access road at the Colusa-North Tract could directly affect a maternity roost.

Loss of habitat, disruption of reproductive activities (nesting), or loss of individuals would be considered potentially significant effects. Implementation of the mitigation measures identified below would reduce the potential impacts to less-than-significant levels.

(b) ***Less than Significant with Mitigation Incorporated.*** The proposed Project would generally not affect riparian habitat within or adjacent to the restoration tracts. Access roads and staging areas for the proposed restoration activities would in most places be the same as those that have been used in the past for agricultural activities. The exception to this general assessment would be at the Colusa-North Tract, where a temporary access road (700 feet, one-half acre) would provide access for restoration activities through remnant riparian forest, a sensitive natural community. The impact of this road on riparian habitat would be temporary because the road would be returned to the original grade and revegetated with riparian plant species after four Project years. The impact to riparian habitat would be less than significant following implementation of Mitigation Measure BIO-5.

(c) ***Less than Significant with Mitigation Incorporated.*** The restoration designs do not target remnant riparian habitat or wetlands for treatment; therefore, by design, loss or degradation of existing wetlands would not be associated with implementation of the proposed Project. Retention of wetlands and avoidance of any adverse impacts would be consistent with the objectives of wildlife habitat restoration and the preferred (and expected) approach under the proposed Project.

Although verified wetland delineations have not been performed in conjunction with the proposed Project, reconnaissance-level information identified several features that exhibit wetland indicators. Specifically, the Womble and Colusa-North tracts contain isolated features that show evidence of wetland vegetation and hydrology. Standard restoration methods, including the use of tractors and land planers, as well as the possible construction of a new, temporary access road at Colusa-North, could have adverse effects on wetland hydrology or discharge fill material into such features. Loss of

wetland area or functions would be considered to be a significant impact. Thus, additional measures are needed to clearly identify potential wetlands and avoid impacts. Implementation of the mitigation measures identified below would reduce such impacts to less-than-significant levels.

(d) ***Less than Significant Impact.*** Implementation of the proposed Project would not include activities along the bank or in the channel of the Sacramento River or its tributaries; therefore, the proposed Project would not interfere with the movement of migratory fish. The hydraulic analysis performed for the proposed Project indicates that there would be no substantial changes to the bed or banks of the Colusa Subreach of the Sacramento River (Ayers 2008). Implementation of the proposed Project would ultimately improve the quality of the riparian corridor for anadromous fish and migratory birds by increasing the extent and continuity of suitable breeding and foraging habitat. While the construction of a temporary access road through a portion of the Colusa-North Tract would result in temporary impacts to riparian habitat, the proposed Project overall would not substantially interfere with or impede the movement of resident or migratory fish and wildlife species, and the proposed Project would not impede the use of native wildlife nursery sites. Therefore, these temporary impacts are considered less than significant, and no mitigation is required.

(e) ***No Impact.*** The Colusa County General Plan (Colusa County 1989) does not address riparian vegetation or riparian habitat. A portion of the Womble Tract occurs within Glenn County and is subject to the Glenn County Plan. The Natural Resources Element of the Glenn County General Plan calls for the protection of riparian habitat along the Sacramento River (Glenn County 1993). No adverse impacts to riparian habitat are proposed on the Womble Tract. No conflicts are identified with local ordinances or policies addressing the protection of biological resources; thus, no impacts are identified and no mitigation is required.

(f) ***No Impact.*** No adopted Habitat Conservation Plan or Natural Community Conservation Plan applies to the Colusa Subreach area. The proposed Project is not in conflict with the principles or recommendations of the *Sacramento River Conservation Area Handbook* (Sacramento River Conservation Area Forum 2003) nor the CALFED Ecosystem Restoration Program Plan (California Bay-Delta Program 2000). No impacts are identified and no mitigation is required.

Mitigation Measures

BIO-1: Valley Elderberry Longhorn Beetle (VELB)

(i) Surveys shall be conducted at each of the seven tracts prior to implementation of restoration activities to identify, and mark for protection, elderberry shrubs potentially affected by activities.

(ii) Prior to restoration at each tract, a Worker Environmental Awareness Program for restoration workers shall be conducted by a qualified biologist. The program shall provide all workers with information on their responsibilities with regard to sensitive biological resources, including the federally listed VELB and the need to protect its elderberry host plant.

(iii) Measures to protect buffer areas shall be instituted prior to construction and will include fencing and signs. The distance of the buffer area from the drip line of elderberry shrubs with one or more stems measuring 1.0 inch or greater in diameter at ground level shall be set at the

greatest distance practicable without compromising the goal of planting native vegetation. The distance of the buffer area shall extend at least 20 feet from the drip line of the elderberry plant.

(iv) No insecticides, herbicides, fertilizers, or other chemicals associated with the proposed project that might harm the beetle or its host plant shall be used within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.

(v) Any damage to the buffer area during construction shall be restored following construction primarily using re-vegetation with native riparian plants as appropriate.

BIO-2: Nesting Raptors and Other Nesting Birds

(i) The removal of orchard trees and native trees at the Womble, Stegeman, and Colusa-North tracts, shall be conducted outside of the nesting season (nesting season is February 15 to August 30) to the maximum extent practicable.

(ii) For all proposed Project activities conducted during the nesting season that have a potential to disrupt nesting birds, pre-construction surveys shall be conducted. Pre-construction surveys for nesting raptors and migratory birds, including but not necessarily limited to, yellow-billed cuckoo, California warbler, yellow-breasted chat, and loggerhead shrike, shall be conducted by a qualified biologist. A minimum of one survey must be conducted no more than 14 days prior to the initiation of Project activities. If an active nest is found in close proximity to (i.e., within 250 feet) an active restoration area that will be disturbed by proposed Project activities, a qualified biologist shall determine the extent of a construction-free buffer zone to be established around the nest.

BIO-3: Bats

(i) In the event that native trees greater than or equal to 12 inches in diameter at 4.5 feet above grade within the Colusa-North Tract would be removed, a pre-construction survey for roosting bats shall be conducted prior to removal. No activities that would result in disturbance to active roosts of special-status bat species shall proceed prior to the completed survey. If no active roosts are found, then no further mitigation is needed. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified biologist will determine the extent of a construction-free zone to be established around the roost; access and time limits shall also be identified. If either a maternity roost or hibernaculum (i.e., a location used for hibernation) is present, the following measures shall also be implemented. CDFG shall also be notified of any active nurseries or hibernacula identified in the survey.

- If active maternity roosts or hibernacula are found, the Colusa-North temporary access road will be relocated to avoid the loss of the tree occupied by the roost, if feasible.
- If an active nursery roost is located and the access road can not be relocated to avoid removal of the occupied tree or structure, demolition of that tree or structure should commence before maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31) and the disturbance-free buffer zones described above shall be observed during the maternity roost season (March 1 to July 31),

- If a non-breeding bat roost or hibernacula is found in a structure or tree scheduled to be removed, the individuals shall be safely evicted, under the direction of a qualified biologist (as determined by a Memorandum of Understanding with CDFG), by opening the roosting area to allow air flow through the cavity. Demolition shall then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for airflow and the demolition). This action should allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed shall first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.

BIO-4: Riparian Habitat at Colusa-North Tract

(i) If a temporary access road is constructed at Colusa-North, the impact to existing habitat shall be minimized by implementing the following measures:

- The access road shall be designed with the minimum width needed for tractors and other equipment and the minimum length needed from the existing levee road to the site.
- Upon completion of Project activities at the Colusa-North Tract, the land surface affected by the access road shall be restored as closely as practicable to preconstruction contours and revegetated with native riparian species.

BIO-5: Wetlands

(i) Prior to the initiation of any ground-disturbing activities at the Womble and Colusa-North tracts, a qualified biologist shall identify all features that may exhibit wetland characteristics (i.e., suspected of meeting wetland criteria, including waters subject to USACE jurisdiction, as well as other waters not subject to USACE jurisdiction but subject to the jurisdiction of the Regional Water Quality Control Board (RWQCB)). These features plus an appropriate protective buffer shall be flagged or fenced prior to the start of start of site preparation, irrigation system installation, or other ground disturbance.

(ii) Mechanized equipment operation in and within 100 feet of identified features shall be avoided to the extent practicable. If avoidance of discharge of dredged or fill material is not practicable, the following measures shall be implemented.

- Conduct a wetland delineation pursuant to USACE requirements to determine the nature and extent of "waters of the United States" that are subject to restoration activies within the Womble and Colusa-North tracts.
- Prior to any discharge of dredged or fill material into "waters of the United States," including wetlands, authorization under a Nationwide Permit or Individual Permit shall be obtained from the USACE. For fill requiring a USACE permit, water quality certification shall be obtained from the RWQCB prior to discharge of dredged or fill material.
- Prior to any activities that would obstruct the flow of or alter the bed, channel, or bank of any intermittent or ephemeral creeks, notification of streambed alteration shall be

submitted to the CDFG, and, if required, a Streambed Alteration Agreement shall be obtained.

- Construction activities that would have an impact on "waters of the United States" shall be conducted during the dry season to the extent practicable to minimize erosion.
- All measures contained in permits or associated with agency approvals shall be implemented.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
V. CULTURAL RESOURCES Would the project:				
(a) Cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5?	☐	☒	☐	☐
(b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
(c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
(d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion of Impacts

(a), (b), and (d) ***Less Than Significant With Mitigation Incorporated.*** The cultural resources inventory of the entire Project area, including 622 acres subjected to a records search and 414 acres subjected to both a records search and a pedestrian survey, indicates the presence of one possible cultural resource site (Westwood 2005). This feature may be related to a previously recorded and investigated site determined to be eligible for listing on the National Register of Historic Places (NRHP) that is located in the vicinity; however, in the absence of surface artifacts, this identification remains tentative (Westwood 2005). The known boundaries of the feature possibly extend into the Project area and the likelihood exists that it is cultural in origin and related to the previously recorded site. Moreover, this feature, if deemed cultural, may satisfy significance criterion D of both the National Historic Preservation Act (NHPA) (36.CFR800.5(a)(1)) (Westwood 2005) and CEQA (Title 14 CCR Chapter 3 Article 5, Section 15064.5). Although no surface artifacts were observed during a surface scrape of the deposit, subsurface cultural materials may be revealed during restoration activities.

The Project site is not known to contain any human remains; however, if previously unknown remains are inadvertently discovered during Project implementation, the mitigation measures described at the end of this section shall be implemented to reduce potential impacts associated with the proposed Project to a less-than-significant level.

(c) ***No Impact.*** The Colusa Subreach of the Sacramento River is not known to support any unique paleontological resources or unique geologic features.

Mitigation Measures

The following mitigation measures shall be incorporated into the Project design and all construction plans and specifications (construction documents) to reduce the potential impacts of the proposed Project to a less-than-significant level. The "professional archaeologist" in the measures below refers to an archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards for prehistoric and historical archaeology. California State Code, Sections 6253, 6254, and 6254.10, authorizes state agencies to exclude archaeological site information from public disclosure under the Public Records Act.

CR-1: Construction Worker Training and Inadvertent Discoveries

Prior to initiation of construction or ground-disturbing activities, TNC shall provide worker awareness training and informational materials to all construction workers regarding the possibility of discovering prehistoric or historic cultural resource materials. Personnel shall be instructed that if materials are encountered that may represent archaeological material, work within 50 feet of the find shall be halted and a professional archaeologist shall be consulted. Once the find has been identified, TNC's project archaeologist will make the necessary plans for treatment of the cultural resources and for the evaluation and resolution of any adverse effect to such properties pursuant to the NHPA and CEQA. Work may continue on other parts of the proposed Project while mitigation for historical or unique archaeological resources takes place.

CR-2: Protection of Known Cultural Site.

A professional archaeologist shall be present during ground-disturbing activities on the one tract (identified in the confidential cultural resources investigation) where cultural materials are suspected. The archaeologist shall have authority to stop work if needed. If potentially significant cultural materials are detected, all work shall halt within a 100-foot radius of the find until clearance is provided by the archaeologist. CDFG, in consultation with TNC's project archaeologist, shall determine the need for additional cultural resources monitoring in areas removed from the identified feature.

CR-3: Monitor for Known Cultural Site

An experienced Native American monitor, representing a local group such as the Cortina Band of Indians (Cortina Indian Rancheria, Wintun Tribe) shall be present during ground-breaking activities on the one tract (identified in the confidential cultural resources investigation). In the event of the inadvertent discovery of human remains, the monitor will facilitate Native American consultation, but will not replace the required protocol outlined in Mitigation Measure CR-4, below. DFG, in consultation with TNC's project archaeologist, shall determine the need for additional cultural resources monitoring in areas removed from the identified feature

CR-4 Inadvertent Discovery of Remains

If human remains are encountered during construction, work in the affected portion of the Project shall stop and the County Coroner's Office shall be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by Public Resources Code, Section 5097. The NAHC will notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains.

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

Discussion of Impacts

(a)(i), (ii), (iii), and (iv) ***No Impact.*** There are no Alquist-Priolo Earthquake Fault Zones in Colusa or Glenn counties (California Geological Survey 2007). The portions of Colusa and Glenn counties included in the Project area are not at significant risk of landslide or seismic-related ground failure (Colusa County 1989).

(b) ***Less than Significant Impact.*** Wind erosion and occasional flood events influence the current level of erosion in throughout the CSP. Proposed ground-disturbing activities at the seven tracts will expose soil resources to surficial erosion processes, primarily overland flow, but to a lesser extent from overbank flooding. The restoration activities are similar to the grading activities that have occurred in conjunction with previous agricultural practices. The conversion of these tracts from transitional vegetation to riparian habitat would help to stabilize soils and reduce the long-term potential for soil erosion at each tract.

(c) ***No Impact.*** The Project site is not in a geologically hazardous area and involves no structural development.

(d) ***No Impact.*** Although the restoration areas on any of the seven tracts could contain expansive soils, the proposed Project does not involve construction of any major structures, pilings or abutments, or foundations for permanent facilities. The impact of Project implementation resulting from activities potentially taking place on expansive soils is anticipated to be less than significant.

(e) ***No Impact.*** The Project does not involve, nor would it affect the use of, septic tanks or alternative wastewater disposal systems.

Mitigation Measures

No mitigation is required.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
VII. HAZARDS AND HAZARDOUS MATERIALS Would the project:				
(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
(b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
(c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
(d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
(f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
(g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
(h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion of Impacts

(a) and (b) ***Less than Significant Impact.*** The proposed Project would not involve any activities such as industrial or manufacturing uses that would require the transport, use, or disposal of substantial quantities of hazardous materials. Implementation of the proposed Project would include the routine use herbicides. The routine transport, use, and disposal of such materials would be limited and would not present a health risk when the materials are handled according to the manufacturer's instructions. In addition, federal, state, and local laws regulate all aspects of hazardous material transport, use, and storage. Such regulations are intended to minimize hazards to the public and environment.

Mechanized equipment and vehicles used during site preparation would require the use of small quantities of hazardous materials such as oils, fuels, and hydraulic fluids, but restrictions will be placed on equipment maintenance, refueling, and storage, with such activities being confined to a designated staging area. As part of the proposed Project, TNC will adhere to the standard BMPs that address spill control and prevention, and the potential adverse impacts from construction-related accidental spills of hazardous materials is considered to be less than significant.

(c) ***No Impact.*** There are no existing or proposed schools located within one-quarter mile of any of the proposed restoration tracts.

(d) ***No Impact.*** There are no listed hazardous materials sites located within the proposed restoration tracts. The restoration tracts are not included on the Department of Toxic Substances Control (DTSC) Hazardous Waste and Substances Site List (Cortese List), compiled pursuant to Government Code Section 65962.5.

(e) and (f) ***No Impact.*** The 7 restoration tracts are located outside the established approach/departure clear zones of public and military airports in the region, including the Colusa County Airport approximately 1 mile southeast of the City of Colusa. Beale Air Force Base is located approximately 34 miles southwest of the City of Colusa. Several small private airfields exist in the surrounding region, including Davis Airport, 2 miles southwest of Colusa, and Gunnersfield Ranch airfield, 4 miles west of the Sacramento River at Stegeman. Habitat restoration and proposed uses associated with the Project would not present airstrike risks or otherwise conflict with airport operations.

(g) ***No Impact.*** The Project does not involve a use or activity that could interfere with emergency-response or emergency-evacuation plans for the area. The change in management and ownership would not physically interfere with access to the river by emergency services.

(h) ***Less than Significant Impact.*** Although the proposed restoration tracts have a relatively low wildland fire-hazard potential (Colusa County 1989), fire potential is influenced by vegetation type, slope, and use. Riparian vegetation, generally flat topography, and anticipated low public recreational use of the tracts makes the potential for wildfire within these areas less than significant.

Mitigation Measures

No mitigation is required.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
VIII. HYDROLOGY AND WATER QUALITY Would the project:				
(a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
(b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
(d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
(e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
(f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
(g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
(h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
(i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
(j) Inundation of seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion of Impacts

As discussed in Section 2.4.1, Stakeholder Concerns, a detailed hydraulic analysis was conducted for the Colusa Subreach, which assessed the potential effects resulting from proposed wildlife habitat restoration of riparian habitat within the floodway (Ayers Associates 2008). The analysis also provided information regarding the river channel depth and migration and the capacity of the 100-year floodplain between the levees within the Colusa Subreach. The hydraulic modeling covered the entire Colusa Subreach including the Ward Tract to allow for the consideration of cumulative effects. The model was used to compare the existing conditions high flow levels and the 1957 Design Flow levels with the water surface profiles of the proposed tracts after restoration.

Table 5-1 provides a summary of information derived from the hydraulic analysis. Additional information and detailed explanations are provided in the report.[7] In summary, the study concluded that:

[7] The final hydraulic analysis report is available on the CSP website at *http://www.sacramentoriver.ca.gov*.

- The minor velocity increases and decreases associated with the proposed Project will not significantly affect erosional or depositional patterns in the river channel or floodplain.
- The computed water surface elevation for the post-project restoration sites would be at or below the existing conditions or the 1957 design profile, with minor exceptions.
- No adverse effects would be associated with levee seepage from the restoration sites.
- Impacts on adjacent lands were found to be less than significant.

Table 5-1. Summary of Results of the Hydraulic Study Before and After Restoration

TRACT	RIVER MILE (RM)	EXISTING RIVER FLOW VELOCITY	CHANGE IN RIVER FLOW VELOCITY WITH PROJECT	CHANGE IN WATER SURFACE ELEVATION WITH PROJECT	IMPACTS TO ADJOINING PROPERTIES
Womble	RM 162	<2 fps (backwater)	-0.53	0.74 ft below design; 0.05 ft below existing	Increase in velocity up to 0.43 fps adjacent to property; not high enough to cause erosion.
Jensen	RM 161	1 to 3 fps (active floodplain)	-0.5 fps (riparian forest); +1 fps (scrub/grassland)	slightly < existing; slightly > design (no impacts)	Max. velocity <3 fps, not high enough to cause erosion; lower velocities downstream; no impacts
Stegeman	RM 160	<3 fps (active floodplain)	+1.5 fps	< design; 0.1 ft above existing (no impacts)	Velocity up to 4 fps in channel; bank erosion may occur on CDFG property downstream of armoring
1000-Acre Ranch	RM 160	<2 (backwater)	Reduction in velocity (1 fps or less)	varies upstream and downstream; negligible increase above existing	No negative effects associated with velocity; no impacts on adjacent property
Boeger	RM 148	2 to 3 fps (narrow reach)	+0.3 fps	< design flow; 0.25 ft. above existing (no impacts)	Increase limited to center of channel; no negative effects; no impact on adjacent property; opposite riverbank adequately armored
Colusa-North	RM 147	<1 fps (ineffective velocity area)	<0.2 fps	< design flow; 0.05 ft. above existing (no impacts)	No negative effects associated with velocity; no impacts on adjacent CDFG property
Cruise n' Tarry	RM 146	<2 fps (backwater; eddy)	No change	< design flow; same as existing	No negative effects associated with velocity; no impacts on adjacent property
Ward	RM 146	up to 3 fps	Reduction in velocity; effect varies	< design flow; same to +0.1 as existing (no impacts)	Velocity increases up to 0.2 fps adjacent to Cruise n' Tarry; some new deposition possible in areas of reduced velocity. No effect on repaired site or armored bank.

Notes: 1. Velocities are given in feet per second (fps).
2. The Ward Tract is a separate DWR project under CEQA, which is included here for information and cumulative effects.
3. Design flow is 1957 USACE data.

(a) ***No Impact.*** The proposed Project does not include discharge that would be expected to violate water quality standards, and it would not involve wastewater discharge. Agricultural activities would be curtailed at several tracts; however, at all active restoration sites, ground-disturbing activities particularly in the first two years would result in portions of the tracts being exposed to erosional process, including potential Sacramento River flood flows.

Over several years, the establishment of riparian vegetation would provide sufficient ground cover to reduce the Project-related erosion that could affect water quality. While there is some potential for overbank flooding to contribute sediment to the Sacramento River, this would only occur during flows that would have elevated turbidity and suspended sediments throughout the Colusa Subreach. The amount of sediment delivered to the surface waters under such conditions is not likely to be greater than under existing conditions; in fact, over time, with revegetation, it should be less. The proposed project is not projected to contribute to these levels to a degree that would violate water quality standards, nor adversely affect the designated beneficial uses for the Sacramento River.

(b) ***Less than Significant Impact.*** Irrigation of the restoration area would use groundwater from existing and new wells. The amount of water required would not be expected to substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level. The production rates at nearby wells would not be expected to be affected.

(c) and (d) ***Less than Significant Impact.*** The effects of the proposed restoration of riparian habitat were investigated in the detailed hydraulic analysis conducted for the Colusa Subreach (Ayers Associates 2008). Implementation of the proposed Project would not be expected to substantially alter the existing drainage pattern of individual tracts. The restoration work, which includes activities such as site preparation and land planing, do not involve excavation or grading by heavy equipment, nor would they result in the development of new impervious surfaces. The proposed Project would not change topographic contours greatly, and the proposed activities do not include alteration of a perennial stream or river.

As presented in Table 3-2, the 7 restoration tracts are located at varying distances from the Sacramento River. The restoration areas closest to the river are Cruise n' Tarry (20 feet), Stegeman (50 feet), and Boeger (50 feet). Other restoration areas range from 200 to 2300 feet at the closest point. Intervening vegetated ground cover can be expected to intercept and filter stormwater runoff, and the proposed Project is not likely to result in substantial erosion of siltation on- or off-site during storm events.

Ground exposure during construction and/or decommissioning of roads, trails, parking areas and irrigation systems could temporarily increase sediment yield to the Sacramento River during larger flood flow events. Because the areas of disturbance would total more than 1 acre, restoration projects may be required to file a Stormwater Pollution Prevention Plan (SWPPP) with the Central Valley Regional Water Quality Control Board and adhere to the specified best management practices. With this level of impact and the requirement to adhere to BMPs, no mitigation is required.

Based on current understanding, climate change may have effects on the Sierra snowpack and the hydrology of California's major rivers including the Sacramento, which may, in turn, have effects on water storage and supply systems, flood management, and other water-related uses and conditions. While the full implications are not entirely understood, Project-related changes in ground cover and

hydraulic roughness do not appear likely to contribute significantly to, or be affected by, climate change-induced hydrologic effects.

(e) ***No Impact.*** In a hydrologic context, the proposed Project is not the kind of project that would contribute to urban runoff (i.e., create or contribute storm water that would exceed capacities of systems or contribute substantial additional sources of polluted runoff).

(f) ***No Impact.*** Site preparation and planting of native vegetation would have no impact on water quality.

(g) ***No Impact.*** Figure 5 illustrates the seven restoration tracts on FEMA flood hazard maps. All tracts are located within Zone A. The proposed Project, however, does not include, or induce the need for, housing, and it would not result in development of houses in the 100-year floodplain.

(h) ***Less than Significant Impact.*** The proposed Project would not place structures within a 100-year flood hazard area. Restoration of native vegetation would be associated with minor changes in flood flows; however, as discussed in item (d), these changes are determined to be less than significant.

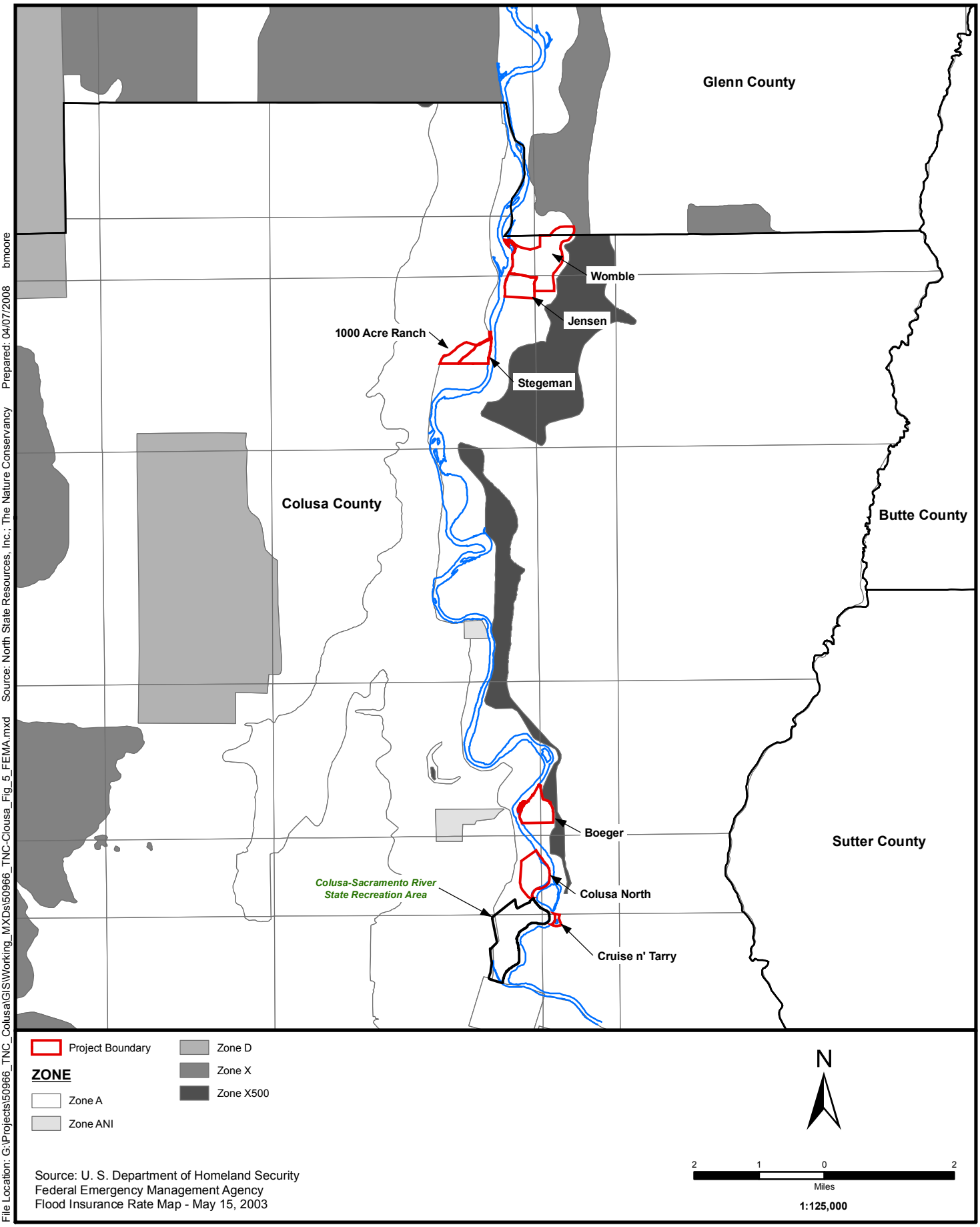
(i) ***No Impact.*** Implementation of wildlife habitat restoration would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

(j) ***No Impact.*** The affected environment is not subject to inundation as a result of seiche, tsunami, or mudflow.

Mitigation Measures

No mitigation is required.

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



Source: U. S. Department of Homeland Security
Federal Emergency Management Agency
Flood Insurance Rate Map - May 15, 2003

File Location: G:\Projects\50966_TNC_Colusa\GIS\Working_MXDs\50966_TNC-Clousa_Fig_5_FEMA.mxd Source: North State Resources, Inc.; The Nature Conservancy Prepared: 04/07/2008 bmoore

Figure 5
FEMA 100 year Flood Zone Map

Discussion of Impacts

(a) ***No Impact.*** The proposed Project would **have** not physically divide or otherwise affect established communities, such as Colusa and Princeton.

(b) ***Less than Significant Impact.*** The seven proposed restoration tracts are entirely inside of the flood control levees and at various flows, subject to inundation with a frequency of 1 to 5 years. These tracts encompass alluvial features (floodplains and terraces) that, to varying degrees were cleared of riparian vegetation and converted to agricultural crops over time. None of the proposed activity areas within these tracts extend to the active channel of the Sacramento River, with the exception of the constructed inlet at the Cruise n' Tarry Tract, which is essentially a backwater. Within the levees that extend along the Colusa Subreach, the lands are entirely devoted to wildlife habitat and agricultural crops, with the exception of small areas used for recreation, flood control, and water supply facilities. There are no residential or urban uses within the project area.

(c) ***No Impact.*** The proposed Project would not conflict with any existing habitat conservation or natural community conservation plans.

Mitigation Measures

No mitigation is required.

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

Discussion of Impacts

(a) and (b). ***No Impact.*** The California Geological Survey (CGS) is responsible for designating the location and significance of key extractable mineral resources. Although lands adjacent to the Sacramento River and its tributaries represent potentially viable commercial sand and gravel resources, no key extractive resources have been designated by the CGS within, or in close proximity to the proposed project area (California Department of Conservation 2007). Furthermore, these tracts would remain undeveloped and the proposed project would not preclude future extraction of mineral resources, if present. Therefore, implementation of the proposed Project would have no impact on the availability of any known mineral resource or otherwise affect mineral resources.

Mitigation Measures

No mitigation is required.

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

Discussion of Impacts

(a), (b), and (c). ***No Impact.*** Implementation of the proposed Project would not produce noise levels or groundborne vibration that would exceed the local general plans or noise ordinances or applicable standards of other agencies. The proposed restoration tracts are generally acoustically isolated and are not located near any known sensitive receptors. The distance of the proposed restoration tracts from known sensitive receptors (e.g., residences) is sufficient to allow for substantial attenuation of noise at these locations. Because the tracts are located in the vicinity of other lands currently in agricultural production, noise generated by restoration activities (e.g., bulldozer, chainsaws, trucks, etc.) would be similar to the existing noise environment. The levees, which are located between the proposed restoration tracts and nearby homes, would serve to buffer project-generated noise; levees have been shown to decrease ambient noise levels by as much as 15 decibels (dBA) in areas where the levees are

several feet higher than the "line of sight" between the noise source and the receiver (Colusa County 1989).

Recreational use of the restoration tracts would have no impact on ambient noise levels within the Project vicinity. Outdoor recreational opportunities at the sites would include boating, fishing, birdwatching, and hiking. None of the tracts would be open for motorized recreation.

Vehicles accessing the proposed Project area for the purposes of Project implementation and, later, maintenance and monitoring and recreation, are anticipated to be light and intermittent. .

(d) ***Less than Significant Impact.*** Temporary and intermittent increases in ambient noise could occur during initial Project activities (e.g., site grading, orchard removal); however, given the relatively isolated locations and because such activities would use equipment similar to that which is currently used for agricultural operations in the vicinity, temporary increases in noise are considered less than significant. As described above, the distance of the proposed restoration tracts from known sensitive receptors and the buffering effect afforded by the levees would attenuate any temporary increases in ambient noise resulting from Project activities and preclude Project implementation from having significant impacts on ambient noise levels in the Project vicinity.

(e) and (f). ***No Impact.*** The proposed Project is not located in the vicinity of any public airports or private airstrips or within any airport noise contours.

Mitigation Measures

No mitigation is required.

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

Discussion of Impacts

(a), (b), (c) ***No Impact.*** The proposed Project would not affect population and housing. The proposed restoration tracts are owned by the state and TNC. The management objectives for the restoration tracts include preservation, restoration, and enhancement of natural ecosystems and do not include new homes or businesses.

Mitigation Measures

No mitigation is required.

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

Discussion of Impact

(a)(i) and (ii). ***Less than Significant Impact.*** Implementation of the proposed Project is judged to have a less-than-significant impact in terms of fire and police protection services. The amount of fuel for wildland fires would increase as a result of proposed changes in vegetation types (i.e., row-crop agriculture changed to riparian forest and grassland); anticipated improvements in public access would be associated with a slightly higher level of fire risk. The anticipated level and type of use (low-intensity, non-motorized recreation) is unlikely to cause a significant increase in the number of fire incidents handled by existing fire protection services. Fire protection on non-federal lands in the Project vicinity is provided through a mutual aid agreement by local rural fire districts such as the Glenn-Colusa Fire Protection District located in Butte City and the Colusa Rural Fire Protection District located in Colusa, and the California Department of Forestry and Fire Protection (Colusa

County 1989). The existing level of service is considered to be adequate to fight any fires that may occur within the Project area.

Similarly, the impact of the proposed Project on the level of service and performance capabilities of area police protection agencies is considered less than significant. County sheriff's departments provide general public safety and law enforcement services for the unincorporated areas of Glenn and Colusa counties, which include the proposed restoration tracts. Although some increase over time in public use of the Colusa Subreach area is anticipated that could lead to a proportionate increase in the demand for police and emergency services, the increase is anticipated to be small.

(a) (iii) and (iv). ***No Impact.*** Restoration of wildlife habitat at the seven tracts would have no discernable effect on the need for new or expanded schools. The proposed Project would not directly or indirectly affect residential development that would create a demand for new or expanded park facilities.

(a)(v). ***Less than Significant Impact.*** A low to moderate increase in public use of public lands over the long term would be associated with the proposed Project, resulting from improved but still controlled public access. In association with the fire and police services noted above (items i and ii), emergency rescue services may also be subject to slightly more frequent calls. The increase in public service demand is a less-than-significant cumulative effect, related to a trend in acquisition of public lands, other land use changes, and general population growth.

Mitigation Measures

No mitigation is required.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
XIV. RECREATION **Would the project:**				
(a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
(b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Discussion of Impacts

(a) ***Less than Significant Impact.*** Public use of the seven tracts would be determined by the public agencies that manage, or will manage, the tracts. Three of the tracts—Womble, Stegeman, and Colusa-North—are part of the Sacramento River Wildlife Area managed by the CDFG and are open to public use. Permitted existing or future public uses include hunting, fishing, hiking, birdwatching and

wildlife observation, photography, and environmental education. It is expected that following restoration, the three tracts anticipated to be managed by CDFG—Jensen, 1000-Acre Ranch, and Boeger—would also be open to public use. The Cruise n' Tarry Tract is currently closed to public use, and the potential for opening the tract to public use is currently unknown.

Public access to the seven tracts is either by walking, driving, or boat. Boat access exists to all seven tracts, although river access to the Cruise n' Tarry is limited. Three of the tracts—Womble, Jensen, and Cruise n' Tarry—are accessible from River Road. Because of the limited access and the physical nature of riparian habitats, the intensity and frequency of public use are expected to be low, which would be similar to the public use of other public properties in the CSP area (EDAW 2007a). Existing recreational opportunities in areas in the vicinity of the seven tracts would not be substantially affected by the proposed Project. Therefore, the impacts would be considered less than significant.

(b) ***Less than Significant Impact.*** Minor construction activities would be associated with public access improvements. Depending on location, construction of the proposed recreation-related facilities could have adverse effects on sensitive resources, including special-status species and cultural resources; measures are provided under those topics to reduce the potential effects to less-than-significant levels.

Mitigation Measures

No mitigation is required.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
XV. TRANSPORTATION/TRAFFIC Would the project:				
(a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
(b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
(c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
(d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
(e) Result in inadequate emergency access?	☐	☐	☒	☐
(f) Result in inadequate parking capacity?	☐	☐	☒	☐
(g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

Discussion of Impacts

(a), (b). ***Less than Significant Impact.*** Although six of the seven restoration tracts are either currently open—Womble, Stegeman, and Colusa-North—or would be open—Jensen, 1000-Acre Ranch, and Boeger—to public access, it is anticipated that Project implementation would have a less-than-significant impact on roads and traffic. Six of the tracts—Womble, Jensen, Stegeman, 1000-Acre Ranch, Boeger, and Colusa-North—are expected to be accessible from the river by boat. Three of these tracts—Womble, Jensen, and Cruise n' Tarry—are expected to be accessible from public roads (e.g., River Road).

Because of the limited access and the physical nature of riparian habitats, the intensity and frequency of public use is expected to be low, consistent with other existing public lands in the CSP area. The anticipated low intensity of recreation use was specified in the Colusa Subreach Recreation Access Plan in 2007 (EDAW 2007a). Because the level of public use is anticipated to be low, implementation of the proposed Project would have a less-than-significant impact on the level of service offered by area roads.

(c) ***No Impact.*** The proposed Project would have no impact on air traffic operations.

(d) ***No Impact.*** The proposed Project does not include any hazardous roadway design features nor would it require any incompatible uses of area roadways.

(e) ***Less than Significant Impact.*** Minor increases in traffic on rural roads as a result of the proposed Project could impede emergency vehicle access, primarily on the roads that run along the tops of the levees; however, such impacts would be less than significant since (1) the level of traffic associated with recreational users of the tracts is anticipated to be low, and (2) the proposed restoration tracts are accessible via River Road, but the projected level of public use is not anticipated to increase traffic levels to a level that would restrict access for emergency service vehicles.

(f) ***Less than Significant Impact.*** Only the Womble, Jensen and Cruise n' Tarry Tracts are accessible from public roads. An onsite primitive parking is proposed to serve the Womble and Jensen Tracts

and an existing parking lot adjoins the Cruise n' Tarry Tract. Off-road parking areas are expected to be sufficient to satisfy the anticipated low level of use that they would receive from the public. Thus, implementation of the proposed Project would have a less-than-significant impact on available parking capacity.

(g) ***No Impact.*** The proposed Project does not conflict with adopted plans, programs, or policies concerning alternative transportation.

Mitigation Measures

No mitigation is required.

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

Discussion of Impacts

(a), (b), (c) (e), (f), (g) ***No Impact.*** The Project will have no impact on utilities and service systems.

(d) ***Less than Significant Impact.*** Restoration activities include the use of irrigation systems. Irrigation systems would be installed in the second year of tract restoration activities and would be used for a period of 3 years thereafter. Water sources include existing on- and offsite wells, and pumping from a slough that is not directly connected to the Sacramento River. No direct pumping from the river is proposed.

Mitigation Measures

No mitigation is required.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
XVII. MANDATORY FINDINGS OF SIGNIFICANCE				
(a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒
(b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
(c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Discussion

The conversion of 251 acres from former or existing orchards and fields to native vegetation and wildlife habitat on seven sites along the Colusa Subreach of the Sacramento River would result in primarily beneficial effects to the environment, particularly in the long term. The proposed Project does not threaten to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or

prehistory. This initial study finds that, overall, these resources would be protected and enhanced by the Project.

The effects of the proposed Project are generally limited in all areas. In several areas, the Project may contribute an additional increment to cumulative environmental effects. The permanent conversion of agricultural land to non-agricultural uses is an ongoing adverse trend in the state; however, the Project's effects would not be irreversible. The lands are located in a designated floodway, and the total acreage is relatively small within the County agricultural land base. Construction equipment and activities would generate emissions and particulate matter in air basin that is already impacted; these emissions include greenhouse gasses that contribute to climate change. However, these effects would be short-term and would be reduced by best management practices.

Similarly, potential erosion of exposed soils and sedimentation of surface waters is a possible cumulative effects concern; however, the proposed active restoration sites are for the most part located at some distance from the river channel, with intervening vegetation lands, and after the planted native vegetation is established, the restored sites would typically be less prone to erosion. The Project also incorporates best management practices for reducing erosion and sedimentation. Re-establishing native vegetation (and, in hydraulic terms, modifying the "roughness") at the seven restoration sites has implications for flood flow velocity changes and possible erosion or deposition in the floodway. Such concerns were examined in detail in a separate hydraulic analysis and found to be less than significant, both individually as well as cumulatively. Therefore, the initial study finds that the environmental effects associated with the Colusa Subreach Project are individually limited and not cumulatively considerable.

The proposed Project would not be associated with any activities that conceivably could have direct or indirect adverse effects on human beings. The Project would not result in, or indirectly promote, people residing in the floodplain, nor would existing communities be disrupted, nor would the Project create substantial new demands on services or utilities. Therefore, the Colusa Subreach Project would not be associated with substantial adverse effects on human beings, either directly or indirectly.

SECTION 6: DETERMINATION

On the basis of this initial evaluation:

☐ I find that the Project COULD NOT have a significant effect on the environment and a NEGATIVE DECLARATION will be prepared.

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

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

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

☐ I find that although the Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

Signature

8/26/08

Date

Kent Smith

Printed Name

California Dept. of Fish and Game

For

SECTION 7: PREPARERS AND REVIEWERS

This expanded initial study was prepared under the direction of the California Department of Fish and Game, Region 2, by North State Resources, Inc., under contract to The Nature Conservancy.

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APPENDIX A

Site-Specific Planting Plans for Colusa Subreach Tracts

Appendix A. Site-Specific Planting Plans for Colusa Subreach Tracts

This appendix provides detailed descriptions of the active restoration planting plans for each of the seven tracts proposed to be restored to riparian wildlife habitat along the Colusa Subreach. The figures that accompany the descriptions show the proposed plant communities at each tract in the context of the adjacent and nearby remnant riparian habitat. For two of the small tracts, Stegeman and Colusa-North, passive restoration alternatives have also been identified by The Nature Conservancy. The discussion of each restoration tract includes a description of the relationship between the proposed restoration area and the adjoining land ownerships.

To the extent possible, planting of native vegetation would simulate the surrounding natural patterns. Plantings would be placed in arcuate bands to facilitate flood flows and to follow natural terraces and historical traces of fluvial geomorphology. Potential restoration plant communities were selected for each tract based on the characteristics of the remnant riparian vegetation community, as well as the prevalent soils, and estimated elevations. The influence of historic channels and estimated flood frequency at each tract were also considered in selecting the plant communities. The proposed restoration plans were developed using topography data from the U.S. Army Corps of Engineers (USACE) 1997 digital elevation model (DEM) with 2-foot contours, as well as Light Detecting and Ranging (LIDAR) data.

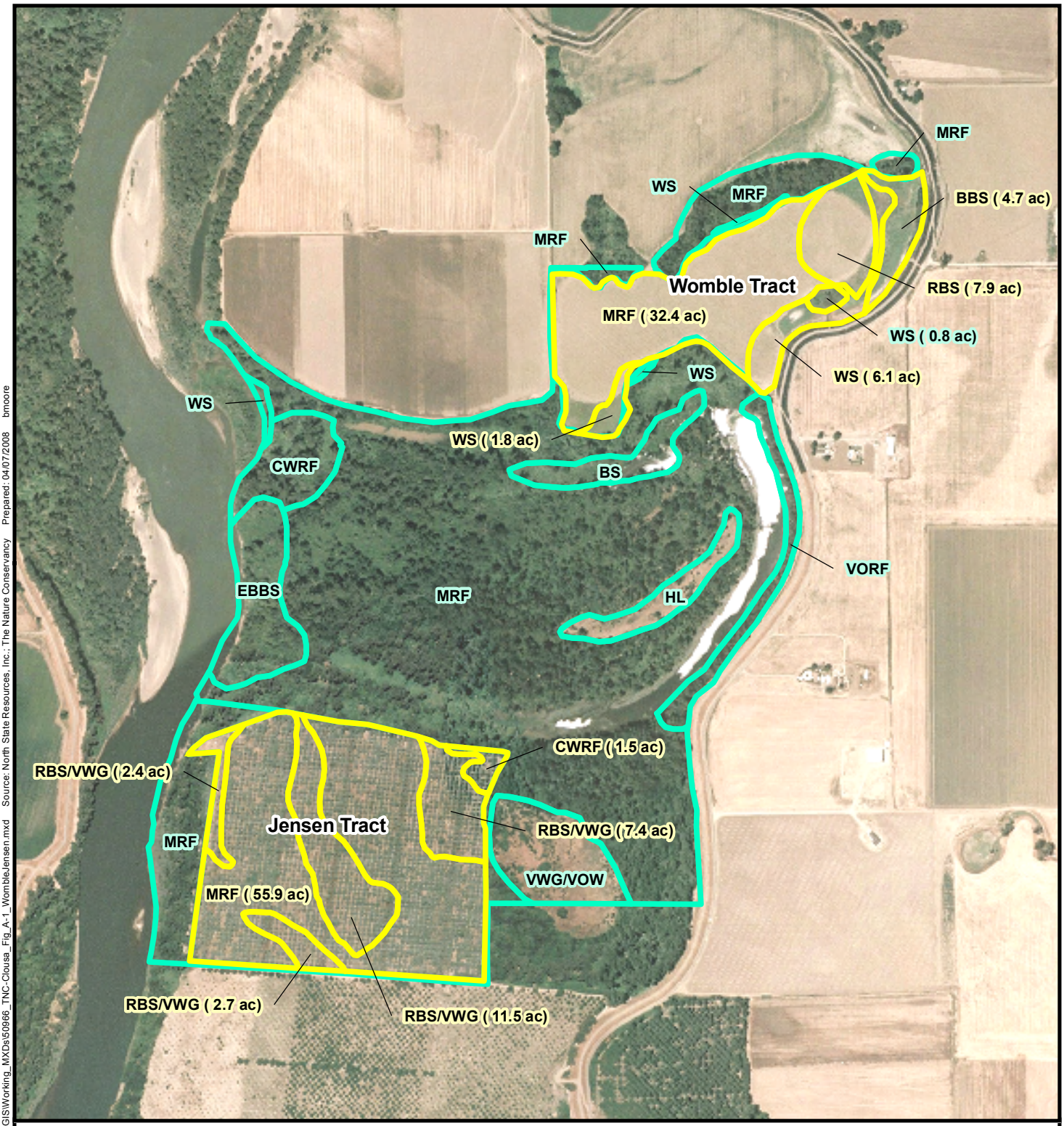
Species composition and distribution frequencies are shown in Tables 1-4 of the baseline assessments prepared for each of the seven tracts; the baseline assessments are available on the Colusa Subreach Planning website at *www.sacramentoriver.org/SRCAF/index.php*.

Womble Tract

Active restoration is proposed to restore native vegetation on 54 acres of the 320-acre Womble Tract. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the Womble Tract are shown on Figure A-1.

The existing patches of mixed riparian forest adjacent to the northern portion of the Womble Tract have required more than 50 years to attain their current size (Hubbell et al. 2006a). This suggests that the development of high-quality habitat would occur slowly (Hubbell et al. 2006a). In addition, the higher elevation of the western two-thirds of the proposed restoration area would probably preclude the amount of flooding required for successful restoration through natural processes (Hubbell et al. 2006a). The higher floodplain could also contribute to an increased risk of infestation by non-native invasive species, such as yellow-starthistle, Johnson grass, and Bermuda grass.

Mixed riparian forest is proposed to be restored to most of the site to connect the existing mixed riparian forest north and south of the restoration area. The mixed riparian forest area is predominantly at a higher elevation than the rest of the site. It has loamier soils and a greater



Proposed Plant Community

Existing Plant Community

Vegetation Interpretation by:
Department of Biological Sciences
CSU Chico, 2005
Orthorectified aerial photography by:
U. S. Department of Agriculture,
National Agriculture Imagery Program (NAIP), 2005

BS - Buttonwillow Scrub
BBS - Blackberry Scrub
CWRF - Cottonwood Riparian Forest
EBBS - Elderberry Savannah/Blackberry Scrub
HL - Herbland
MRF - Mixed Riparian Forest
RBS/VWG - Rose/Baccharis Scrub/Valley Wildrye Grassland
RBS - Rose/Baccharis Scrub
VWG/VOW - Valley Wildrye Grassland/Valley Oak Woodland
VORF - Valley Oak Riparian Forest
WS - Willow Scrub

N

0 500 1,000
Feet

File Location: G:\Projects\50966_TNC_Colusa\GIS\Working_MXDs\50966_TNC-Clousa_Fig_A-1_WombleJensen.mxd Source: North State Resources, Inc.; The Nature Conservancy Prepared: 04/07/2008 bmoore

North State Resources, Inc.

Colusa Subreach Wildlife Habitat Restoration Project

Figure A-1
Proposed and Existing Vegetation, Womble and Jensen Tract Area

depth to the water table and is mainly within the estimated 2- to 4-year floodplain. These characteristics are typical of areas that support mixed riparian forest (Hubbell et al. 2006a).

Rose/baccharis scrub vegetation would be planted in an area adjacent to the eastern edge of the proposed mixed riparian forest. The Womble Baseline Assessment Report (Hubbell et al. 2006a) found evidence of a gravel pit in this part of the site in the 1968 Glenn County Soil Survey (U.S. Department of Agriculture 1968) as well as on a 1952 aerial photo. Soils in this area tend to be coarser-textured and thus drier than surrounding areas and are very slightly mounded. Flooding in this area occurs on average every 2 to 4 years.

Narrow stringers of willow scrub vegetation are proposed to be planted (1) along the eastern edge of the rose/baccharis scrub, widening to the south, and (2) in a small area in the southeast corner of the proposed restoration area. Blackberry scrub would occupy the east end of the proposed restoration site. Both the willow scrub and blackberry scrub restoration areas are subject to ponding annually, as a result of their slightly lower elevation (USACE 1997). The area proposed for restoration as blackberry scrub encompasses an area that historically was occupied by an oxbow lake (Hubbell et al. 2006a). The area coincides with the elevation of surrounding elderberry blackberry scrub and the California blackberry-dominated shrub layer in the northern patch of mixed riparian forest adjacent to the site.

Approximately 14 percent of the proposed restoration area on the Womble Tract abuts existing cropland. The active restoration area abuts agricultural land to the north and west; the land to the east is separated by the flood protection levee and River Road. The majority of the property to the west is annually planted in field crops. The restoration area abuts about 1100 feet of the ownership to the west. Along that joint property line, approximately 350 feet of the boundary is remnant habitat and 750 feet of the boundary is field crops. The adjoining property abuts remnant habitat to the south and west and along most of its northern perimeter. The proposed restoration would result in a relatively small increase in the portion of the cropland perimeter that abuts riparian habitat.

The agricultural property to the north is substantially separated from the Womble Tract by remnant riparian habitat. The common boundary is about 4000 feet in length; three gaps in the vegetation, totaling about 300 feet, would allow the proposed restoration to abut the field crops to the north.

Jensen Tract

Active restoration is proposed to restore native vegetation on 81 acres of the 98-acre Jensen Tract. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the Jensen Tract are shown on Figure A-1.

The patches of existing mixed riparian forest adjacent to the northern portion of the proposed restoration site have required more than 50 years to attain their current size (Hubbell et al. 2006b). This suggests that the development of high-quality habitat would occur very slowly (Hubbell et al. 2006b). In addition, the higher elevation of the proposed restoration site would

likely preclude it from flooding to the degree required for natural process restoration to be successful (Hubbell et al. 2006b). The higher floodplain also contributes to an increased risk of infestation by non-native invasive species such as yellow-starthistle, Johnson grass, and Bermuda grass.

After removal of the existing walnut orchard, most of the site would be converted to mixed riparian forest, which would expand the existing mixed riparian forest north and west of the site. The restoration area is appropriate for riparian forest habitat because of its clay loam soils, the fact that its elevation is similar to that of the remnant vegetation, and its location within the 1- to 2-year floodplain.

The mid-section and portions of the site along the western, southern, and northeast boundaries would be restored to rose/baccharis scrub and valley wildrye grassland. The combination of these two vegetative habitat types would reflect both the composition of the valley wildrye grassland/valley oak woodland found in nearby remnant vegetation as well as the physical factors of the proposed restoration area (Hubbell et al. 2006b). Planting of rose/baccharis scrub vegetation would provide structural and habitat diversity to the site.

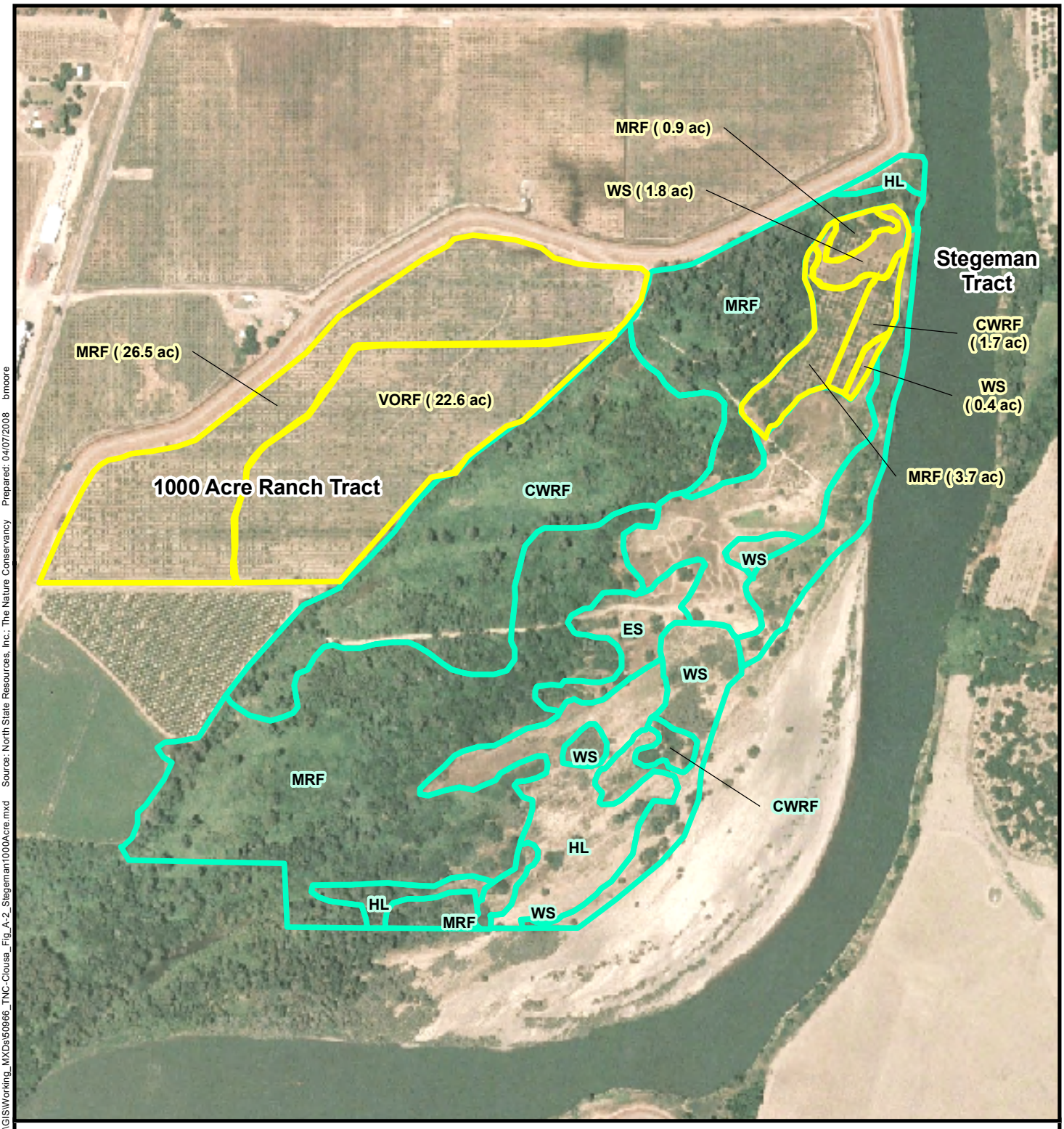
A small pocket of cottonwood riparian forest would be planted in the northeast corner of the proposed restoration site. Restoration of this portion of the site to cottonwood riparian forest would expand the cottonwood forest near the oxbow lake located to the northeast and increase habitat diversity. The higher water table in this portion of the restoration area, the fact that its elevation is similar to that of the adjacent remnant vegetation, and its location in the 2-year floodplain make it conducive to supporting cottonwood riparian forest.

The Jensen Tract abuts agricultural land to the south and riparian habitat the other three sides. Approximately 27 percent of the proposed restoration area is adjacent to existing cropland. The land to the south is a mature walnut orchard with about 2100 feet adjacent to the proposed restoration area. The walnut orchard currently abuts riparian vegetation along its western perimeter and to the east of the proposed restoration area.

Stegeman Tract

Active restoration is proposed to restore native vegetation on 8 acres of the 69-acre Stegeman Tract. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the Stegeman Tract are shown on Figure A-2.

Although the proposed Stegeman Tract restoration site is near the main channel of the Sacramento River and lies primarily lies in the estimated 1- to 2-year floodplain, elevation data (USACE 1997) show that the entire proposed restoration site is higher by at least several feet than the large area of remnant vegetation to the west and south (Hubbell et al. 2006c). This suggests that the proposed restoration site would probably not flood to the degree required for natural process restoration to be successful (Hubbell et al. 2006c). In addition, the Stegeman Tract Baseline Assessment Report found through a comparison of air photos (1999 and 2004) that the



Proposed Plant Community

Existing Plant Community

Vegetation Interpretation by:
Department of Biological Sciences
CSU Chico, 2005
Orthorectified aerial photography by:
U. S. Department of Agriculture,
National Agriculture Imagery Program (NAIP), 2005

BS - Buttonwillow Scrub
BBS - Blackberry Scrub
CWRF - Cottonwood Riparian Forest
EBBS - Elderberry Savannah/Blackberry Scrub
HL - Herbland
MRF - Mixed Riparian Forest
RBS/VWG - Rose/Baccharis Scrub/Valley Wildrye Grassland
RBS - Rose/Baccharis Scrub
VWG/VOW - Valley Wildrye Grassland/Valley Oak Woodland
VORF - Valley Oak Riparian Forest
WS - Willow Scrub

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File Location: G:\Projects\50966_TNC_Colusa\GIS\Working_MXDs\50966_TNC-Clousa_Fig_A-2_Stegeman1000Acre.mxd Source: North State Resources, Inc.; The Nature Conservancy Prepared: 04/07/2008 bmoore

Figure A-2
Proposed and Existing Vegetation, Stegeman and 1000-Acre Ranch Tract Area

proposed restoration site had remained essentially unchanged during the 5-year period assessed and that significant colonization by native species had not occurred (Hubbell et al. 2006a). This means that active intervention (orchard removal and weed control) is warranted in order to prevent the continued infestation of non-native invasive species, such as yellow starthistle, Johnson grass, and Bermuda grass.

Mixed riparian forest would be restored to the north and over much of the western and southern portions of the site where soils were determined by the baseline report (Hubbell et al. 2006c) to be most conducive to tree growth. Willow scrub would be planted in the sandiest areas of the site where poor orchard growth and regular flooding (1- to 2-year intervals) was found to occur (Hubbell et al. 2006c). Willow scrub would also be planted in a small area along the site's eastern boundary. Also in the eastern portion of the site, cottonwood riparian forest would be planted to allow for extension of the existing cottonwood riparian forest habitat throughout the approximate 1-year floodplain. Soils here are coarser textured and thus better drained than those where mixed riparian forest is proposed (Hubbell et al. 2006c).

An alternative to restoration planting of the Stegeman Tract would be passive restoration, which would involve only the removal of the abandoned walnut orchard and initial weed control. This would be a lesser cost option that may be pursued because the restoration area is relatively small, and economies of scale would make the active restoration of the tract more expensive on a cost-per-acre basis. Also, the tract lacks an onsite well to provide a water supply for initial irrigation. This alternative would result in a much slower conversion to native plant communities with increased competition from nonnative invasive species. The inherent limitations of this small restoration site may be overcome if the restoration can be combined with that of the nearby 1000-acre Ranch Tract. It is expected that CDFG will determine in the future whether active or passive restoration of the tract will be pursued.

The proposed restoration on the Stegeman Tract is completely surrounded by existing riparian habitat on state-owned property. The flood protection levee further separates the restoration site from the nearest cropland, a young pecan orchard, which is about 400 feet to the northwest.

1000-Acre Ranch Tract

Active restoration is proposed to restore native vegetation on 49 acres of the 1000-Acre Ranch Tract. The total size of this tract is 60 acres. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the 1000-Acre Ranch Tract are shown on Figure A-2.

Upon removal of the existing prune orchard, a curved band of mixed riparian forest would be planted from the north along the western boundary and over much of the southern portion of the tract, connecting to the existing mixed riparian forest habitat to the east. Although the entire tract was modeled within the 5-year floodplain where valley oak riparian forest would be anticipated, the shallow depth to the water table and the clayey soils of the western portion of the tract make it more appropriate for mixed riparian forest restoration (Hubbell et al. 2006d).

Valley oak riparian forest would be planted in the sandier, coarser-textured soils of the eastern portion of the tract. In this portion, the depth to the water table is greater and the reduced flood interval (approximately every 2 to 4 years) is typical for valley oak riparian forest habitat. Although the area proposed for restoration to valley oak riparian forest is adjacent to remnant cottonwood riparian forest, there are several large valley oaks along its western edge (Hubbell et al. 2006d).

The proposed restoration area on the 1000-Acre Ranch Tract abuts remnant riparian habitat on the east and the flood protection levee on the north and west. Approximately 18 percent of the perimeter is adjacent to cropland. The southern border of the tract abuts a walnut orchard along a boundary of about 1250 feet. The majority of the walnut orchard parcel is existing riparian habitat, and the orchard abuts that onsite riparian habitat to the east.

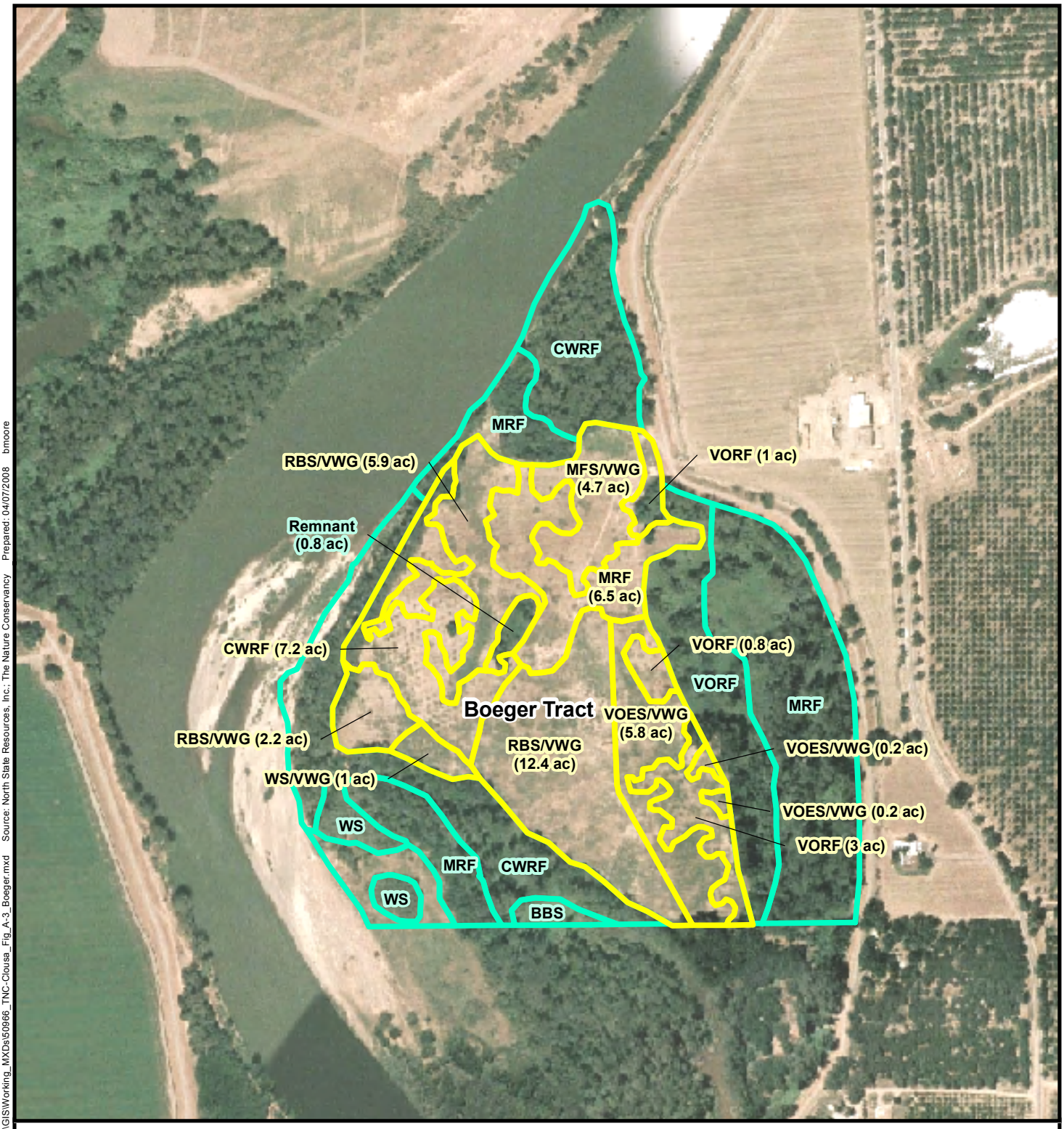
Boeger Tract

Active restoration is proposed to restore native vegetation on 51 acres of the 125-acre Boeger Tract. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the Boeger Tract are shown on Figure A-3.

Although the Boeger Tract is located near the main channel of the Sacramento River, is predominantly in the 1- to 2-year floodplain, and has generally similar elevation (USACE 1997) to the adjacent remnant riparian vegetation, the baseline report prepared for the tract (Hubbell et al. 2007e) determined that natural regeneration in the surrounding vicinity was better suited to lower elevations than those that occur within the proposed restoration area. The proposed restoration area would probably not flood to the degree required for natural process restoration to be successful. The higher floodplain also contributes to an increased risk of infestation by non-native invasive species, such as yellow-starthistle, Johnson grass, and Bermuda grass.

Differences in elevation, soils, and flood potential result in a mosaic pattern of proposed habitat restoration species plantings. Rose baccharis scrub/valley wildrye grassland would be planted in the coarser, drier sandy loam soils that occupy much of the southern and western portions of the site. Although rose/baccharis scrub does not currently occur in the Boeger Tract, species such as California rose and baccharis occur as a major understory component of many of the remnant vegetation communities in the Colusa Subreach project area (Hubbell et al. 2007b). Similarly, valley wildrye grassland, while not found to occur in the Boeger Tract, does occur throughout the Colusa Subreach project area under suitable environmental conditions (e.g., soils, elevation), such as those found within the proposed restoration area. Planting of rose/baccharis scrub/valley wildrye grassland in the proposed restoration area would provide structural and habitat diversity in the proposed restoration area.

Mixed riparian forest plantings in the northern half of the proposed restoration area would expand the existing mixed riparian forest habitat north and east of the site. The wetter, finer-textured clay loams and elevations similar to similar adjacent habitat would be conducive to the establishment of mixed riparian forest.



Proposed Plant Community

Existing Plant Community

Vegetation Interpretation by:
Department of Biological Sciences
CSU Chico, 2005
Orthorectified aerial photography by:
U. S. Department of Agriculture,
National Agriculture Imagery Program (NAIP), 2005

BS - Buttonwillow Scrub
BBS - Blackberry Scrub
CWRF - Cottonwood Riparian Forest
EBBS - Elderberry Savannah/Blackberry Scrub
HL - Herbland
MRF - Mixed Riparian Forest
RBS/VWG - Rose/Baccharis Scrub/Valley Wildrye Grassland
RBS - Rose/Baccharis Scrub
VWG/VOW - Valley Wildrye Grassland/Valley Oak Woodland
VORF - Valley Oak Riparian Forest
WS - Willow Scrub

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File Location: G:\Projects\50966_TNC_Colusa\GIS\Working_MXDs\50966_TNC-Clousa_Fig_A-3_Boeger.mxd Source: North State Resources, Inc.; The Nature Conservancy Prepared: 04/07/2008 bmoore

North State Resources, Inc.

Colusa Subreach Wildlife Habitat Restoration Project

Figure A-3
Proposed and Existing Vegetation, Boeger Tract Area

Mule fat scrub/valley wildrye grassland would be planted in the northeast portion of the proposed restoration site. These habitat types would reflect both the physical factors of this part of the site and the herbaceous composition of the mule fat scrub. Combining mule fat scrub with valley wildrye grassland would provide structural and habitat diversity in the proposed restoration area.

Cottonwood riparian forest would be planted in the western half of the proposed restoration site, which would expand the existing forest to the west of the proposed restoration site. This area has clay loam and silty clay loam soils and an elevation that is similar to that of the remnant vegetation; it is in the 1-year floodplain and has a slightly higher water table than the rest of the site (Hubbell et al. 2007e).

Valley oak riparian forest plantings along the eastern proposed restoration site boundary would expand the existing valley oak riparian forest to the east. The elevation of this area is similar to that of the remnant vegetation, and the area is within the estimated 4-year floodplain (Hubbell et al. 2006e). Valley oak savannah/valley wildrye grassland would be planted adjacent to valley oak riparian forest areas. Valley oak savannah often intergrades with valley oak riparian forest and/or woodlands (Hubbell et al. 2006e). With the particular configuration of sandy soils, estimated floodplains, and the adjacent valley oak riparian forest, there is an opportunity to create a forest/savannah/shrubland mosaic that would provide important structural diversity and patchiness for wildlife (Hubbell et al. 2007e).

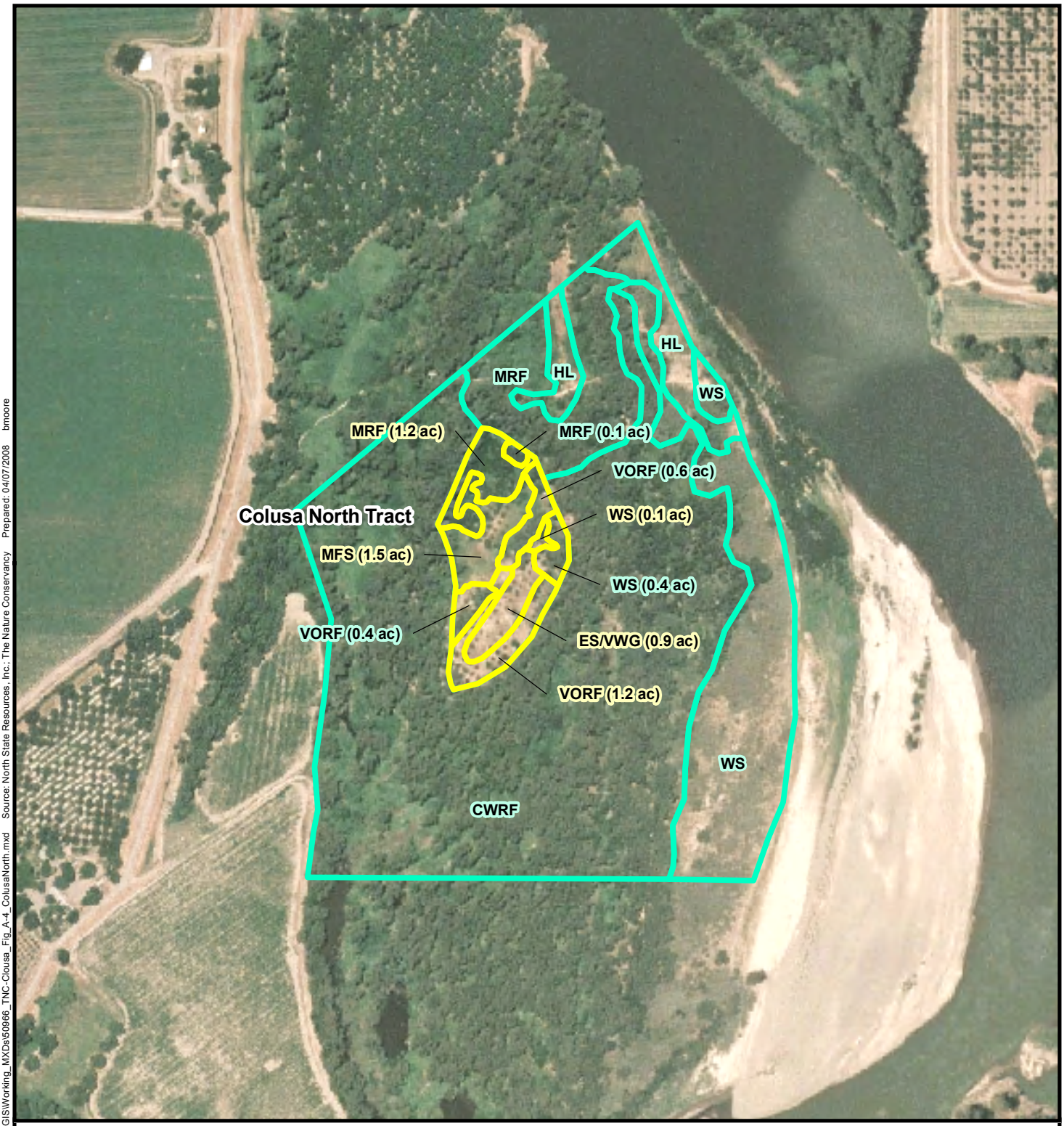
A very small pocket of willow scrub/valley wildrye grassland would be planted in the southwest corner of the proposed restoration site to increase the number of existing willow scrubs. Willow scrub and valley wildrye grassland would be combined to reflect both the physical factors of the proposed restoration area and the herbaceous composition of the willow scrub.

The restoration area on the Boeger Tract does not directly abut existing cropland. Approximately 97 percent of the perimeter abuts remnant riparian habitat, and 3 percent abuts the levee. A young walnut orchard to the north east is separated by the flood protection levee along a 200-foot gap in the riparian vegetation. Riparian vegetation lies across the levee from almost all of the young orchard. A mature walnut orchard to the south is separated by riparian vegetation that averages about 30 feet in width. The orchard is completely surrounded by riparian vegetation, most of it on the same property.

Colusa-North Tract

Active restoration is proposed to restore native vegetation on 5 acres of the 143-acre Colusa-North Tract. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the Colusa-North Tract are shown on Figure A-4.

Mixed riparian forest would be planted adjacent to the existing mixed riparian forest in the northern portion of the site. The elevation and soils, consisting of fine-textured clay and silty clay loam over sandy loam, indicate that this portion of the site will be wetter than the rest of the site and thus more likely to support a mixed riparian forest.



Proposed Plant Community

Existing Plant Community

Vegetation Interpretation by:
Department of Biological Sciences
CSU Chico, 2005
Orthorectified aerial photography by:
U. S. Department of Agriculture,
National Agriculture Imagery Program (NAIP), 2005

BS - Buttonwillow Scrub
BBS - Blackberry Scrub
CWRF - Cottonwood Riparian Forest
EBBS - Elderberry Savannah/Blackberry Scrub
HL - Herbland
MRF - Mixed Riparian Forest
RBS/VWG - Rose/Baccharis Scrub/Valley Wildrye Grassland
RBS - Rose/Baccharis Scrub
VWG/VOW - Valley Wildrye Grassland/Valley Oak Woodland
VORF - Valley Oak Riparian Forest
WS - Willow Scrub

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Feet

File Location: G:\Projects\50966_TNC_Colusa\GIS\Working_MXDs\50966_TNC-Clousa_Fig_A-4_ColusaNorth.mxd Source: North State Resources, Inc.; The Nature Conservancy Prepared: 04/07/2008 bmoore

Figure A-4
Proposed and Existing Vegetation, Colusa-North Tract Area

Much of the central portion of the site and the area to the west would be planted with mule fat scrub. Mule fat scrub was found by the Colusa-North Baseline Assessment Report (Hubbell et al. 2007a) to be recruiting extensively within this portion of the site. When combined with valley wildrye grassland, the restored habitat would reflect the herbaceous composition of naturally occurring mule fat scrub habitat.

A majority of the southern portion of the proposed restoration area would be planted to savannah/valley wildrye grassland surrounded on all but its northern end by valley oak riparian forest. Although valley wildrye grassland, dominated by blue wildrye (*Elymus glaucus* ssp. *glaucus*), was not found to occur at the Colusa-North Tract (Hubbell et al. 2007a), it does occur adjacent to the Colusa Subreach project area, adjacent to the Jensen Tract. The baseline report prepared for the Colusa-North Tract (Hubbell et al. 2007a) found the species mix and percentages of existing vegetation in this area (USACE 1997) to be weighted toward mixed riparian forest species more tolerant of dry soils such as valley oak and blue elderberry, both of which occur nearby. The savannah (which, in its natural occurrences typically includes elderberry shrub) and valley wildrye grassland communities would provide structural diversity for the restoration area and thus create different types of habitat within the tract.

Willow scrub would be planted immediately to the north of the proposed savannah/valley wildrye grassland, thus expanding the existing willow scrub found within the tract. Willow scrub combined with valley wildrye grassland reflects both the physical characteristics of the proposed restoration site as well as the herbaceous composition of the willow scrub.

An alternative to restoration planting of the Colusa-North Tract is passive restoration, which would involve the removal of the abandoned walnut orchard and initial weed control. This would be a lesser cost option that could be pursued because the restoration area is relatively small and the tract would be relatively more expensive to restore on a cost-per-acre basis. Additional considerations include the lack an onsite well to provide a water supply for initial irrigation and the need to establish a temporary roadway through existing habitat to the site for active restoration. The Colusa North restoration site is completely surrounded by riparian habitat on state-owned property. It does not abut any agricultural land and is more than 700 feet away from the nearest crops.

Cruise n' Tarry Tract

The Cruise n' Tarry Tract is a small restoration site included in the Colusa Subreach project. This discussion assumes one approach calling for partial active restoration. Whether the tract would be restored to riparian habitat is subject to a future decision. For the purposes of this assessment, active restoration is proposed to restore native vegetation on 3 acres of the 10-acre tract. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the Cruise n' Tarry Tract are shown on Figure A-5.

Proposed Plant Community

Existing Plant Community

Vegetation Interpretation by:
Department of Biological Sciences
CSU Chico, 2005
Orthorectified aerial photography by:
U. S. Department of Agriculture,
National Agriculture Imagery Program (NAIP), 2005

BS - Buttonwillow Scrub
BBS - Blackberry Scrub
CWRF - Cottonwood Riparian Forest
EBBS - Elderberry Savannah/Blackberry Scrub
HL - Herbland
MRF - Mixed Riparian Forest
RBS/VWG - Rose/Baccharis Scrub/Valley Wildrye Grassland
RBS - Rose/Baccharis Scrub
VWG/VOW - Valley Wildrye Grassland/Valley Oak Woodland
VORF - Valley Oak Riparian Forest
WS - Willow Scrub

N

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Feet

File Location: G:\Projects\50966_TNC_Colusa\GIS\Working_MXDs\50966_TNC-Clousa_Fig_A-5_CruiseNTarry.mxd Source: North State Resources, Inc.; The Nature Conservancy Prepared: 04/07/2008 bmoore

Figure A-5
Proposed and Existing Vegetation, Cruise n' Tarry Tract Area

The proposed restoration site's location within the 4-year floodplain suggests that much of the site would probably not flood to the degree required for natural process restoration to be successful. Riverbanks at this site are generally steep and actively eroding. Higher floodplain lands such as those found in much of the Cruise n' Tarry Tract are more likely to become infested with non-native invasive species, such as yellow starthistle, Johnson's grass, and Bermuda grass (Hubbell et al. 2006b).

A majority of the Cruise n' Tarry Tract would not be subject to active restoration, as remnant valley oak riparian forest has established itself. However, restoration would be applied to several smaller areas adjacent to the existing valley oak riparian forest. In the northern part of the proposed restoration site, rose/baccharis scrub would be planted over an area thought to be underlain by a gravel bar. Lack of tree invasion indicates the likelihood of a gravel bar approximately 10 feet below the surface, despite the presence of a clay loam soil surface layer and an approximate 4-year flood return interval.

Willow scrub would be planted along the steep banks of the inlet on the tract since it is adjacent to the water and its low elevation coincides with the elevation of willow scrub onsite and in the remnant riparian vegetation across the river (USACE 1997). This lowland is likely to flood more frequently than the rest of the proposed restoration site, despite being within the 4-year floodplain (Hubbell et al. 2007b). Planting this area with willow scrub would expand the current willow scrub habitat.

Cottonwood riparian forest would be planted in the southwest corner of the proposed restoration site in order to connect an existing patch of adjacent cottonwoods to the existing cottonwood riparian forest found onsite along the inlet. This area's adjacency to the Sacramento River and its elevation coincides with the elevation of cottonwood riparian forest found in the remnant riparian vegetation across the river and in other previously restored habitats along the Sacramento River (Hubbell et al. 2007b). It is further likely that parts of this portion of the proposed restoration area flood more frequently than the estimation of once every 4 years (Hubbell et al. 2007b). Gleyed soils and a high water table support this conclusion, and further indicate the suitability of this portion of the site for restoration as cottonwood riparian forest.

Valley oak riparian forest is the ecologically based recommendation for the southeast portion of the proposed restoration site. Planting of this habitat type in this area would enhance and extend the existing valley oak riparian forest within the Colusa Subreach. Mulberry removal would be necessary to allow for planting of valley oaks. The State of California SB 1334 recommends a mitigation ratio for valley oaks of 5:1 (i.e., five valley oaks for each mulberry removed) or on a per-acre basis using TNC's current ratio of 90 valley oaks/acre (assuming an 80 percent survival rate after three years) (Hubbell et al. 2007b).

The Cruse n' Tarry Tract is a small restoration site that would be relatively more expensive to restore on a cost-per-acre basis. It also lacks an existing water supply source for irrigation. The tract is owned by the Sacramento and San Joaquin Drainage District, a state agency governed by the Central Valley Flood Protection Board (CVFPB). The CVFPB approved a lease of the site to the County of Colusa in December of 2007. The County has expressed a general intent to manage the property for public access to the river although plans for such use have not yet been

developed. At this time it is unknown if the proposed active restoration would be compatible with changes to the site that Colusa County may propose in the future.

The Cruse n' Tarry Tract was included in Colusa Subreach restoration planning at the direction of the CVFPB's former General Manager. At the time, the CVFPB indicated that the state might wish to have the site restored for mitigation purposes. Given the recent lease of the site to Colusa County, the potential for restoration of the site is uncertain. TNC has indicated that restoration of the small site is not a priority and that the restoration plan developed through Colusa Subreach planning will be provided to the State to simply identify the restoration potential of the site. Whether the tract is restored to riparian habitat will be determined by the Central Valley Flood Protection Board and Colusa County in the future. Because plans for the future use or improvement of the tract for recreation purposes by Colusa County have not yet been determined and because such changes not a part of the Colusa Subreach Planning process, recreation improvement changes to the tract are considered speculative and have not been included in this analysis.

The Cruse n' Tarry Tract does not abut any cropland. It is separated from other properties by the flood protection levee on the south and the levee and River Road on the east.

APPENDIX B

Supplemental Information Regarding Biological Resources

APPENDIX C

State Clearinghouse Documentation and Comment Letter

Appendix B. Supplemental Information Regarding Biological Resources

This appendix provides supplemental information regarding biological resources that could be affected by The Nature Conservancy's proposal to restore wildlife habitat along the "Colusa Subreach" between the City of Colusa and the community of Princeton. The proposed project would restore native riparian habitat to approximately 251 acres on seven tracts of land. The environmental effects would generally be beneficial. Some restoration activities, however, such as orchard removal, field preparation, installation of irrigation systems, and vehicle access and use, would have potentially adverse effects to biological resources.

The proposed restoration tracts are entirely within the 100-year floodplain of the Sacramento River between flood control levees. Within these tracts, riparian vegetation has been removed and, to varying degrees, the tracts have been converted to agricultural crops. Portions of each tract are below the ordinary high water level of the river and are subject to inundation with a frequency of 1 to 5 years (Ayres Associates 2008).

The proposed active restoration area at the Colusa-North Tract is the only one of the proposed restoration sites that does not have an existing access road suitable for agricultural equipment. In order to fully implement project activities at the Colusa-North site, construction of an access road to the restoration area on this tract would require the clearing of at least 700 linear feet of remnant riparian vegetation.

The dominant type of land use adjacent to the restoration sites is remnant riparian forest. The remnant riparian forest includes the Great Valley mixed riparian forest and Great Valley cottonwood riparian forest (EDAW 2007) vegetation types (California Department of Fish and Game 2003). Both of these vegetation types are dominated by a diversity of winter deciduous, broadleafed trees and shrubs that provide high-value habitat for many wildlife species, including raptors, migratory songbirds, and bats.

The mixed riparian forest contains a dense multi-layered canopy, including Fremont's cottonwood (*Populus fremontii*), valley oak (*Quercus lobata*), western sycamore (*Platanus racemosa*), Goodings's black willow (*Salix gooddingii*), Oregon ash (*Fraxinus latifolia*), and box elder (*Acer negundo*). Native understory shrubs and vines include blue elderberry (*Sambucus mexicana*), wild rose (*Rosa californica*), poison oak (*Toxicodendron diversilobum*), and wild grape (*Vitis californica*). The cottonwood riparian forest is dominated by a canopy of Fremont's cottonwood (*Populus fremontii*) and black willow (*Salix gooddingii*).

Methodology

To assess potential impacts to special-status species, North State Resources, Inc. (NSR) conducted a pre-field investigation to identify special-status species occurring in the area. The following documents, including database query results, were also reviewed:

- *List of Endangered and Threatened Species That May Occur in, or Be Affected by Projects in Colusa County* (U.S. Fish and Wildlife Service 2007).
- California Natural Diversity Database (CNDDB) search for records of special-status plant and wildlife species, and natural plant communities in the following eight USGS quadrangles: *Princeton, Butte City, Moulton Weir, Sanborn Slough, Colusa, Meridian, Arbuckle, and Grimes* (California Department of Fish and Game 2007a).
- *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2007); one query for documented special-status plant species occurrences in the *Sanborn Slough, California* and the eight surrounding USGS quadrangles, and another for the *Meridian, California* and eight surrounding USGS quadrangles.
- *Endangered and Threatened Animals of California* (California Department of Fish and Game 2006a)
- *Special Animals* (California Department of Fish and Game 2007b),
- *Endangered, Threatened, and Rare Plants of California* (California Department of Fish and Game 2006b)
- *Special Vascular Plants, Bryophytes, and Lichens List* (California Department of Fish and Game 2006c).
- *Colusa Subreach Planning Pest and Regulatory Effects Study, Public Draft Project Report* (EDAW 2007).
- *Mitigation for Tisdale Bypass Rehabilitation Project at Colusa-Sacramento River State Recreation Area* (Jones and Stokes 2007)
- Baseline assessments for each of the seven tracts (Hubbell et al. 2006a, 2006b, 2006c, 2006d, 2006e, 2006f, 2007a, 2007b)

NSR staff also conducted reconnaissance surveys at the proposed restoration tracts on October 22 and November 9, 2007, to assess the suitability of the habitat for 104 special-status species identified in the pre-field investigation. The project sites do not provide suitable habitat (e.g. alkaline soils, vernal pools, breeding habitat) for more than half of the 104 species identified in the pre-field investigation, and these species were not further evaluated.

Results

Forty-two special-status species, including wildlife, fish, and plant species, were identified that are known to occur or could occur in the project area. Habitat suitability and potential impacts were identified for each of these 42 species (Table B-1 and Table B-2). The project would have a “less than significant impact” or “no impact” on 22 of the 42 species evaluated, including all of the special-status plants evaluated.

Results of the assessment indicate that vegetation removal or degradation and ground-disturbing activities associated with implementation of the proposed Project could result in significant impacts on 20 special-status species unless mitigation measures are implemented. The regulatory status of each of these species is identified below along with a description of the suitable habitat present on the restoration tracts.

Impacts on all of these species would be less than significant following implementation of mitigation measures.

Invertebrates

- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). Federally listed as threatened.

Blue elderberry (*Sambucus mexicana*) and (mountain) red elderberry (*S. racemosa var. microbotrys*) are the host plants for the valley elderberry longhorn beetle (VELB). During the reconnaissance field visits, NSR staff noted blue elderberry with stems greater than 1.0 inch in diameter in low numbers at all the tracts. Some of the tracts have one or two blue elderberry shrub clusters on the perimeter, and other tracts have a few clusters suggestive of relic populations.

No elderberries are planned to be removed as part of the project, but there could be a direct impact on VELB from accidental damage to elderberry shrubs during implementation and maintenance of the restoration plantings. Complete avoidance of VELB host plants may not be practicable, as the planting of native plants and maintenance will need to occur within 100 feet of blue elderberries in order to prevent the establishment of non-native invasive plants. Protocol-level VELB surveys should be conducted at each of the restorations sites no more than 2 years prior to implementation of restoration at a given site.

Fish

- green sturgeon, southern Distinct Population Segment (DPS) (*Acipenser medirostris*). Federally listed as threatened, designated Critical Habitat;
- central valley steelhead (*Onchorhynchus mykiss*). Federally listed as threatened, designated Critical Habitat;
- Chinook salmon, winter-run (*Onchorhynchus tshawytscha*). Federally and state listed as endangered, designated Critical Habitat and Essential Fish Habitat;
- Chinook salmon, spring-run (*Onchorhynchus tshawytscha*). Federally and state listed as threatened, designated Critical Habitat and Essential Fish Habitat;
- river lamprey (*Lampetra ayresii*). State species of special concern;
- hardhead (*Mylopharodon conocephalus*). State species of special concern;
- Chinook salmon, fall-run (*Onchorhynchus tshawytscha*). State species of special concern, designated Essential Fish Habitat;
- Sacramento splittail (*Pogonichthys macrolepidoptus*). State species of special concern.

The fish species listed above are known to occur in the Sacramento River and could occur within the project tracts during overbank flooding. The Sacramento River provides suitable migratory and rearing habitat for all these species, including designated Critical Habitat for threatened salmonids as noted above. Essential Fish Habitat (EFH) is defined by the Magnuson-Stevens Fishery Conservation and Management Act and amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267). EFH refers to those waters and substrates necessary for spawning, breeding, feeding, or growth to maturity. Freshwater EFH for salmon consists of four major components: spawning and incubation habitat; juvenile rearing habitat; juvenile migration corridors; and adult migration corridors and adult holding habitat (Pacific Fishery Management Council 2003).

The project would not involve any work in the active channel or on the bank of the Sacramento River nor would the Project be expected to result in conditions causing entrainment or entrapment of fish above current conditions; thus, no direct impacts to the fish species listed above are anticipated. Potential indirect impacts to these species related to sediment and pollutant contamination of the river could occur as a result of ground-disturbing activities and operation of equipment.

Nesting Raptors

- Cooper's hawk (*Accipiter cooperii*). State species of special concern;
- western burrowing owl (*Athene cunicularia hypugaea*). State species of special concern;
- Swainson's hawk (*Buteo swainsoni*). State listed as threatened;
- white-tailed kite (*Elanus leucurus*). State fully protected;
- bald eagle (*Haliaeetus leucocephalus*). Federally threatened (delisted 2007), state listed as endangered and fully protected;
- osprey (*Pandion haliaetus*). State species of special concern.

Overstory vegetation associated with riparian habitat occurs at all seven tracts in varying proportions and provides suitable nesting habitat for the special-status raptors listed above. In the event that raptors use existing orchards for nesting habitat, orchard removal at some of the tracts could result in a significant direct impact to a nesting raptor if an orchard tree contained an active nest. The Colusa-North Tract is the only site that would require removal of native riparian trees for the full implementation of planned restoration activities. The removal of riparian trees at this site could also result in a direct impact to nesting raptors. In addition, nesting raptors could be indirectly affected by noise from tree removal activities and road construction activities at certain tracts.

Other Nesting Birds

- western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). Candidate for federal listing, state listed as endangered;
- California yellow warbler (*Dendroica petechia brewsteri*). State species of special concern;
- yellow-breasted chat (*Icteria virens*). State species of special concern;
- loggerhead shrike (*Lanius ludovicianus*). State species of special concern.

Along the Sacramento River, western yellow-billed cuckoos nest in patches of dense riparian habitat larger than 50 acres that contain willows and cottonwoods (Laymon, 1989 #95). Patches of suitable nesting habitat are present within remnant riparian forests at all of the tracts except Cruise n' Tarry. All of the tracts have riparian habitat of sufficient size and composition to provide nesting habitat for California yellow warbler, yellow-breasted chat, and loggerhead shrike.

The Colusa-North Tract is the only site that would require construction of an access road. Construction of a 700-foot access road on this tract would result in the removal of an estimated one-half acre of native riparian trees for the full implementation of planned restoration activities. This is the only site where nesting birds could be subject to direct impacts resulting from the removal of a tree containing an active nest. Noise related to orchard removal and other mechanized ground-disturbing activities could indirectly affect nesting birds.

Bats

- pallid bat (*Antrozous pallidus*). State species of special concern;
- Townsend's western big-eared bat (*Corynorhinus townsendii*). State species of special concern;

Riparian vegetation occurring within the seven tracts provides varying amounts of suitable roosting habitat for the pallid bat and the Townsend's western big-eared bat. Bats could move into or out of this riparian vegetation at any time. Removal of large oak trees for the construction of the 700-foot temporary access road at the Colusa-North Tract could directly affect a maternity roost.

Table B-1. Special-Status Plant Species Potentially Occurring in the Project Area

Common Name *Scientific Name*	Status[1] (Fed/State/CNPS)	General Habitat Description	Flowering Period	Potential for Occurrence/Potential Impacts[2]
Ferris' milk-vetch *Astragalus tener* var. *ferrisiae*	-/-/1B	Meadows and seeps (vernally mesic), valley and foothill grassland (subalkaline flats); elevation 5–75 meters	April–May	**Unlikely to be present.** No alkaline soils present. **Less-than-significant impact.**
rose-mallow *Hibiscus lasiocarpus*	-/-/2	Freshwater marshes and swamps; elevation 0–120 meters	June–September	**Unlikely to be present.** Suitable aquatic habitat occurs only in the perennial oxbow lake (Boggs Bend Slough) adjacent to the Womble Tract and in the seasonal pond (inlet) at Cruise n' Tarry. There will be no direct impacts on these aquatic features. **Less-than-significant impact.**
Wright's trichocoronis *Trichocoronis wrightii* var. *wrightii*	-/-/2	Meadows and seeps, marshes and swamps, riparian scrub, vernal pools/alkaline; elevation 5–435 meters	May–September	**Unlikely to be present.** No alkaline soils present. **Less-than-significant impact.**
Brazilian watermeal *Wolffia brasiliensis*	-/-/2	Freshwater rivers and streams. (Sacramento River and its tributaries)	April–December	**Unlikely to be present.** Suitable aquatic habitat occurs only in the Sacramento River, the perennial oxbow lake (Boggs Bend Slough) adjacent to the Womble Tract, and the seasonal pond at Cruise n' Tarry. There will be no direct impacts on these aquatic features. **Less-than-significant impact.**

[1] Status notes:

FED = Federal
ST = State
Federal & State Codes:
E = Endangered; T = Threatened; R = Rare

CNPS = California Native Plant Society
CNPS Codes:
List 1B = Rare, Threatened or Endangered in California and elsewhere;
List 2 = Rare, Threatened or Endangered in California, but more common elsewhere

[2] The potential impacts noted in this column are a summary of the determinations made for each of the species in the table. All species for which the project was determined to have a "less than significant impact with mitigation" are discussed further in the Expanded Initial Study.

Table B-2. Special-Status Wildlife Species Potentially Occurring in the Project Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Potential for Occurrence/Potential Impacts[2]
Federal or State Listed Species			
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/--	Elderberry shrubs associated with riparian forests that occur along rivers and streams.	**May be present.** Elderberry shrubs are present on or adjacent to all project sites. Protocol-level VELB surveys have not been conducted within the project sites. **Less-than-significant impact with mitigation.**
green sturgeon, southern distinct population segment *Acipenser medirostris*	T/SC	Spawn in Sacramento and Feather rivers; juveniles are thought to rear mainly in the estuary. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock. Spawn in the mainstem Sacramento River when temperatures range between 46-60 °F.	**Present**. Known to occur in the Sacramento River throughout all accessible reaches upstream at least to Anderson-Cottonwood Irrigation District dam near Redding, California. **Less-than-significant impact.**
steelhead, California Central Valley distinct population segment *Oncorhynchus mykiss* Critical Habitat	T/--	Spawn and rear in freshwater rivers and streams. (Sacramento and San Joaquin rivers and their tributaries)	**Present**. Occur in the mainstem Sacramento River and tributary streams. Adults migrate upstream during the fall/winter and spawn from winter to early spring. Juveniles rear in natal areas for 1-2 years before migrating to the ocean. Suitable spawning and rearing habitat exists in the Sacramento River. **Less-than-significant impact.**
Central Valley spring-run evolutionarily significant unit Chinook salmon *Oncorhynchus tshawytscha* Critical Habitat Essential Fish Habitat	T/T	Freshwater rivers and streams. (Sacramento River and its tributaries)	**Present.** Occur in the mainstem Sacramento River and its major perennial tributary streams. Adults migrate upstream during the spring and spawn from mid-August to mid-October. Suitable spawning and rearing habitat exists in the Sacramento River. **Less-than-significant impact.**
Sacramento River winter-run evolutionarily significant unit Chinook salmon *Oncorhynchus tshawytscha* Critical Habitat Essential Fish Habitat	E/E	Freshwater rivers and streams. (Sacramento River and its tributaries)	**Present**. Occur in the mainstem Sacramento River. Adults migrate upstream during the winter and spawn from mid-April to August. Suitable spawning and rearing habitat exists in the Sacramento River. **Less-than-significant impact.**

Table B-2. Special-Status Wildlife Species Potentially Occurring in the Project Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Potential for Occurrence/Potential Impacts[2]
California red-legged frog *Rana aurora draytonii*	T/SC	Requires aquatic habitat for breeding, also uses a variety of other habitat types including riparian and upland areas. Adults use dense, shrubby or emergent vegetation associated with deep-water pools with fringes of cattails and dense stands of overhanging vegetation.	**Unlikely to be present.** Boggs Bend Slough is an oxbow lake (perennial pond) adjacent to Womble and Jensen tracts that supports fresh emergent wetland. The slough is a public fishing spot and is known to support warm water fish species and bull frogs, which are predators of California red-legged frog. The abandoned marina at Cruise n' Tarry is a much smaller pond and is seasonal. Neither of these aquatic features provide suitable habitat for California red-legged frog and the nearest CNDDB occurrence is more than 25 miles away. No project activities will occur in either of these aquatic features. **Less-than-significant impact.**
giant garter snake *Thamnophis gigas*	T/T	Freshwater marshes and low-gradient streams with emergent vegetation; adapted to drainage canals and irrigation ditches with mud substrate.	**Unlikely to be present.** High winter flows within flood control levees makes project habitat unsuitable. Giant garter snake requires year-round habitat suitability**.** **Less-than-significant impact.**
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	C/--	Nesting habitat is cottonwood/willow riparian forest. Occurs only along the upper Sacramento Valley portion of the Sacramento River, the Feather River in Sutter Co., the south fork of the Kern River in Kern Co., and along the Santa Ana, Amargosa, and lower Colorado rivers	**May be present**. Known to occur as breeders in the region in late spring and early summer. **Less-than-significant impact with mitigation.**
willow flycatcher *Empidonax traillii*	--/E	Wet meadow and montane riparian habitats; dense willow thickets required for nesting and roosting.	**Absent as breeder**. Rare migrant in spring and summer. **Less-than-significant impact.**
bald eagle *Haliaeetus leucocephalus*	T/E	Forages on live and dead fish and nests in large trees or snags. Requires large bodies of water, including ocean shorelines, lake margins, and large, open river courses for foraging, nesting, and wintering habitat.	**Present**. Incidental observations of eagles foraging over the project area. No nests reported or observed on the site. **Less-than-significant impact with mitigation.**
bank swallow *Riparia riparia*	--/T	Colonial nester on vertical banks or cliffs with fine-textured soils near water.	**May be present**. Known to occur in the region in spring and summer. Nesting habitat is outside of the project area. Forages in both riparian and agricultural habitats. **Less-than-significant impact.**
Other Special-Status Species			
river lamprey *Lampetra ayresii*	--/SC	The biology of river lampreys has not been studied in California, general habitat and life history thought to be similar to Pacific lamprey.	**Present**. Occur in the mainstem Sacramento River and tributary streams. **Less-than-significant impact with mitigation.**

Table B-2. Special-Status Wildlife Species Potentially Occurring in the Project Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Potential for Occurrence/Potential Impacts[2]
hardhead *Mylopharodon conocephalus*	--/SC	Quiet deep pools of large, warm, clear streams over rocks or sand.	**Present**. Occur in the mainstem Sacramento River and tributary streams. **Less-than-significant impact.**
Central Valley fall/late-fall run evolutionarily significant unit Chinook salmon *Oncorhynchus tshawytscha* Essential Fish Habitat	--/SC	Freshwater rivers and streams. (Sacramento and San Joaquin rivers and their tributaries)	**Present**. Occur in the mainstem Sacramento River and tributary streams. Adults migrate upstream during the fall and spawn from mid-October to February. Suitable spawning and rearing habitat exists in the Sacramento River. **Less-than-significant impact.**
Sacramento splittail *Pogonichthys macrolepidoptus*	--/SC	Shallow, dead-end sloughs with submerged vegetation.	**Present**. Occur in the mainstem Sacramento River and tributary streams. Adults migrate upstream during the fall and spawn from mid-October to February. Suitable spawning and rearing habitat exists in the Sacramento River. **Less-than-significant impact.**
northwestern pond turtle *Actinemys marmorata marmorata*	--/SC	Slow water aquatic habitat with available basking sites. Hatchlings require shallow water with dense submergent or short emergent vegetation. Require an upland oviposition site in the vicinity of the aquatic site	**May be present**. No work is planned to occur in Boggs Bend Slough, adjacent to the Womble tract, nor in the seasonal pond at Cruise n' Tarry. Any potential impact would be indirect. **Less-than-significant impact.**
western burrowing owl *Athene cunicularia hypugaea*	--/SC	Open habitats, dry grasslands and ruderal habitats with ground squirrel burrows.	**May be present**. Suitable breeding and foraging habitat occurs in the project area. **Less-than-significant impact with mitigation.**
sharp-shinned hawk *Accipiter striatus*	--/SC	Typically nests in dense conifer stands near water, winters in woodlands. Forages in many habitats in winter and migration.	**Absent as breeder**. Species does not breed in project area but may occur as a migrant. **Less-than-significant impact.**
Cooper's hawk *Accipiter cooperi*	--/SC	Nests in woodlands, forages in many habitats in winter and migration.	**May be present**. Suitable breeding and foraging habitat occurs in and adjacent to the project area. **Less-than-significant impact with mitigation.**
short-eared owl *Asio flammeus*	--/SC	Nests on the ground and occurs in open country, including grasslands, wet meadows, and cleared forests.	**Absent as breeder**. Species does not breed in project area but may occur as a migrant. **Less-than-significant impact.**
long-eared owl *Asio otus*	--/SC	Requires wooded areas for roosting and breeding and often frequents riparian habitats. Forages in open habitats, primarily for small rodents	**Absent as breeder**. Species does not breed in project area but may occur as a migrant. **Less-than-significant impact.**
ferruginous hawk *Buteo regalis*	--/SC	Forages in grasslands and occasionally in other open habitats during migration and winter.	**Absent as breeder**. Species does not breed in project area but may occur as a migrant. **Less-than-significant impact.**

Table B-2. Special-Status Wildlife Species Potentially Occurring in the Project Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Potential for Occurrence/Potential Impacts[2]
northern harrier *Circus cyaneus*	--/SC	Forages in marshes, grasslands and ruderal habitats; nests in extensive marshes and wet fields.	**Absent as breeder**. Suitable breeding habitat does not occur on the site or adjacent areas within the flood control levees. However, the species may forage in the area. **Less-than-significant impact.**
California yellow warbler *Dendroica petechia brewsteri*	--/SC	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods.	**May be present**. Suitable breeding and foraging habitat occurs in or immediately adjacent to the project area. **Less-than-significant impact with mitigation.**
white-tailed kite *Elanus leucurus*	--/FP	Nests in lowlands with dense oak or riparian stands near open areas, forages over grassland, meadows, cropland and marshes.	**May be present**. Suitable breeding and foraging habitat occurs in or immediately adjacent to the project area. **Less-than-significant impact with mitigation.**
merlin *Falco columbarius*	--/SC	Frequents ocean shorelines, lake margins, and large, open river courses near tree stands for both nesting and wintering habitat. Does not breed in California.	**Absent as breeder**. Suitable breeding habitat does not occur on the site or surrounding area. However, the species may forage in the area. **Less-than-significant impact.**
prairie falcon *Falco mexicanus*	--/SC	Occurs in open habitats such as grasslands, desert scrub, rangelands and croplands. Nests on open cliffs.	**Absent as breeder**. Species does not breed in project area but may occur as a migrant. **Less-than-significant impact.**
American peregrine falcon *Falco peregrinus anatum*	--/E, FP	Forages in many habitats; and is most common near water. Requires cliffs for nesting.	**Absent as breeder**. Suitable breeding habitat not present. **Less-than-significant impact.**
yellow-breasted chat *Icteria virens*	--/SC	Breeds in riparian habitats having dense understory vegetation, such as willow and blackberry.	**May be present**. Suitable breeding and foraging habitat occurs in or immediately adjacent to the project area **Less-than-significant impact with mitigation.**.
loggerhead shrike *Lanius ludovicianus*	--/SC	Prefers open habitats with scatters shrubs and trees throughout the Central Valley of California. Nests in shrubs and trees.	**May be present**. Suitable breeding and foraging habitat occurs in or immediately adjacent to the project area. **Less-than-significant impact with mitigation.**
long-billed curlew *Numenius americanus*	--/SC	Large coastal estuaries, upland herbaceous areas and croplands. Breeds in wet meadow habitat.	**Absent as breeder**. Suitable breeding habitat does not occur on the site or surrounding area. **Less-than-significant impact.**
osprey *Pandion haliaetus*	--/SC	Ocean shorelines, lake margins and large, open river courses for both nesting and wintering habitat.	**Present**. Suitable breeding and foraging habitat occurs in the project area. Nest and bird observed in snag adjacent to Womble tract. **Less-than-significant impact with mitigation.**
double-crested cormorant *Phalacrocorax auritus*	--/SC	Inland lakes; fresh, salt and estuarine waters.	**Absent as breeder**. Suitable breeding habitat does not occur on the site or surrounding area. **Less-than-significant impact.**

Table B-2. Special-Status Wildlife Species Potentially Occurring in the Project Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Potential for Occurrence/Potential Impacts[2]
white-faced ibis *Plegadis chihi*	--/SC	Nest in dense marsh vegetation near foraging areas in shallow water or muddy fields.	**Absent as breeder**. Suitable breeding habitat does not occur on the site or surrounding area. However, the species may forage in the area. **Less-than-significant impact.**
pallid bat *Antrozous pallidus*	--/SC	Forages over many habitats; roosts in buildings, large oaks or redwoods, rocky outcrops and rocky crevices in mines and caves, and under bridges. Roosts must protect bats from high temperatures	**May be present.** Suitable breeding and foraging habitat occurs in the project area. **Less-than-significant impact with mitigation.**
ringtail *Bassariscus astutus*	--/FP	Riparian habitats and in brush stands of most forest and shrub habitats. Nests in rock recesses, hollow trees, logs, snags, abandoned burrows or woodrat nests.	**May be present**. Suitable breeding and foraging habitat occurs in the project area. Ringtails are nocturnal and do not occupy denning areas for more than a few days at a time. **Less-than-significant impact.**
Townsend's western big-eared bat *Corynorhinus townsendii*	--/SC	Roosts in colonies in caves, mines, tunnels, or buildings in mesic habitats. The species forages along habitat edges, gleaning insects from bushes and trees. Habitat must include appropriate roosting, maternity and hibernacula sites free from disturbance by humans.	**May be present.** Suitable breeding and foraging habitat occurs in the project area. **Less-than-significant impact with mitigation.**
American badger *Taxidea taxus*	--SC	Herbaceous, shrub, and open stages of most habitats with dry, friable soils.	**Unlikely to be present.** Suitable breeding and foraging habitat does not occur in the project area. **Less-than-significant impact.**

[1] Federal and State Status Codes: E = Endangered; T = Threatened; SC = Species of Special Concern; FP = Fully Protected

[2] The potential impacts noted in this column are a summary of the determinations made for each of the species in the table. All species for which the project was determined to have a "less than significant impact with mitigation" are discussed further in the Expanded Initial Study.

APPENDIX C

State Clearinghouse Documentation and Comment Letter

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

June 23, 2008

Kent Smith
California Department of Fish and Game
North Central Region
1701 Nimbus Road
Rancho Cordova, CA 95670

Subject: Colusa Subreach Wildlife Habitat Restoration Project at Seven Tracts along the Sacramento River Between Colusa and Princeton
SCH#: 2008052098

Dear Kent Smith:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on June 20, 2008, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

Enclosures
cc: Resources Agency

Post-it™ Fax Note 7671	Date 6-23-08	# of pages ▶ 4
To Bruce	From Sheila	
Co./Dept.	Co. OPR	
Phone #	Phone # 916 445-0613	
Fax # 916 446-2792	Fax # 323-3018	

Document Details Report

State Clearinghouse Data Base

SCH# 2008052098
Project Title Colusa Subreach Wildlife Habitat Restoration Project at Seven Tracts along the Sacramento River Between Colusa and Princeton
Lead Agency Fish & Game #2

Type MND Mitigated Negative Declaration

Description TNC in association with the Sacramento River Conservation Area Forum (SRCAF) and other partners propose to restore approximately 251 acres of wildlife habitat on portions of seven tracts within the levees of the Sacramento River between Princeton and Colusa. The wildlife habitat restoration activities are proposed through a planning and stakeholder involvement program called Colusa Subreach Planning (CSP). The seven restoration tracts from north to south are identified as Womble, Jensen, Stegeman, 1000-Acre Ranch, Boeger, Colusa-North, and Cruise n' Tarry. Three of the restoration sites, which are currently owned by TNC (Jensen, 1000-Acre Ranch, and Boeger), are proposed to be acquired by the State of California. The total area of the seven tracts is approximately 825 acres.

The purpose of the proposed project is to restore the ability of the Colusa Subreach to support native wildlife, including species listed under the state and federal endangered species acts and other special-status species. Restoration activities include removal of non-native vegetation; site preparation; installation of irrigation systems and use of surface water or groundwater supplies; planting of native trees, shrubs, and grasses; interim irrigation of plants as they become established; and construction of minor public access improvements. Restoration would occur over a four-year time period.

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

Document Details Report
State Clearinghouse Data Base

Lead Agency Contact

Name	Kent Smith
Agency	California Department of Fish and Game
Phone	(916) 358-2382 **Fax**
email	
Address	North Central Region 1701 Nimbus Road
City	Rancho Cordova **State** CA **Zip** 95670

Project Location

County	Colusa, Glenn
City	Colusa
Region	
Lat / Long	
Cross Streets	
Parcel No.	
Township	**Range** **Section** **Base**

Proximity to:

Highways	SR 45, SR 20, SR 162
Airports	
Railways	
Waterways	Sacramento River (seven tracts along a 21-mile reach)
Schools	
Land Use	Colusa County General Plan: "Designated Floodway" (all seven tracts) Glenn County General Plan: "Exclusive Agriculture" (portion of Womble) Colusa County Zoning: "Floodway or F-W zone" (northern portion of Womble)

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Cumulative Effects; Economics/Jobs; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Landuse; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife

Reviewing Agencies Resources Agency; Regional Water Quality Control Bd., Region 5 (Sacramento); Department of Parks and Recreation; Native American Heritage Commission; Central Valley Flood Protection Board; Office of Historic Preservation; Department of Water Resources; Department of Conservation; California Highway Patrol; Caltrans, District 3; Department of Boating and Waterways; Air Resources Board, Transportation Projects; State Water Resources Control Board, Division of Water Rights; State Water Resources Control Board, Clean Water Program

Date Received 05/21/2008 **Start of Review** 05/22/2008 **End of Review** 06/20/2008

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

STATE OF CALIFORNIA Arnold Schwarzenegger, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
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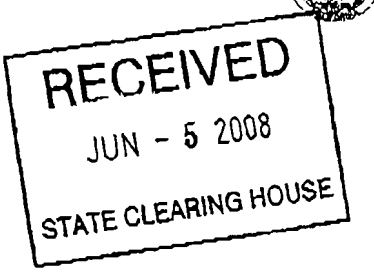

May 27, 2008

Clear
6.20.08
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Kent Smith
California Department of Fish and Game-Region 2-North Central Region
1701 Nimbus Rod
Rancho Cordova, CA 95670

RE: SCH# 2008052098 Colusa Subreach Wildlife Habitat Restoration Project at Seven Tracts along the Sacto River, Colusa/Princeton; Colusa County

Dear Mr. Smith:

The Native American Heritage Commission (NAHC) has reviewed the Notice of Completion (NOC) referenced above. The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resource, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA Guidelines 15064(b)). To comply with this provision the lead agency is required to assess whether the project will have an adverse impact on historical resources within the area of project effect (APE), and if so to mitigate that effect. To adequately assess and mitigate project-related impacts to archaeological resources, the NAHC recommends the following actions:

- ✓ Contact the appropriate regional archaeological Information Center for a record search. The record search will determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- ✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- ✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check. **USGS 7.5 minute quadrangle name, township, range and section required.**
  - A list of appropriate Native American contacts for consultation concerning the project site and to assist in the mitigation measures. **Native American Contacts List attached.**
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,
Katy Sanchez
Katy Sanchez
Program Analyst

CC: State Clearinghouse

APPENDIX D

Notice of Determination

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

For U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Sacramento, CA 95814

☐ County Clerk

County of: _____

Address: _____

From:

Public Agency: Department of Fish and Game, Region 2

Address: 1701 Nimbus Road, Rancho Cordova, CA 95670

Contact: Kent Smith

Phone: 916-358-2382

Lead Agency (if different from above):

Address: (same as above)

Contact: _____

Phone: _____

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2008052098

Project Title: Colusa Subreach Wildlife Habitat Restoration on Seven Tracts along the Sacramento River

Project Location (include county): Between Colusa and Princeton, Colusa County and Glenn County

Project Description:

The Nature Conservancy (TNC) in association with the Sacramento River Conservation Area Forum (SRCAF) and other partners propose restoration of approximately 251 acres of wildlife habitat on portions of seven tracts within the levees of the Sacramento River between the unincorporated community of Princeton and the City of Colusa.

This is to advise that the Department of Fish and Game, Region 2 has approved the above described project on

☒ Lead Agency or ☐ Responsible Agency

_____ (Date) and has made the following determinations regarding the above described project:

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☒ were ☐ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at: (address above) or The Nature Conservancy, 500 Main Street, Chico, CA 95928 (530-897-6370)

Signature (Public Agency) Kent C. Smith Title Environmental Program Manager

Date 8/26/08 Date Received for filing at OPR _____

RECEIVED
AUG 27 2008
STATE CLEARING HOUSE

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2005

APPENDIX E

Mitigation Monitoring and Reporting Program

MITIGATION MONITORING AND REPORTING PROGRAM

Colusa Subreach Wildlife Habitat Restoration Project

CEQA Authority and Requirements

The California Environmental Quality Act (CEQA) (Section 21081.6) and the CEQA Guidelines (Section 15097) require a lead agency to adopt a mitigation monitoring or reporting program when it has approved a project with changes or conditions that are adopted in order to mitigate or avoid significant effects on the environment. This Mitigation Monitoring and Reporting Program (MMRP) has been prepared Colusa Subreach Wildlife Habitat Restoration Project (Project).

Mitigation measures provided in this MMRP were identified in the Initial Study and Mitigated Negative Declaration for the Project as feasible and effective in mitigating project-related environmental impacts, and have been adopted by the Department as part of the overall project approval.

Role of Lead Agency

The California Department of Fish and Game, Region 2 (Department) has reviewed the Project under CEQA as the lead agency. The Department has found the mitigation measures identified in the Initial Study[1] and Mitigated Negative Declaration to be feasible and effective for mitigating project-related environmental impacts. These measures have been adopted by the Department as part of the overall project approval.

The Department has primary responsibility for the execution and proper implementation of the MMRP. In some cases, the Department may delegate that responsibility to the project engineer or construction contractor, another public agency, or a private nonprofit corporation in the implementation of specific mitigation measures prior to and/or during construction. Subject to this delegation, any of these entities may function as the Responsible Party for specific mitigation measures. The Department will continue to monitor mitigation measures required during operation of the Project.

Monitoring Plan

The purpose of the MMRP is to document the monitoring and reporting requirements for the Project to ensure compliance during project implementation. The MMRP is intended to be used by the Department, participating agencies, and contractors during implementation of the Project.

The monitoring timing, frequency, and responsible parties for implementing the Project mitigation measures are summarized in Table 1, Summary Mitigation Monitoring Requirements.

[1] *Evaluation of Environmental Effects Associated with Wildlife Habitat Restoration on Seven Tracts along the Sacramento River between Colusa and Princeton – CEQA Initial Study for the Colusa Subreach Wildlife Habitat Restoration Project.* Prepared by North State Resources, Inc. for the California Department of Fish and Game and The Nature Conservancy. May 2008.

TABLE 1. SUMMARY OF MITIGATION MONITORING OR REPORTING REQUIREMENTS

Mitigation Measure	Implementation Phase	Monitoring Frequency / Timing	Responsible Parties	Verification (date and initials)
BIOLOGICAL RESOURCES				
Mitigation Measure #1–Valley Elderberry Longhorn Beetle (VELB)				
▪ Surveys shall be conducted at each of the seven tracts prior to implementation of restoration activities to identify, and mark for protection, elderberry shrubs potentially affected by activities.	Pre-construction	During review and development of final design package	Department / Project Engineer / Project Contractor	
▪ Prior to restoration at each tract, a Worker Environmental Awareness Program for restoration workers shall be conducted by a qualified biologist. The program shall provide all workers with information on their responsibilities with regard to sensitive biological resources, including the federally listed VELB and the need to protect its elderberry host plant.	Pre-construction / Construction	Once prior to initiating construction; as required during construction phase	Department / Project Engineer / Project Contractor	
▪ Measures to protect buffer areas shall be instituted prior to construction and will include fencing and signs. The distance of the buffer area from the drip line of elderberry shrubs with one or more stems measuring 1.0 inch or greater in diameter at ground level shall be set at the greatest distance practicable without compromising the goal of planting native vegetation. The distance of the buffer area shall extend at least 20 feet from the drip line of the elderberry plant.	Pre-construction / Construction	During review of final design package, prior to initiating construction; as needed during construction phase	Department / Project Engineer / Project Contractor	
▪ No insecticides, herbicides, fertilizers, or other chemicals associated with the proposed project that might harm the beetle or its host plant shall be used within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.	Pre-construction	During review of final design package, and if some removal is required it should occur outside of the nesting season	Department / Project Engineer / Project Contractor	
▪ Any damage to the buffer area during construction shall be restored following construction primarily using re-vegetation with native riparian plants as appropriate.	Pre-construction	During review of final design package, and if some removal is required it should occur outside of the nesting season	Department / Project Engineer / Project Contractor	

Mitigation Measure	Implementation Phase	Monitoring Frequency / Timing	Responsible Parties	Verification (date and initials)
Mitigation Measure #2–Nesting Raptors and Other Nesting Birds				
▪ The removal of orchard trees and native trees at the Womble, Stegemen and Colusa-North tracts, shall be conducted outside of the nesting season (nesting season is February 15 to August 30) to the maximum extent practicable.	Pre-construction	During review of final design package and, if required, prior to initiating construction	Department / Project Engineer / Project Contractor	
▪ For all proposed Project activities conducted during the nesting season that have a potential to disrupt nesting birds, pre-construction surveys shall be conducted. Pre-construction surveys for nesting raptors and migratory birds, including but not necessarily limited to, yellow-billed cuckoo, California warbler, yellow-breasted chat, and loggerhead shrike, shall be conducted by a qualified biologist. A minimum of one survey must be conducted no more than 14 days prior to the initiation of Project activities. If an active nest is found in close proximity to (i.e., within 250 feet) an active restoration area that will be disturbed by proposed Project activities, a qualified biologist shall determine the extent of a construction-free buffer zone to be established around the nest.	Pre-construction	If required, prior to initiating construction	Department / Project Engineer / Project Contractor	
Mitigation Measure #3–Bats				
▪ In the event that native trees greater than or equal to 12 inches in diameter at 4.5 feet above grade within the Colusa-North Tract would be removed, a pre-construction survey for roosting bats shall be conducted prior to removal. No activities that would result in disturbance to active roosts of special-status bat species shall proceed prior to the completed survey. If no active roosts are found, then no further mitigation is needed. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified biologist will determine the extent of a construction-free zone to be established around the roost; access and time limits shall also be identified. If either a maternity roost or hibernaculum (i.e., a location used for hibernation) is present, the following measures shall also be implemented. CDFG shall also be notified of any active nurseries or hibernacula identified in the survey. ▪ If active maternity roosts or hibernacula are found, the Colusa-North temporary access road will be relocated to avoid the loss of the tree occupied by the roost, if feasible. ▪ If an active nursery roost is located and the access road can not be relocated to avoid removal of the occupied tree or structure, demolition of that tree or structure should commence before maternity colonies form (i.e., prior to	Pre-construction / Construction	During review of final design package and, if required, during construction phase	Department / Project Engineer / Project Contractor	

Mitigation Measure	Implementation Phase	Monitoring Frequency / Timing	Responsible Parties	Verification (date and initials)
March 1) or after young are volant (flying) (i.e., after July 31) and the disturbance-free buffer zones described above shall be observed during the maternity roost season (March 1 to July 31). ▪ If a non-breeding bat roost or hibernacula is found in a structure or tree scheduled to be removed, the individuals shall be safely evicted, under the direction of a qualified biologist (as determined by a Memorandum of Understanding with CDFG), by opening the roosting area to allow air flow through the cavity. Demolition shall then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for airflow and the demolition). This action should allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed shall first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.				
Mitigation Measure #4–Riparian Habitat at Colusa North Tract				
▪ If a temporary access road is constructed at Colusa-North, the impact to existing habitat shall be minimized by implementing the following measures: ▪ The access road shall be designed with the minimum width needed for tractors and other equipment and the minimum length needed from the existing levee road to the site. ▪ Upon completion of Project activities at the Colusa-North Tract, the land surface affected by the access road shall be restored as closely as practicable to preconstruction contours and revegetated with native riparian species.	Pre-construction / Construction	During review of final design package and, if required, during construction phase	Department / Project Engineer / Project Contractor	

Mitigation Measure	Implementation Phase	Monitoring Frequency / Timing	Responsible Parties	Verification (date and initials)
Mitigation Measure #5–Wetlands				
▪ Prior to the initiation of any ground-disturbing activities at the Womble and Colusa-North tracts, a qualified biologist shall identify all features that may exhibit wetland characteristics (i.e., suspected of meeting wetland criteria, including waters subject to USACE jurisdiction, as well as other waters not subject to USACE jurisdiction but subject to the jurisdiction of the Regional Water Quality Control Board (RWQCB)). These features plus an appropriate protective buffer shall be flagged or fenced prior to the start of start of site preparation, irrigation system installation, or other ground disturbance.	Pre-construction / Construction	During review of final design package and, if required, during construction phase	Department / Project Engineer / Project Contractor	
▪ Mechanized equipment operation in and within 100 feet of identified features shall be avoided to the extent practicable. If avoidance of discharge of dredged or fill material is not practicable, the following measures shall be implemented. ▪ Conduct a wetland delineation pursuant to USACE requirements to determine the nature and extent of "waters of the United States" that are subject to restoration activies within the Womble and Colusa-North tracts. ▪ Prior to any discharge of dredged or fill material into "waters of the United States," including wetlands, authorization under a Nationwide Permit or Individual Permit shall be obtained from the USACE. For fill requiring a USACE permit, water quality certification shall be obtained from the RWQCB prior to discharge of dredged or fill material. ▪ Prior to any activities that would obstruct the flow of or alter the bed, channel, or bank of any intermittent or ephemeral creeks, notification of streambed alteration shall be submitted to the CDFG, and, if required, a Streambed Alteration Agreement shall be obtained. ▪ Construction activities that would have an impact on "waters of the United States" shall be conducted during the dry season to the extent practicable to minimize erosion. ▪ All measures contained in permits or associated with agency approvals shall be implemented.	Pre-construction / Construction	During review of final design package and, if required, during construction phase	Department / Project Engineer / Project Contractor	

Mitigation Measure	Implementation Phase	Monitoring Frequency / Timing	Responsible Parties	Verification (date and initials)
CULTURAL RESOURCES				
Mitigation Measure #6–Construction Worker Training and Inadvertent Discoveries Prior to initiation of construction or ground-disturbing activities, TNC shall provide worker awareness training and informational materials to all construction workers regarding the possibility of discovering prehistoric or historic cultural resource materials. Personnel shall be instructed that if materials are encountered that may represent archaeological material, work within 50 feet of the find shall be halted and a professional archaeologist shall be consulted. Once the find has been identified, TNC's project archaeologist will make the necessary plans for treatment of the cultural resources and for the evaluation and resolution of any adverse effect to such properties pursuant to the NHPA and CEQA. Work may continue on other parts of the proposed Project while mitigation for historical or unique archaeological resources takes place.	Project Design / Pre-Construction / Construction	As required during the construction phase	Department / Project Engineer / Project Contractor	
Mitigation Measure #7–Protection of Known Cultural Sites A professional archaeologist shall be present during ground-disturbing activities on the one tract (identified in the confidential cultural resources investigation) where cultural materials are suspected. The archaeologist shall have authority to stop work if needed. If potentially significant cultural materials are detected, all work shall halt within a 100-foot radius of the find until clearance is provided by the archaeologist. CDFG, in consultation with TNC's project archaeologist, shall determine the need for additional cultural resources monitoring in areas removed from the identified feature.	Project Design / Pre-Construction / Construction	As required during the construction phase	Department / Project Engineer / Project Contractor	
Mitigation Measure #8–Monitor for Known Cultural Site An experienced Native American monitor, representing a local group such as the Cortina Band of Indians (Cortina Indian Rancheria, Wintun Tribe) shall be present during ground-breaking activities on the one tract (identified in the confidential cultural resources investigation). In the event of the inadvertent discovery of human remains, the monitor will facilitate Native American consultation, but will not replace the required protocol outlined in Mitigation Measure 9, below. CDFG, in consultation with TNC's project archaeologist, shall determine the need for additional cultural resources monitoring in areas removed from the identified feature.	Project Design / Pre-Construction / Construction	As required during the construction phase	Department / Project Engineer / Project Contractor	

Mitigation Measure	Implementation Phase	Monitoring Frequency / Timing	Responsible Parties	Verification (date and initials)
Mitigation Measure #9–Inadvertent Discovery of Remains If human remains are encountered during construction, work in the affected portion of the Project shall stop and the County Coroner's Office shall be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by Public Resources Code, Section 5097. The NAHC will notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains.	Project Design / Pre-Construction / Construction	As required during the construction phase	Department / Project Engineer / Project Contractor	

Evaluation of Environmental Effects Associated with Wildlife Habitat Restoration on Seven Tracts along the Sacramento River between Colusa and Princeton

CEQA Initial Study for the Colusa Subreach Wildlife Habitat Restoration Project

SCH No. 2008052098

August 2008

Prepared for:

State of California
Department of Fish and Game
Region 2–North Central Region
1701 Nimbus Road
Rancho Cordova, CA 95670

The Nature Conservancy
Northern Central Valley Office
500 Main Street
Chico, CA 95928

Prepared by:

North State Resources, Inc.
1321 20th Street
Sacramento, CA 95811

North State Resources, Inc.

MITIGATED NEGATIVE DECLARATION
Colusa Subreach Wildlife Habitat Restoration Project
State Clearinghouse No. 2008052098

The California Department of Fish and Game, Region 2 (Department), has reviewed the Colusa Subreach Wildlife Habitat Restoration Project (Project) as a project under the California Environmental Quality Act (CEQA) to determine whether the Project could have a significant effect on the environment. Under CEQA, "significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project (CEQA Guidelines Section 15382). This declaration and the attached documentation describe why the Project will not have a significant effect on the environment.

PROJECT IDENTIFICATION

Name of Project: Colusa Subreach Wildlife Habitat Restoration Project at Seven Tracts along the Sacramento River between Colusa and Princeton

Lead Agency: California Department of Fish and Game, Region 2

Project Location: The Colusa Subreach project area is primarily located in Colusa County, with a small area on the north end in Glenn County (Figure 1). The project involves restoration of seven non-contiguous tracts along a 21-mile reach of the Sacramento River between the unincorporated community of Princeton and the City of Colusa (RM 145.5 to RM 162). The seven restoration tracts from north to south are identified as Womble, Jensen, Stegeman, 1000-Acre Ranch, Boeger, Colusa-North, and Cruise n' Tarry. The total area of the seven tracts is approximately 825 acres. Summary information for the seven tracts is provided in the table below.

Tract (Restoration Site Name)	Section, Township, Range	County Assessor Parcel (AP) Number(s)	Owner	Total Area (Acres)	Restoration Area (Acres)
Womble	Section 29, T18N, R1W	012-120-045-000, 001, 002 (Colusa); 013-340-006-000 (Glenn)	State/CDFG	320	54
Jensen	Section 31, T18N, R1W	012-120-019-000	TNC[1]	98	81
Stegeman	Section 6, T17N, R1W	012-160-064-000	State/CDFG	69	8
1000-Acre Ranch	Section 6, T17N, R1W	012-160-062-000	TNC[1]	60	49
Boeger	Section 8, T16N, R1W	015-030-070-000	TNC[2]	125	51
Colusa-North	Sections 7 and 18, T16N, R1W	015-070-114-000	State/CDFG	143	5
Cruise n' Tarry	Sections 17 and 20, T16N, R1W	015-070-085-000	State/DWR	10	3

Notes: 1. Tract is adjacent to State land managed by the Department. Future transfer to a State agency is anticipated.
2. Future transfer to a State agency is anticipated.

***PROJECT DESCRIPTION*:** The Nature Conservancy (TNC) in association with the Sacramento River Conservation Area Forum (SRCAF) and other partners propose restoration of approximately 251 acres of wildlife habitat on portions of seven tracts within the levees of the Sacramento River between the unincorporated community of Princeton and the City of Colusa. The wildlife habitat restoration activities are proposed through a planning and stakeholder involvement called Colusa Subreach Planning (CSP). Three of these tracts currently owned by TNC – Jensen, 100-Acre Ranch, and Boeger – are proposed to be acquired by the State of California. The restored sites would be managed for long-term conservation and public recreation purposes.

The objectives of the proposed Project are:

- to improve wildlife habitat by contributing to the creation of large, contiguous blocks of riparian habitat along the Colusa Subreach of the Sacramento River; and
- to enhance existing riparian vegetation and improve habitat quality by removing and controlling invasive species.

The purpose of the proposed Project is to restore the ability of the Colusa Subreach tracts to support native wildlife, including species listed under the state and federal endangered species acts and other special-status species. Restoration activities include removal of non-native vegetation; site preparation; installation of irrigation systems and use of surface water or groundwater supplies; planting of native trees, shrubs, and grasses; interim irrigation of plants as they become established; and construction of minor public access improvements. The seven restoration tracts may be restored individually, at different times in the future, depending upon the availability of funding.

MITIGATION MEASURES: Mitigation measures are included in the Project and identified in the Initial Study, as summarized below. The Department has determined that these mitigation measures reduce the potentially significant effects of the Project to levels that are less than significant. These measures are incorporated into the Mitigation Monitoring and Reporting Program for the Project.

Biological Resources

Mitigation Measure #1 – Valley Elderberry Longhorn Beetle (VELB)

(i) Surveys shall be conducted at each of the seven tracts prior to implementation of restoration activities to identify, and mark for protection, elderberry shrubs potentially affected by activities.

(ii) Prior to restoration at each tract, a Worker Environmental Awareness Program for restoration workers shall be conducted by a qualified biologist. The program shall provide all workers with information on their responsibilities with regard to sensitive biological resources, including the federally listed VELB and the need to protect its elderberry host plant.

(iii) Measures to protect buffer areas shall be instituted prior to construction and will include fencing and signs. The distance of the buffer area from the drip line of elderberry shrubs with one or more stems measuring 1.0 inch or greater in diameter at ground level shall be set at the greatest distance practicable without compromising the goal of planting native vegetation. The distance of the buffer area shall extend at least 20 feet from the drip line of the elderberry plant.

(iv) No insecticides, herbicides, fertilizers, or other chemicals associated with the proposed project that might harm the beetle or its host plant shall be used within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.

(v) Any damage to the buffer area during construction shall be restored following construction primarily using re-vegetation with native riparian plants as appropriate.

Mitigation Measure #2 – Nesting Raptors and Other Nesting Birds

(i) The removal of orchard trees and native trees at the Womble, Stegemen and Colusa-North tracts, shall be conducted outside of the nesting season (nesting season is February 15 to August 30) to the maximum extent practicable.

(ii) For all proposed Project activities conducted during the nesting season that have a potential to disrupt nesting birds, pre-construction surveys shall be conducted. Pre-construction surveys for nesting raptors and migratory birds, including but not necessarily limited to yellow-billed cuckoo, California warbler, yellow-breasted chat, and loggerhead shrike, shall be conducted by a qualified biologist. A minimum of one survey must be conducted no more than 14 days prior to the initiation of Project activities. If an active nest is found in close proximity to (i.e., within 250 feet) an active restoration area that will be disturbed by proposed Project activities, a qualified biologist shall determine the extent of a construction-free buffer zone to be established around the nest.

Mitigation Measure #3 – Bats

(i) In the event that native trees greater than or equal to 12 inches in diameter at 4.5 feet above grade within the Colusa-North Tract would be removed, a pre-construction survey for roosting bats shall be conducted prior to removal. No activities that would result in disturbance to active roosts of special-status bat species shall proceed prior to the completed survey. If no active roosts are found, then no further mitigation is needed. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified biologist will determine the extent of a construction-free zone to be established around the roost; access and time limits shall also be identified. If either a maternity roost or hibernaculum (i.e., a location used for hibernation) is present, the following measures shall also be implemented. CDFG shall also be notified of any active nurseries or hibernacula identified in the survey.

- If active maternity roosts or hibernacula are found, the Colusa-North temporary access road will be relocated to avoid the loss of the tree occupied by the roost, if feasible.
- If an active nursery roost is located and the access road can not be relocated to avoid removal of the occupied tree or structure, demolition of that tree or structure should commence before maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31) and the disturbance-free buffer zones described above shall be observed during the maternity roost season (March 1 to July 31).
- If a non-breeding bat roost or hibernacula is found in a structure or tree scheduled to be removed, the individuals shall be safely evicted, under the direction of a qualified biologist (as determined by a Memorandum of Understanding with the Department), by opening the roosting area to allow air flow through the cavity. Demolition shall then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for airflow and the demolition). This action should allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed shall first

be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.

Mitigation Measure #4 – Riparian Habitat at Colusa North Tract

(i) If a temporary access road is constructed at Colusa-North, the impact to existing habitat shall be minimized by implementing the following measures:

- The access road shall be designed with the minimum width needed for tractors and other equipment and the minimum length needed from the existing levee road to the site.
- Upon completion of Project activities at the Colusa-North Tract, the land surface affected by the access road shall be restored as closely as practicable to preconstruction contours and revegetated with native riparian species.

Mitigation Measure #5 – Wetlands

(i) Prior to the initiation of any ground-disturbing activities at the Womble and Colusa-North tracts, a qualified biologist shall identify all features that may exhibit wetland characteristics (i.e., suspected of meeting wetland criteria, including waters subject to US Army Corps of Engineers (USACE) jurisdiction, as well as other waters not subject to USACE jurisdiction but subject to the jurisdiction of the Regional Water Quality Control Board (RWQCB)). These features plus an appropriate protective buffer shall be flagged or fenced prior to the start of start of site preparation, irrigation system installation, or other ground disturbance.

(ii) Mechanized equipment operation in and within 100 feet of identified features shall be avoided to the extent practicable. If avoidance of discharge of dredged or fill material is not practicable, the following measures shall be implemented.

- Conduct a wetland delineation pursuant to USACE requirements to determine the nature and extent of "waters of the United States" that are subject to restoration activities within the Womble and Colusa-North tracts.
- Prior to any discharge of dredged or fill material into "waters of the United States," including wetlands, authorization under a Nationwide Permit or Individual Permit shall be obtained from the USACE. For fill requiring a USACE permit, water quality certification shall be obtained from the RWQCB prior to discharge of dredged or fill material.
- Prior to any activities that would obstruct the flow of or alter the bed, channel, or bank of any intermittent or ephemeral creeks, notification of streambed alteration shall be submitted to the CDFG, and, if required, a Streambed Alteration Agreement shall be obtained.
- Construction activities that would have an impact on "waters of the United States" shall be conducted during the dry season to the extent practicable to minimize erosion.
- All measures contained in permits or associated with agency approvals shall be implemented.

Cultural Resources

Mitigation Measure #6 – Construction Worker Training and Inadvertent Discoveries

Prior to initiation of construction or ground-disturbing activities, TNC shall provide worker awareness training and informational materials to all construction workers regarding the possibility of discovering prehistoric or historic cultural resource materials. Personnel shall be instructed that if materials are encountered that may represent archaeological material, work within 50 feet of the find shall be halted and a professional archaeologist shall be consulted. Once the find has been identified, TNC's project archaeologist will make the necessary plans for treatment of the cultural resources and for the evaluation and resolution of any adverse effect to such properties pursuant to the NHPA and CEQA. Work may continue on other parts of the proposed Project while mitigation for historical or unique archaeological resources takes place.

Mitigation Measure #7 – Protection of Known Cultural Site

A professional archaeologist shall be present during ground-disturbing activities on the one tract (identified in the confidential cultural resources investigation) where cultural materials are suspected. The archaeologist shall have authority to stop work if needed. If potentially significant cultural materials are detected, all work shall halt within a 100-foot radius of the find until clearance is provided by the archaeologist. The Department, in consultation with TNC's project archaeologist, shall determine the need for additional cultural resources monitoring in areas removed from the identified feature.

Mitigation Measure #8 – Monitor for Known Cultural Site

An experienced Native American monitor, representing a local group such as the Cortina Band of Indians (Cortina Indian Rancheria, Wintun Tribe) shall be present during ground-breaking activities on the one tract (identified in the confidential cultural resources investigation). In the event of the inadvertent discovery of human remains, the monitor will facilitate Native American consultation, but will not replace the required protocol outlined in Mitigation Measure CR-4, below. The Department, in consultation with TNC's project archaeologist, shall determine the need for additional cultural resources monitoring in areas removed from the identified feature.

Mitigation Measure #9 – Inadvertent Discovery of Remains

If human remains are encountered during construction, work in the affected portion of the Project shall stop and the County Coroner's Office shall be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by Public Resources Code, Section 5097. The NAHC will notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains.

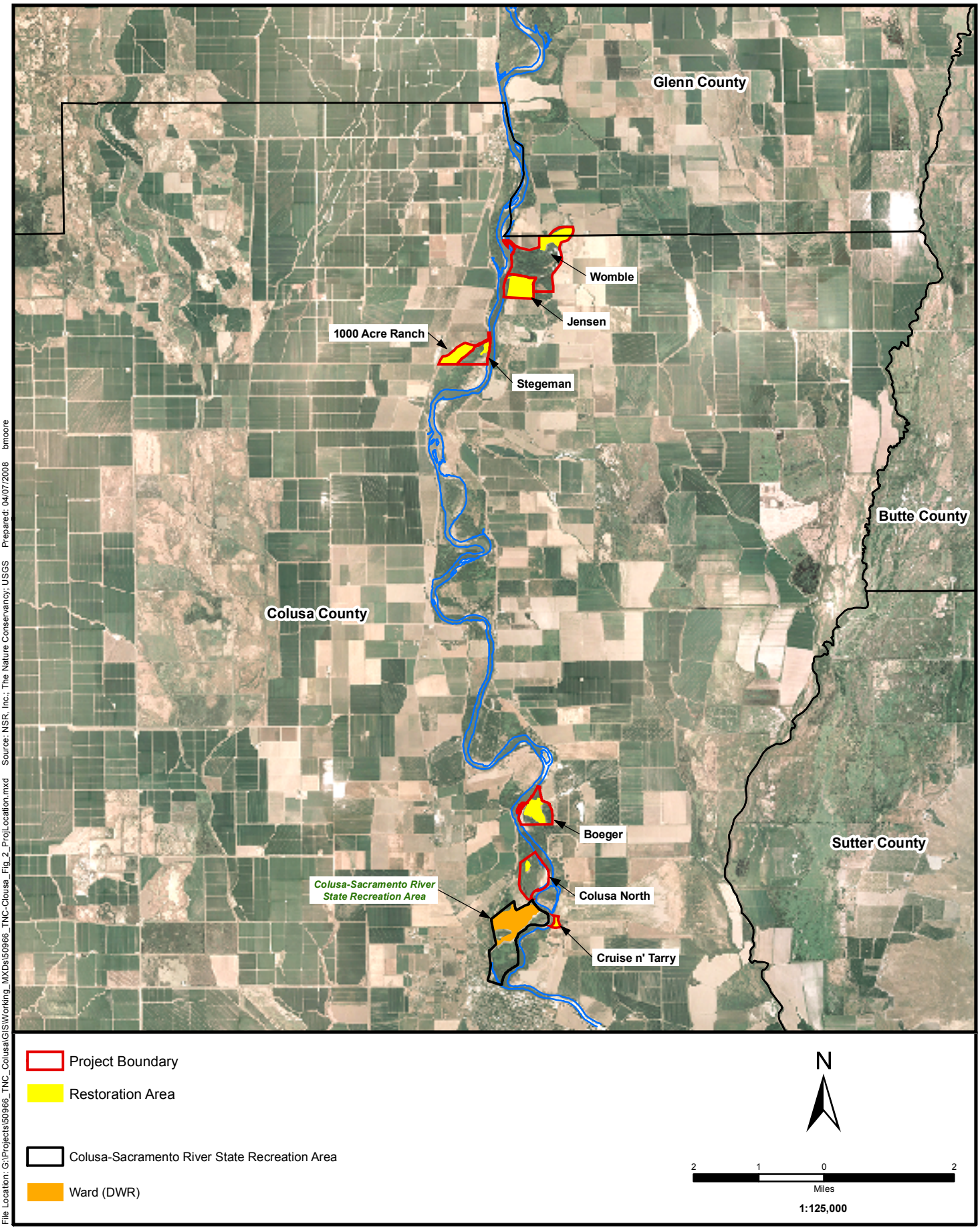
***PUBLIC REVIEW PERIOD*:** The Notice of Intent to Adopt a Mitigated Negative Declaration, the Initial Study[1], and supporting documents were made available for review during an extended public review period from May 22, 2008, to July 31, 2008. The documents were also made available on the Internet at www.sacramentoriver.org/ during this public review period. Additional copies are available from the Department and TNC.

***FINDINGS*:** This Mitigated Negative Declaration and supporting documentation reflect the independent judgment of the Department as lead agency for this Project. In light of the whole record before the Department, including the Initial Study, supporting documents, and incorporated mitigation measures, the Department finds that there is no substantial evidence that the Colusa Subreach Wildlife Habitat Restoration Project will have a significant effect on the environment within the meaning of CEQA. Therefore, the Department has determined that preparation of an Environmental Impact Report (EIR) is not required, and the Department has adopted this Mitigated Negative Declaration for implementation of the Project.

Kent Smith
California Department of Fish and Game
Region 2 – North Central Region

Date 8/24/08

1 *Evaluation of Environmental Effects Associated with Wildlife Habitat Restoration on Seven Tracts along the Sacramento River between Colusa and Princeton – CEQA Initial Study for the Colusa Subreach Wildlife Habitat Restoration Project.* Prepared by North State Resources, Inc. for the California Department of Fish and Game and The Nature Conservancy. May 2008.



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North State Resources, Inc.

Colusa Subreach Wildlife Habitat Restoration Project

Figure 1
Project Location

Evaluation of Environmental Effects Associated with Wildlife Habitat Restoration on Seven Tracts along the Sacramento River between Colusa and Princeton

CEQA Initial Study for the Colusa Subreach Wildlife Habitat Restoration Project

SCH No. 2008052098

August 2008

Prepared for:

State of California
Department of Fish and Game
Region 2–North Central Region
1701 Nimbus Road
Rancho Cordova, CA 95670

The Nature Conservancy
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Evaluation of Environmental Effects Associated with Wildlife Habitat Restoration on Seven Tracts along the Sacramento River between Colusa and Princeton

CEQA Initial Study for the Colusa Subreach Wildlife Habitat Restoration Project

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Evaluation of Environmental Effects Associated with Wildlife Habitat Restoration on Seven Tracts along the Sacramento River between Colusa and Princeton

CEQA Initial Study for the
Colusa Subreach Wildlife Habitat Restoration Project

SUMMARY

This document assesses the potential environmental effects and discusses environmental issues associated with wildlife habitat restoration activities at seven non-contiguous tracts along a 21-mile reach of the Sacramento River between the unincorporated community of Princeton and the City of Colusa, California (proposed Project), along a river corridor identified as the "Colusa Subreach." The restoration activities are proposed through a planning and stakeholder involvement program called Colusa Subreach Planning (CSP), which is funded by a grant from the California Bay-Delta Program (CALFED). The Nature Conservancy (TNC) is conducting the Project in association with the Sacramento River Conservation Area Forum (SRCAF) and other partners and stakeholders.

This document serves as the Initial Study for the project under the California Environmental Quality Act (CEQA). It also provides "expanded" information on the background of the CSP program and a number of critical issues known to be of concern to landowners and other stakeholders. This expanded initial study is supported by a number of other technical reports and studies, prepared under the CSP program, including baseline reports for each restoration tract, a study of fiscal and economic impact analysis of habitat restoration at all of the tracts proposed for restoration under the CSP program, a pest and regulatory effects study, and a Colusa Subreach recreation access plan.

Proposed Project

TNC and Project partners proposed to restore approximately 251 acres of wildlife habitat on portions of seven tracts within the levees of the Sacramento River between Princeton and Colusa. The seven restoration tracts from north to south are identified as Womble, Jensen, Stegeman, 1000-Acre Ranch, Boeger, Colusa-North, and Cruise n' Tarry. Except for the northern portion of the Womble Tract, which is located in Glenn County, the proposed restoration sites are located in Colusa County. Three of these properties currently owned by TNC are proposed to be acquired by the State of California. The restored tracts would be managed for long-term conservation and public recreation purposes.

The proposed Project would convert the existing land cover to native plants and wildlife habitats. Proposed activities include removal of non-native vegetation, including orchards; site preparation, including land surface treatment with mechanized equipment; installation of irrigation systems and use

of surface water or groundwater supplies; planting of native trees, shrubs, and grasses; interim irrigation of plants as they become established; construction of minor public access improvements, such as parking areas, signage, and information kiosks; and long-term maintenance and weed control. Additional information, included details of proposed planting plans, is provided in Section 4 and Appendix A.

Evaluation of Environmental Impacts

The conversion of 251 acres from former or existing orchards and fields to native vegetation and wildlife habitat on seven sites along the Colusa Subreach of the Sacramento River would result in primarily beneficial effects to the environment, particularly in the long term. No "potentially significant impacts" under CEQA were identified.

In two resource areas, biological resources and cultural resources, impacts were indentified for which mitigation was specified. The proposed Project involves ground-disturbing activities that would be limited in extent and duration and commonly occur in rural areas in regional proximity to agricultural operations. In preparing the active restoration sites, developing an access road, installing irrigation systems, and other activities, complete avoidance of all impacts would not be possible. In terms of biological resources, mitigation measures were specified to protect the Valley Elderberry Longhorn Beetle, nesting raptors and migratory birds, bats, existing riparian habitat, and wetlands. In terms of cultural resources, mitigation measures were specified for inadvertent discoveries of resources or remains and for protection of one known resource site at one of the restoration tracts.

Determinations of "less than significant impacts" and "no impacts" were made under CEQA in the areas of aesthetics, agriculture resources, air quality, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems. No mitigation was required for these resource areas.

Summary of Findings

The proposed Project does not threaten to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. This initial study finds that, overall, these resources would be protected and enhanced by the proposed Project.

The effects of the proposed Project are generally limited in all areas. In several areas, the Project may contribute an additional increment to cumulative environmental effects. The permanent conversion of agricultural land to non-agricultural uses is an ongoing adverse trend in the State of California; however, the Project's effects would not be irreversible. The lands are located in a designated floodway, and the total acreage is relatively small within the County agricultural land base. Construction equipment and activities would generate emissions and particulate matter in air basin that is already impacted; these emissions include greenhouse gasses that contribute to climate change. However, these effects would be short-term and would be reduced by best management practices.

Similarly, potential erosion of exposed soils and sedimentation of surface waters is a possible cumulative effects concern; however, the proposed active restoration sites are for the most part located at some distance from the river channel, with intervening vegetated lands, and after the planted native vegetation is established, the restored sites would typically be less prone to erosion. The Project also incorporates best management practices for reducing erosion and sedimentation. Re-establishing native vegetation (and, in hydraulic terms, modifying the "roughness") at the seven restoration sites has implications for flood flow velocity changes and possible erosion or deposition in the floodway. Such concerns were examined in detail in a separate hydraulic analysis and found to be less than significant, both individually as well as cumulatively. Therefore, this initial study finds that the environmental effects associated with the Colusa Subreach Project are individually limited and not cumulatively considerable.

The proposed Project would not be associated with any activities that conceivably could have direct or indirect adverse effects on human beings. The Project would not result in, or indirectly promote, people residing in the floodplain, nor would existing communities be disrupted, nor would the Project create substantial new demands on services or utilities. Therefore, the Colusa Subreach Project would not be associated with substantial adverse effects on human beings, either directly or indirectly.

Additional Project Information

Lead Agency Name and Address:

California Department of Fish and Game
Region 2 – North Central Region
1701 Nimbus Road
Rancho Cordova, CA 95670

Contact Person and Phone Number:

Kent Smith
(916) 358-2883

Project Sponsor's Name and Address:

The Nature Conservancy
Northern Central Valley Office
500 Main Street
Chico, CA 95928

Contact Person and Phone Number:

Gregg Werner, Project Director
(530) 897-6370 ext. 216

Other Public Agencies Whose Approval Is or May Be Required

- Approval by the Wildlife Conservation Board or another state agency of the transfer of three of the tracts now owned by TNC;
- Authorization of state funding for the restoration of riparian habitat on the seven tracts by the Wildlife Conservation Board or another state agency;
- Approval of encroachment permits by the Central Valley Flood Protection Board for restoration of habitat within the Sacramento River floodway;
- Coordination with the County of Colusa regarding the continuation or cancellation of a Williamson Act contract on one tract;
- Other discretionary approvals as may be needed as part of the permit and approval processes for various Project elements, including, if required, U.S. Army Corps of Engineers (Clean Water Act Section 404 nationwide permit); Central Valley Regional

Water Quality Control Board (Clean Water Act Section 401 and 402 permits/certification).

Public Review Process

This expanded initial study is being made available to public agencies, stakeholders, landowners, organizations, and other interested parties for a period of 30 days. The review period begins on May 22 and ends on June 22, 2008. As lead agency, the Department of Fish and Game, proposes to adopt a Mitigated Negative Declaration, based on this initial study. Public notice of this intent has been given as required under CEQA; a copy of the notice is included with this document.

At the end of the 30-day public review period and prior to making decisions on the proposed Project, the Department will consider the proposed Mitigated Negative Declaration together with any comments received during the public review process and, if appropriate, adopt the Mitigated Negative Declaration (CEQA Guidelines, Section 15074).

After deciding to carry out or approve a project, the Department will file a Notice of Determination with the State Clearinghouse (SCH), Office of Planning and Research. The filing of the Notice of Determination with SCH starts a 30-day statute of limitations on court challenges to approval under CEQA (CEQA Guidelines, Section 15075). Copies of the notices and other project documents are available from the Department or from TNC through the contacts listed above.

SECTION 1: INTRODUCTION

Wildlife habitat restoration activities are proposed by The Nature Conservancy (TNC) at seven non-contiguous tracts along a 21-mile reach of the Sacramento River between the unincorporated community of Princeton and the City of Colusa, California (proposed Project), along a river corridor identified as the "Colusa Subreach." The Colusa Subreach is primarily located in Colusa County, with a small area on the north end in Glenn County (Figure 1). The seven restoration tracts from north to south are identified as Womble, Jensen, Stegeman, 1000-Acre Ranch, Boeger, Colusa-North, and Cruise n' Tarry. The restoration activities are proposed as part of a planning and stakeholder involvement program called Colusa Subreach Planning (CSP), which is funded by a grant from the California Bay-Delta Program (CALFED).

This document provides information about the environmental issues and potential environmental effects associated with the proposed Project. Because the restoration activities would require approvals from state agencies for actions that may have an effect on the physical environment, compliance with the procedural and documentation requirements of the California Environmental Quality Act (CEQA)[1] and the Guidelines for Implementing CEQA (CEQA Guidelines)[2] is required.

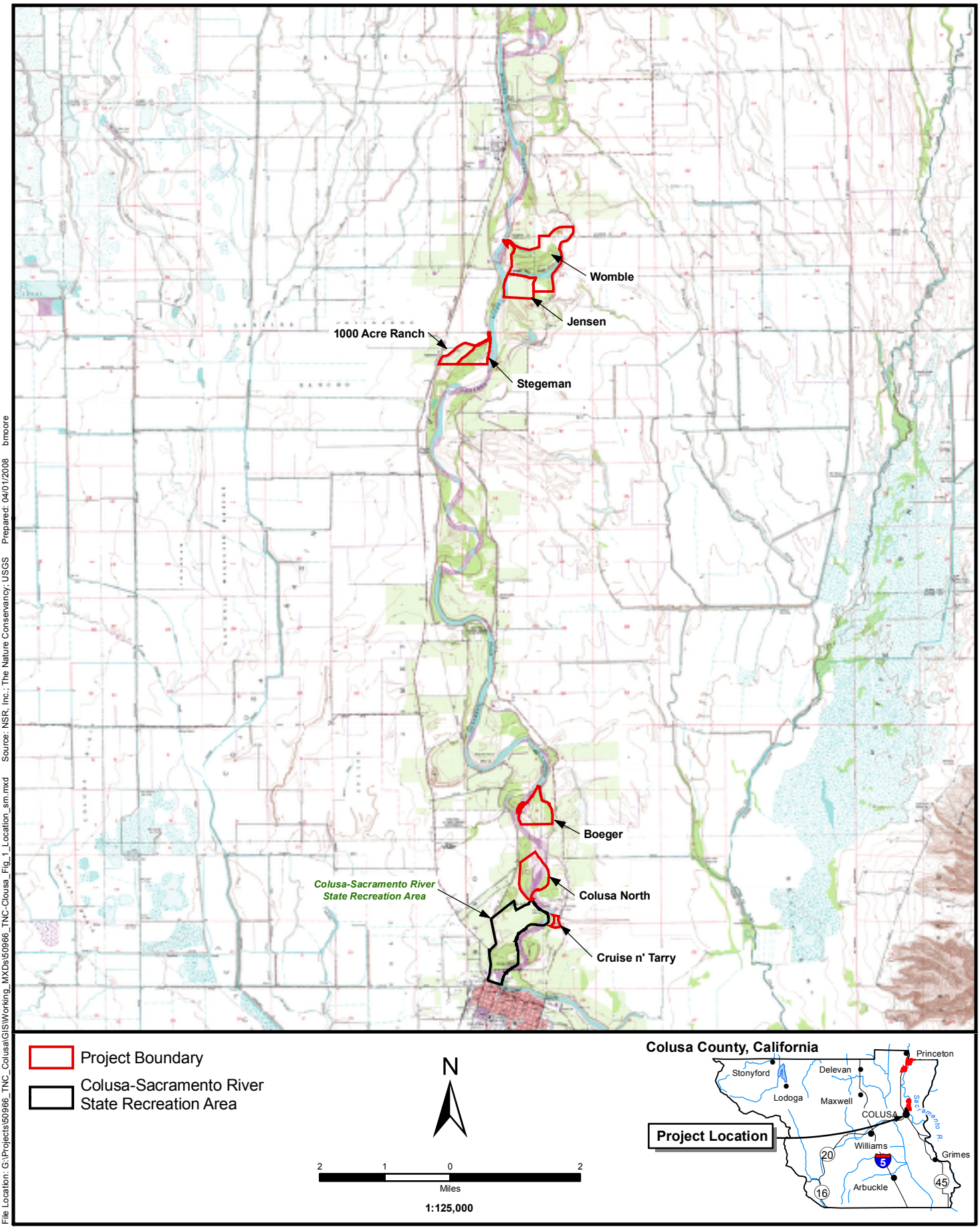
1.1 Purposes and Uses of This Document

This document serves as the CEQA Initial Study for the proposed Project. In order to explain this Project more thoroughly to decision makers, stakeholders, other agencies, and interested members of the public, this document is "expanded" from the traditional Initial Study format to provide additional information on the background of the proposed Project, the proposed restoration activities, and the substantive issues known to be of concern to agencies and stakeholders.

The lead agency under CEQA is the California Department of Fish and Game (CDFG). The State Reclamation Board, Wildlife Conservation Board, and Central Valley Water Quality Control Board (CVWQCB) are responsible agencies. Discretionary approvals requiring CEQA review that are anticipated to be required prior to Project implementation include the following:

- approval of habitat restoration plans by CDFG;
- transfer of three of the tracts now owned by TNC to the Wildlife Conservation Board or another state agency prior to the commencement of restoration activities;
- authorization of state funding for the restoration of riparian habitat on the seven tracts by the Wildlife Conservation Board or another state agency;
- approval of encroachment permits by the Central Valley Flood Protection Board for restoration of habitat within the Sacramento River floodway;
- other discretionary approvals as may be needed as part of the permit and approval processes for various Project elements.

[1] California Public Resources Code Section 21000—21178.
[2] California Code of Regulations, Title 14, Chapter 3, Sections 15000—15387.



North State Resources, Inc.

Colusa Subreach Wildlife Habitat Restoration Project

Figure 1
Regional Location Map

1.2 Organization

This document is organized into eight sections: Section 2, which follows this introduction, provides an overview of CSP activities and goals, a description of the planning area, and the roles of Project partners, land management agencies, and other participants. This section also describes the public outreach and stakeholder participation activities conducted by TNC and its partner organization, the Sacramento River Conservation Area Forum (SRCAF).

Section 3 describes the existing environmental conditions along the Colusa Subreach and at the seven individual restoration tracts. Section 4 describes the proposed Project, including the Project objectives and the restoration techniques and activities and the proposed plant composition common to all seven tracts.

Section 5 provides an analysis of the potential environmental impacts of the proposed Project in the form of an "Environmental Checklist" (Appendix G of the CEQA Guidelines). This section also includes mitigation measures that would avoid or reduce the potentially significant impacts of the proposed Project. In addition, Section 5 provides the mandatory findings of significance required under CEQA.

Section 6 provides the lead agency's determination that the appropriate level of environmental documentation will be a mitigated negative declaration. Section 7 identifies the preparers of this document. Section 8 provides full citations for the references cited in this document.

The document includes five appendices. Appendix A provides additional, more detailed information regarding the proposed planting plans at each of the seven restoration tracts. Appendix B provides supplemental information regarding biological resources. Appendix C provides a copy of the letter and additional documentation from the State Clearinghouse regarding the review of the document by state agencies, as well as a copy of the one comment letter received. Appendix D provides a copy of the Notice of Determination, and Appendix E is the Mitigation Monitoring and Reporting Program.

SECTION 2: BACKGROUND

2.1 Colusa Subreach Planning Overview

CSP is a program conducted by TNC, SRCAF, and other partners to develop a strategy for ecosystem restoration in the Colusa Subreach. In 2004, TNC received a 3-year grant from CALFED to fund the CSP program. The grant supports planning for habitat restoration along the Colusa Subreach, including the preparation of this environmental document; it does not include funding for the actual restoration activities.

Tasks conducted under CSP include coordination and outreach, baseline assessments of proposed restoration tracts, hydraulic modeling, preparation of focused plans and studies, responding to landowner questions and concerns, developing restoration strategies, and compliance with CEQA. An Advisory Workgroup composed of local and agency stakeholders identified the principal questions and concerns of local landowners and selected research and planning projects to address these topics.

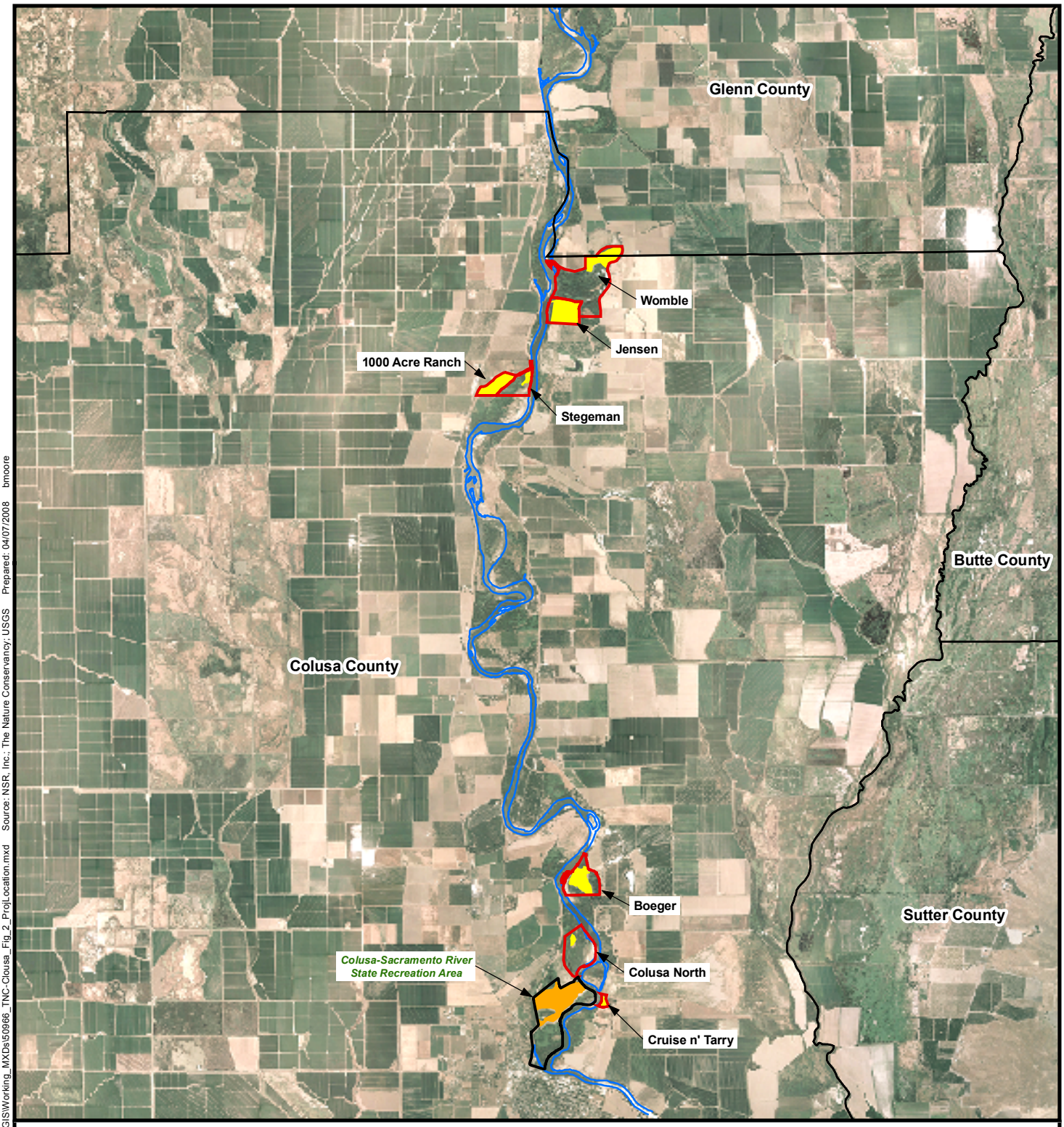
The overall goal of the proposed habitat restoration is to restore the ability of the Colusa Subreach to support native wildlife, including species listed under the state and federal endangered species acts and other special-status species. The habitat restoration activities will be integrated with other critical functions along the Sacramento River, including flood management, agricultural operations, water supply conveyance, and recreation. Stakeholder involvement is an essential component of the CSP program with a focus on the landowners that adjoin restoration tracts and would be most directly affected.

2.2 Planning Area Description

The Colusa Subreach planning area includes the flood protection levees and the land located inside the levees from River Mile (RM) 164.5 on the north downstream to RM 143.5 on the south. The northern boundary of the planning area is the site of the former Princeton Ferry, and the southern boundary is the Colusa Bridge. The Sacramento River Flood Protection System is designed to limit river-related flood damage by restricting "design" flows to the area inside the levees.

The subreach area totals approximately 5,466 acres, of which approximately 5,094 acres are located in Colusa County and 372 acres are located in Glenn County. Figure 2 depicts the CSP area on a 2006 aerial photo. Approximately 55 percent of the land provides wildlife habitat, and 43 percent is used for agriculture (EDAW 2007a). Small areas are used for recreation, flood control, and water supply facilities. Agricultural lands along the river are an important part of the local agricultural economy in Colusa County and Glenn County. Areas inside of the levees are planted primarily with orchards and field crops, while rice tends to dominate in the areas further away from the river.

Within the planning area, eight tracts were identified for restoration at the beginning of CSP in 2004. The seven restoration tracts that are addressed in this document are identified, from north to south, as Womble, Jensen, Stegeman, 1000-Acre Ranch, Boeger, Colusa-North, and Cruise n' Tarry. The



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North State Resources, Inc.

Colusa Subreach Wildlife Habitat Restoration Project

Figure 2
Project Location

eighth restoration site, the Ward Tract, was included in Colusa Subreach Planning but is not included in this assessment. The Ward Tract is the northerly 238 acres of the Colusa-Sacramento River State Recreation Area. The California Department of Water Resources (DWR) has proposed to restore 139 acres of the tract to native riparian habitat as mitigation for the loss of riparian vegetation as part of the Tisdale Bypass Sediment Removal Project. That restoration is proposed to be initiated in 2009, in advance of the other restoration tracts. The Ward Tract restoration project was the subject of a separate CEQA review, which was certified in 2007 by DWR. An encroachment permit for that restoration was also approved by the Central Valley Flood Protection Board in December 2007.

The Colusa Subreach corridor is an ecologically rich mosaic of aquatic habitat, oxbow lakes, sloughs, seasonal wetlands, and riparian forests within the most diverse and extensive river ecosystem in California (The Nature Conservancy 2005). The river and riparian environment support numerous wildlife species, including a number of special-status species, critical breeding areas for neo-tropical migrant birds, and one of the largest populations of anadromous fish in California. The river and its adjoining areas also support activities that contribute to the agricultural economy and provide important recreational opportunities to local residents and visitors (The Nature Conservancy 2005). The Sacramento River is the largest source of water in California, and its health is important to the economic and environmental well-being of the state.

The Sacramento River has been greatly altered by the flood control system, land reclamation, water supply and delivery improvements, and other human activities. Historically, 500,000 acres of riparian forests occupied the Sacramento River floodplain (North State Resources, Inc. 2005), with valley oak woodland covering the higher river terraces. The harvesting of trees for lumber and fuel, particularly as cordwood for steamboats during the 1800s, reduced the extent of the riparian forests in the Sacramento Valley. Since then, urbanization and agricultural conversion have been the primary reasons for the loss of riparian habitat. Water development and reclamation projects, including channelization, dam and levee construction, bank protection, and streamflow regulation, have altered the riparian corridor and have also contributed to vegetation loss (North State Resources, Inc. 2005).

Changes to the Sacramento River ecosystem, including the loss of riparian habitat, have adversely affected wildlife species, including species listed as threatened or endangered under the state and federal endangered species acts. At present, special-status species affected by the loss of riparian habitat include 43 different fish, raptors, songbirds, and other animals.

2.3 Project Partners and Participants

2.3.1 California Bay-Delta Program

CALFED, a joint state and federal program, was established to reduce conflicts over California's limited water supplies and to address water supply reliability, water quality, levee system integrity, and ecosystem restoration. The California Bay-Delta Authority manages the program, overseeing 25 state and federal agencies working cooperatively through the CALFED program to improve the quality and reliability of California's water supplies while restoring the Bay-Delta ecosystem. The California Bay-Delta Act of 2003 established CALFED and charged it with providing accountability; ensuring balanced implementation, tracking, and assessment of program progress; using sound

science; ensuring public involvement and outreach; and coordinating and integrating related government programs.

In August 2000, CALFED issued a Record of Decision that set forth a 30-year plan to address ecosystem health and water supply reliability problems in the Bay-Delta watershed. The document laid out specific actions and investments over the first 7 years to meet program goals. It also described a strategy for implementing the plan and identified complementary actions to be pursued by the CALFED agencies. Included within that strategy are plans to restore the ecosystem of the Sacramento River. The *Ecosystem Restoration Program Plan. Volume II: Ecosystem Management Zone Visions* (California Bay-Delta Program 2000) details the actions that have been identified to achieve ecosystem restoration for the Sacramento River, including along the Colusa Subreach.

2.3.2 Sacramento River Conservation Area Forum

SRCAF, a non-profit corporation, is TNC's partner in implementing the CSP. The SRCAF adopted the following mission statement in 2004:

> The Sacramento River Conservation Area Forum brings communities, individuals, organizations and agencies together along the Sacramento River from Keswick to Verona to make resource management and restoration efforts more effective and sensitive to the needs of local communities. The Forum supports restoration done well, and serves as a forum for sharing, a facilitator of solutions, and a partner for projects that protect both the natural values of the Sacramento River and the communities it runs through.

The Sacramento River Conservation Area (SRCA) extends along 222 miles of the Sacramento River from its confluence with the Feather River near Verona to Keswick Dam just north of Redding. The SRCA includes land in Shasta, Tehama, Butte, Glenn, Colusa, Sutter, and Yolo counties. The Colusa Subreach lies in the lower half of the SRCA and includes land in both Colusa and Glenn counties.

The SRCA is a product of the effort initiated through State Senate Bill 1086, enacted in 1986. That legislation created the Sacramento River Advisory Council that completed the *Upper Sacramento River Fisheries and Riparian Habitat Management Plan* (Sacramento River Advisory Council 1989). The Riparian Habitat Committee of the Advisory Council also conducted an extensive public process that resulted in the completion of the *Sacramento River Conservation Area Forum Handbook* (Sacramento River Conservation Area Forum 2003). The handbook established the goal, basic principles, and management guidelines for the SRCAF. The handbook was developed as the basis for interagency cooperation and agreement on programs within the SCRA.

The handbook specifies the following overall goal for the SCRAF:

> Preserve remaining riparian habitat and reestablish a continuous riparian ecosystem along the Sacramento River between Redding and Chico and reestablish riparian vegetation along the river from Chico to Verona.

The handbook provides a detailed discussion of the dynamic river processes and the resulting habitat communities in the SRCA. It is available online at the SRCAF website[3] and should be consulted for additional information regarding the SRCAF. Consistency with the goal and principles of the handbook was also chosen as the review standard for CSP products when the proposed Project was first conceived in 2001.

2.3.3 The Nature Conservancy

The Nature Conservancy (TNC) is an incorporated, nonprofit conservation organization that has been active since 1951 in conservation activities nationally and internationally.[4] TNC has a 20-year history of promoting and conducting science-based habitat conservation and restoration efforts along the Sacramento River and in other parts of California. The Nature Conservancy's mission is "to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive."

The Sacramento River corridor has been identified by TNC, as well as by many other private, academic, and public entities, as an unusually diverse ecosystem that provides valuable habitat for plants and animals, including humans. TNC's approach to conservation along the Sacramento River is designed to accommodate both the human uses of the river, such as for agricultural water supply and recreation, as well as the natural resource benefits provided by the river.

TNC is one of many entities working to restore the Sacramento River ecosystem. The organization works in partnership with landowners, SRCAF, other local organizations, and local, state, and federal government agencies to implement conservation strategies in several key ways, including:

- developing the best available scientific information to help guide conservation,
- planning for habitat management and restoration in concert with stakeholders,
- acquiring land for conservation only from willing sellers,
- restoring native riparian habitat using local agricultural contractors, and
- preserving and restoring natural river processes.

Working with the SRCAF, TNC has developed subreach planning as a tool for involving local interests and other stakeholders in the planning of conservation actions along the Sacramento River. The overall CSP effort is managed from the TNC's Northern Central Valley Office in Chico, California.[5]

2.4 Public Outreach and Stakeholder Participation

Stakeholder participation is an essential element of TNC's approach to ecological restoration along the Colusa Subreach. Stakeholders were identified as landowners owning properties adjacent to the proposed restoration tracts, other local landowners, business interests, local government officials, the interested public, and federal and state land management agencies.

[3] The SRCAF website is *www.sacramentoriver.org*.
[4] The TNC website is http://www.nature.org/
[5] Further information regarding TNC is available online at www.tnc.org

TNC has partnered with SRCAF to conduct a comprehensive public outreach process as part of the CSP. Outreach to landowners and other stakeholders includes forming an Advisory Workgroup, holding public meetings and workshops, publishing a newsletter, creating a CSP website, and conducting a survey of landowners. These outreach forums are described in the following sections.

Advisory Workgroup. An Advisory Workgroup was formed that includes representatives of TNC, the SRCAF, local landowners and business interests, and local, state, and federal agencies. Outreach conducted by the Advisory Workgroup sought to build trust and relationships among Project participants, identify and address concerns of area landowners and other local interests, develop a shared understanding of pertinent information, and generate agreement about the form of restoration and related uses within the Colusa Subreach. Members of the Advisory Workgroup are listed on CSP's website. The original 21 members of the Advisory Workgroup began meeting in November of 2004 and held twelve meetings, identifying landowner questions and concerns and selecting planning and research projects. In February of 2006, eight members resigned from the Advisory Workgroup. Thereafter, the Workgroup continued to direct the planning process in its smaller form.

Public Meetings and Workshops. CSP has held a series of public meetings to allow members of the public to provide input regarding the CSP process. These meetings included the following:

- an initial public information meeting in February 2005;
- a subreach tour workshop in March 2005;
- three recreation planning workshops in May, August and December 2006;
- a public information meeting on hydraulic analysis in November 2007;
- 22 Advisory Workgroup meetings for Project update and direction; and
- six subgroup meetings on hydraulic analysis and pest and regulatory effects.

Newsletter. CSP has published an annual newsletter, the *Colusa Subreach News*, since February 2005. The newsletter has kept stakeholders informed about the CSP process, opportunities for public input, and studies being performed to address stakeholder concerns.

CSP Website. A CSP website was established as part of the SRCAF website at *www.sacramentoriver.org/SRCAF/index.php.* The CSP website provides information about CSP, pertinent documents, and notices of public involvement opportunities.

Landowner Survey. The SRCAF and TNC contracted with the Institute for Social Research, California State University, Sacramento, to conduct a telephone survey of landowners in the Colusa Subreach concerning their awareness of and attitudes toward CSP, the SRCAF, and agencies involved in planning for the wildlife habitat restoration activities along the Colusa Subreach. The survey also solicited landowners' opinions and attitudes concerning the possible effects of the restoration activities on adjacent lands. Complete findings from the survey are compiled in *Colusa Subreach Planning Project Landowner Survey* (Jones 2005), which is available on CSP's website. A follow-up survey is scheduled for completion in May 2008, with a findings report anticipated in June 2008.

2.4.1 Stakeholder Concerns

Through a variety of means, including public meetings, meetings of the Advisory Workgroup, and the landowner survey, the Advisory Workgroup identified the primary concerns of stakeholders concerning the proposed habitat restoration activities along the Colusa Subreach. In response to some of these concerns, studies were conducted through the CSP program to provide more information about the topic and to determine solutions when possible. Some of the stakeholder concerns overlap with environmental issues under CEQA and are further addressed in Sections 4 and 5 of this document. The primary stakeholder concerns and TNC's efforts to address these concerns are described in the following paragraphs.

Effects of Pest Species on Crops

Agricultural interests expressed concern that the restored habitat would lead to increased populations of deer, rodents, and insects that could forage in and cause damage to their crops.

To address this issue, TNC contracted with an environmental consulting firm to prepare the *Pest and Regulatory Effects Study* (EDAW 2008). This study addresses two of the primary concerns expressed by stakeholders: effects of pest species on crops and the potential for adjacent landowners to be subject to additional regulatory requirements related to threatened and endangered species. The study's conclusions regarding regulatory requirements are described below under "Additional Regulatory Requirements."

The study concludes that "riparian habitat restoration proposed in the Colusa Subreach is likely to provide both benefits and some minimal risk in pest effect changes compared to existing conditions." The study points out that 55 percent of the subreach already consists of riparian habitat and that the proposed restoration of an additional 7 percent is unlikely to result in a substantial change in pest populations and effects. It further concludes that there could be an overall decrease in pest effects from existing conditions because riparian habitat does not support most agricultural pests. The study acknowledges, however, that there is limited information available concerning the ecology of pest species in relation to riparian habitat uses and influences.

The study examined 25 species identified by the Advisory Workgroup and an external experts group as high or medium priority, concluding that short-term increases in pest effects on adjacent or nearby lands are likely for four of these species: California ground squirrel, western gray squirrel, California vole, and lygus bug (western tarnish). The study concludes, however, that none of these species are likely to lead to increased predation over the long term because mature riparian vegetation will not provide habitat for substantial populations of these species.

The study concludes that the pest effects of 11 of the high- and medium-priority species—mule deer, black-tailed jackrabbit, Audubon's cottontail, coyote, American beaver, northern river otter, common muskrat, Brewer's blackbird, European starling, American crow, and brown rot—are likely to remain the same as they currently are. It also concludes that the pest effects of 10 high- and medium-priority species—Botta's pocket gopher, codling moth, navel orangeworm, walnut husk fly, peach twig borer, fruit-tree leafroller, oblique-banded leafroller, omnivorous leafroller, walnut blight, and root and crown rot—are likely to decrease.

The study describes several possible solutions, based on expert information and best available science, to potential increases in pest species populations or in damage to crops caused by pest species. These solutions consist of strategies to prevent increases in pest populations and crop damage and abatement of established pest populations. The prevention strategies include restoration design strategies, biological controls, and adaptive management; the abatement strategies include pesticides, trapping, and shooting. The *Pest and Regulatory Effects Study* is available on the CSP website.

Additional Regulatory Requirements

Agricultural interests expressed concern that restoration of wildlife habitat would lead to increased involvement by state and federal agencies, which could lead to reduced local control of agricultural activities. A specific concern was that agricultural activities could be limited by laws and regulations protecting special-status species.

To address this issue, TNC contracted with an environmental consulting firm to prepare the *Pest and Regulatory Effects Study* (EDAW 2008). The study examined seven federal and eight California laws and regulations that could relate to agricultural operations and 14 special-status species and six protected habitats that have the potential to occur along the Colusa Subreach.

The study concluded that the only potential regulatory constraint on agriculture resulting from riparian habitat restoration along the Colusa Subreach involves the valley elderberry longhorn beetle (VELB), which is listed as threatened under the federal Endangered Species Act. Current protections for the VELB involve restrictions against activities within 100 feet of elderberry shrubs, the host plant for the VELB.

The study states that "because the open canopy types of riparian habitat (e.g., savannah) that are most suitable to the growth of elderberry shrubs constitute only a small percentage of the proposed restoration area and because only a small percentage of the proposed restoration perimeter borders agricultural land, the potential increase in valley elderberry longhorn beetle-related constraints on adjacent agricultural parcels is expected to be small." The restrictions do not apply to elderberries with stems smaller than 1 inch in diameter, which landowners can remove before they reach the size that would afford them protection under the federal Endangered Species Act. The U.S. Fish and Wildlife Service has proposed removing (delisting) the VELB from the endangered species list, although a final decision on delisting could take several years. If the species were delisted, there would be no regulatory constraints on adjacent agricultural lands involving the VELB.

The study examined eight potential solutions for the VELB issue and identified three as being the "most promising":

- maintained buffer zones,
- Programmatic Safe Harbor Agreement as part of the SRCAF Good Neighbor Policy, and
- memoranda of agreement/memoranda of understanding.

The study concludes that "riparian habitat restoration is not expected to increase agricultural regulatory constraints associated with the other 14 regulations, 14 protected species, and 6 protected

habitats analyzed in [the] study." The *Pest and Regulatory Effects Study* is available on the CSP website.

Effects on Local Economy Related to Reductions in Agricultural Operations

Agricultural interests expressed concern that the proposed habitat restoration could entail effects on local economy related to reductions in agricultural uses, including fiscal effects to local government from transfer of land to the state. The concern was also expressed that income from agricultural operations on land adjacent to the restoration tracts would decrease. Agricultural interests also expressed concern that it would become more difficult to lease adjacent agricultural lands and that property values would decrease. Local government representatives expressed concern that taxes paid to local government would decrease as private lands are purchased for public use.

TNC contracted with Economic and Planning Systems, Inc. (EPS) to prepare a fiscal and economic impact analysis of habitat restoration all of the eight tracts proposed for restoration under the CSP program (including the Ward Tract) (Economic and Planning Systems, Inc 2006). Not all tracts, however, were in agricultural use at the time (i.e., Stegeman, Colusa-North, and Cruise n' Tarry), and some tracts were in public ownership (i.e., Womble, Stegeman, Colusa-North, and Cruise n' Tarry); therefore, some tracts did not directly contribute to the identified fiscal and economic effects. The report summarizes its findings as follows:

1. *The overall impacts of the transfer and conversion of the five tracts are relatively small in scale compared to the overall scale of the agricultural industry in both counties and to the size of the Colusa County budget.* The annual economic losses of about $380,000 each year associated with agricultural land conversion, the annual economic gains of about $185,000 associated with increased recreational activities in both counties and the annual loss of $4,800 in property taxes to Colusa County are relatively small. This is not surprising given the total size of the converted portion of the five tracts—389 acres—relative to the acres in agricultural production in the two counties—about 900,000 acres.

2. *The results of the study should be considered in the broader context of the counties' agricultural industries and public finances.* Although the overall impacts of the tracts studied in this analysis are small, the impacts should be considered in light of the existing conditions in the counties' agricultural industries and the counties' public finances as well as the cumulative impacts of conservation efforts. For example, although Colusa and Glenn Counties have experienced real growth in their farm gate production value over the last decade, the agricultural industry faces numerous challenges, including the loss of agricultural land due to rural residential development, urbanization, and conservation.

3. *With the recent lack of funding for the State DFG's Payment in Lieu of Taxes (PILT) program and the lack of any program for filling lost property taxes for DPR [California Department of Parks and Recreation] land, the fiscal impacts on the County from the ownership transfer to the State will continue to be negative.* Recognizing the typically negative fiscal impacts associated with the transfer of ownership from a private party to the state, the PILT program was established in 1965 to compensate affected local governments. Given the lack of other funding available to balance these impacts, such transfers of ownership, including those

evaluated in the analysis, will continue to be fiscally negative from the perspectives of local governments.

The *Fiscal and Economic Analysis* report is available on the CSP website.

Need for Public Recreation Opportunities / Related Effects on Neighboring Lands

The concern was expressed that public lands in the Colusa Subreach should be available to the public for recreation use. Landowners also expressed concern that increased public access to land along the river would lead to increased trespassing on private property and that such trespassing could affect the safety and privacy of area residents. To address this issue along with other issues related to access for recreation along the Colusa Subreach, TNC contracted with EDAW to prepare the *Colusa Subreach Recreation Access Plan*. The purpose was to develop a concept plan for public access and recreation that is compatible with private and public land ownership, existing agricultural practices, and wildlife habitat conservation within the Colusa Subreach.

Three public meetings were held to solicit comments from the public on the draft recreation access plan and to review alternatives for public access. Among the issues raised was the adequacy of resources for managing public recreation in the subreach, including law enforcement personnel such as game wardens and park rangers as well as managers and maintenance personnel. Adequate resources were seen as essential for controlling trespassing, vandalism, and other disruptive activities on adjoining agricultural properties.

In response to the opinion that public agencies that own land in the Colusa Subreach currently lack sufficient law enforcement, site management, and maintenance resources to adequately support additional land access sites, no new land access points were recommended in the access plan. There was general agreement at the second and third public input meetings that a new boat ramp at the site of the former Princeton Ferry is desirable because there is currently no public boat ramp facility between Colusa and Butte City, a distance of 25 river miles. The boat ramp is not part of the proposed Project analyzed in this document. The *Colusa Subreach Recreation Access Plan* is available on the CSP website.

Effects on Hydrologic Conditions and Flood Management

Flooding in the Colusa Subreach was cited as the most important concern of local landowners. Stakeholders expressed concerns that floodway capacity had diminished over time due to sedimentation and aggradation. Stakeholders also expressed concern that habitat restoration could further decrease the protection from flooding provided by the Sacramento River Flood Protection Project. Additional concerns included the potential for increased seepage through levees as a result of restoration and the impact of large woody debris (LWD) on flood flow levels.

To address these issues, Ayres Associates was retained to perform a detailed hydraulic analysis of the existing floodplain capacity in the Colusa Subreach and the effects of proposed restoration of riparian habitat within the floodway (Ayers Associates 2008). Two-dimensional hydraulic modeling was conducted of the entire Colusa Subreach from RM 142.5 to 164.5 (Colusa to Princeton), as requested by the Advisory Workgroup, to allow consideration of cumulative effects. The modeling tool used was a modified version of USACE's RMA-2V model, which has been used for similar projects on the

Sacramento River, including the Ward Tract within the Colusa Subreach. The procedures and results were peer-reviewed by DWR and other professional hydrologists.

The focus of the modeling analysis was to provide specific information regarding the capacity of the floodplain within the Colusa Subreach and to assess the potential effects of restoring native wildlife habitat within the 100-year floodplain between the levees. The model was used to compare the 1995 high flow and the 1957 Design Flow with the water surface profiles of the proposed tracts after restoration. The assessment incorporated four model runs in order to characterize the baseline conditions and provide an analysis of the restoration Project. These runs included a calibration run, an existing conditions run, a large woody debris run, and a restoration conditions run.

The concern that the flood-carrying capacity of the Sacrament River within the Colusa Subreach has been diminished as a result of aggradation was analyzed using a comparison of available data on the change in the channel over time. On this particular issue, the results proved to be inconclusive as to whether an overall trend of aggradation or degradation could be ascertained within this reach of the river. The study compared available historical data pertaining to channel depth and width. No clear trend could be ascertained from three sets of data pertaining to river depth. In summarizing historic river channel alignments since 1896, the study demonstrated that the river has migrated considerably over the years and is continuing to migrate.

To address the concern that channel capacity has been restricted over time by the accumulation of large woody debris, an inventory of large woody debris was developed for the entire Colusa Subreach through an on-the-water survey; then the hydraulic model was run to determine the effect that the large woody debris had on flood flow elevations. The analysis concluded that large woody debris made a very small contribution to flood flow levels, which ranged from 0 feet to 0.1 feet in the Colusa Subreach. The results were primarily attributed to the small portion of the overall flood flow cross-section occupied by the large woody debris.

Regarding the concern that habitat restoration could further decrease the protection from flooding afforded by the by the Sacramento River Flood Protection Project, the analysis concluded that the proposed habitat restoration would have no substantive effect on the flood levels affecting the levees or adjoining properties. In general, the computed water surface elevations for the proposed restoration sites were at or below either the existing conditions or the 1957 design profile. The exception was at the Jensen tract, where a small area on the downstream edge would be 0.05 feet above existing levels. The increase was confined to the center of the floodplain and did not extend to the levee.

The hydraulic study also concluded that there would be small changes in floodplain velocities on adjacent properties but that these changes would not result in erosion of the levees or neighboring properties. The analysis further determined that the proposed habitat restoration would have no effect on the seepage of floodwaters either through or under the levees.

The Ayres Associates report, *Two-Dimensional Hydraulic Modeling of Riparian Habitat Restoration from Colusa to Princeton: Sacramento River, RM 142.5 to 164.5, Glenn and Colusa Counties, CA,* is available on the TNC website. Environmental impacts related to hydrology and water quality under CEQA are discussed in Section 5.

Increased Mosquito Populations and Increased Incidence of West Nile Virus

Local interests expressed a concern that the restoration of natural vegetation may lead to increased populations of mosquitoes and increased incidence of West Nile virus, a disease transmitted by mosquitoes. It was clarified that no new wetland areas that would provide breeding habitat for mosquitoes are proposed as part of CSP. Also, the application of Central Valley Joint Venture Best Management Practices and coordination with local mosquito abatement agencies are proposed as part of CSP to limit mosquito populations.

Endangered Species Act Requirements

Local landowners indicated that there should be some means to streamline compliance with the state and federal endangered species acts. They also expressed the concern that habitat restoration could increase populations of listed species and thereby increase endangered species restrictions on adjoining agricultural lands.

In response to this concern, the SRCAF initiated development of a Programmatic Safe Harbor Agreement/Voluntary Local Program (PSHA/VLP). The PSHA/VLP is relatively new, voluntary program under federal and state regulations, which can protect private landowners from liability under state and federal endangered species acts in exchange for undertaking restoration and management activities for a specified time period to maintain baseline conditions for listed species. In exchange for voluntary management for endangered species, the agencies will issue incidental "take" permits for normal agricultural practices; participating landowners would be assured that no additional regulatory restrictions would be imposed. The SRCAF has developed the draft PSHA/VLF in conjunction with the U.S. Fish and Wildlife Service (USFWS) and CDFG. Public input and information meetings are planned for the spring of 2008; the final PSHA/VLF is expected to be completed in 2008.

2.5 Ecosystem Approach to Habitat Management

The SRCAF, TNC, CDFG, and other agencies and organizations support an ecosystem approach to restoring and managing riparian habitat along the Sacramento River. The ecosystem approach is directed toward achieving species management objectives by sustaining and enhancing the fundamental ecological structures and processes that contribute to the well being of the communities and species that comprise the ecosystem. The basic objective is to restore and rehabilitate, where feasible, the natural processes that create and sustain the important elements of the ecosystem structure.

The ecosystem approach differs fundamentally from the more traditional approach of single-species management, which seeks to manipulate specific environmental factors thought to limit the populations of target species. An example of single-species management would be the direct removal of predators from an environment to reduce predation levels on a target species.

In the context of the Colusa Subreach (and the entire SRCA), the ecosystem approach seeks to restore and support natural riverine processes and resolve impediments to restoration through the application of the best available scientific information and adaptive management of the habitat. The expectation is that restoration of the natural ecosystem will benefit the broadest range of wildlife, including special-status species, other native species, and game species.

2.6 Habitat Restoration and Management along the Colusa Subreach

Early in the planning process, several components of the ecosystem approach being implemented along various reaches of the Sacramento River were identified for consideration as part of the CSP. These components include:

- Restoration of natural riverine processes. This component would involve restoration of limited river meanders to create and sustain habitat through the natural processes of erosion and deposition.
- Reestablishment of the habitat corridor. This component involves reestablishing a habitat corridor along the river that is large enough and consists of the characteristics needed to support increased populations of wildlife. This objective would be achieved by preserving existing riparian habitat and restoring habitat through either natural recruitment or horticultural planting. Horticultural planting is necessary in higher terrace areas where natural recruitment is less likely.
- Control of nonnative, invasive plant species. Where allowed to proliferate, invasive species can dominate a site, precluding the establishment of the native riparian vegetation that provides valuable habitat for wildlife. Control of nonnative, invasive plant species is an important element in the restoration and maintenance of riparian habitat.

The primary components of the proposed Project include horticultural planting along the Colusa Subreach to achieve large, contiguous areas of riparian habitat and control of nonnative, invasive plant species to allow existing and planted riparian species to thrive. The proposed Project does not include specific actions to effect the restoration of natural riverine processes.

Oxbow lake and riparian habitat along the Colusa Subreach.

SECTION 3: ENVIRONMENTAL SETTING—COLUSA SUBREACH RESTORATION AREAS

The proposed Project involves restoration of seven non-contiguous tracts of land near the Sacramento River between Princeton and Colusa (RM 145.5 to RM 162) (Figure 2). The total area of the seven tracts is approximately 825 acres. Approximately 574 of these acres are occupied by native riparian vegetation and flood protection levees. The remaining 251 acres are proposed to be restored to native riparian vegetation to better support wildlife species that depend on riparian habitat.[6] Table 1 summarizes some of the basic attributes of the seven proposed restoration tracts.

Table 3-1. Summary of Proposed Restoration Tract Attributes

TRACT	TOTAL AREA (ACRES)	RESTORATION AREA (ACRES)	RIVER MILE	RESTORATION AREA EXISTING LAND USE	OWNER
Womble	320	54	RM 162	Agriculture: annual field crops	State/CDFG
Jensen	98	81	RM 161	Agriculture: walnut orchard	TNC[1]
Stegeman	69	8	RM 160	Abandoned orchard	State/CDFG
1000-Acre Ranch	60	49	RM 160	Agriculture: prune orchard	TNC[1]
Boeger	125	51	RM 148	Agriculture: annual field crops	TNC[2]
Colusa-North	143	5	RM 147	Abandoned orchard	State/CDFG
Cruise n' Tarry	10	3	RM 146	Former marina and former orchard	State/DWR
Total Area	825±	251±			

Notes: 1 Lands are adjacent to CDFG property. Future transfer to a state agency is anticipated.
2 Future transfer to a state agency is anticipated.

Source: The Nature Conservancy

The seven tracts addressed in this document are located entirely inside the Sacramento River flood protection levees and below the 100-year floodplain elevation; all are subject to inundation with a frequency of 1 to 5 years. The proposed restoration areas are in most cases on river terraces that have been cleared of riparian vegetation and converted to agricultural crops. Approximately 12 percent of the perimeters of the restoration tracts abut agricultural crops on adjoining ownerships (Table 3-2) (revised from EDAW 2008). There are no residential or urban uses within the restoration tracts.

[6] Acreage totals vary slightly from those cited in some previous Colusa Subreach Planning reports due to GIS refinements that occurred as part of the restoration planning process.

Table 3-2. Proposed Restoration Tracts and Adjoining Land Use Types

			RESTORATION AREA PERIMETER				
TRACT	TOTAL AREA (ACRES)	RESTORATION AREA (ACRES)	ADJOINING CROPLAND (FEET)	ADJOINING LEVEE (FEET)	ADJOINING RIPARIAN (FEET)	PERCENT ADJOINING CROPLAND	RESTORATION AREA DISTANCE FROM RIVER (FEET)
Womble	320	54	1,161	2,095	5,226	13.7%	2,300 to 5,100
Jensen	98	81	2,117	0	5,819	26.7%	200 to 2,400
Stegeman	69	8	0	0	3,044	0	50 to 600
1000-Acre Ranch	60	49	1,255	3,561	2,234	17.8%	1,200 to 3,800
Boeger	125	51	0	231	6,779	0%	50 to 2,000
Colusa-North	143	5	0	0	2,256	0	800 to 1,300
Cruise n' Tarry	10	3	0	538	2,173	0	20 to 500
Total Area	**825±**	**251±**	**4,533**	6,425	27,531	**11.8%**	**20 to 51,00**

Source: The Nature Conservancy

Currently, four of the tracts—Colusa-North, Stegeman, Womble, and Cruise n' Tarry—are publicly owned lands managed by the State of California, and three tracts—Jensen, 1000-Acre Ranch, and Boeger—are owned by TNC. The TNC-owned tracts were purchased from willing sellers to provide habitat for native wildlife species. It is anticipated that these three tracts will be transferred to the Wildlife Conservation Board or another state agency prior to restoration of these tracts. If they are transferred to the Wildlife Conservation Board, they will be managed as part of the Sacramento River Wildlife Area by CDFG.

Public use of the seven tracts would be determined by the public agencies that manage, or will manage, the tracts. Three of the tracts—Womble, Stegeman, and Colusa-North—are part of the Sacramento River Wildlife Area managed by the CDFG and are open to public use. Permitted public uses include hunting, fishing, hiking, wildlife observation, photography, beach activities, and environmental education. It is expected that following restoration, the three tracts anticipated to be managed by CDFG—Jensen, 1000-Acre Ranch, and Boeger—would also be open to public use. The Cruise n' Tarry Tract is currently closed to public use although it has recently been leased to Colusa County. County representatives have indicated that future public use is anticipated

All seven of the tracts are accessible from the river by boat. Two of the tracts—Womble and Cruise n' Tarry—are also accessible from River Road. Because of the limited access and the physical nature of riparian habitats, the intensity and frequency of public use are expected to be low, which would be similar to the public use of other public properties in the Colusa Subreach (EDAW 2007a).

The following subsections describe each tract in the Colusa Subreach, from north to south. Additional information on the tracts is provided in Appendix A, including figures depicting the existing remnant riparian vegetation in the vicinity of each restoration tract.

3.1 Womble Tract

The Womble Tract is located about 1 mile south of Princeton on the east side of the Sacramento River at RM 162 (Section 29, Township (T) 18 North (N), Range (R) 1 West (W)). Access to the tract is from River Road on the east. The 320-acre Womble Tract is owned by the Wildlife Conservation Board and is managed by CDFG. Approximately 54 acres of tilled agricultural row crop land (which includes a small patch of remnant riparian vegetation) are proposed for restoration. The southern part of the tract consists of forested riparian habitat and an oxbow lake that formed after the river channel was cut across Boggs Bend in about 1930 (The Nature Conservancy 2005).

Womble Tract

The restoration area is bounded by forested riparian habitat on the north and south, the levee on the east, and field crop land on the west. The restoration area is inundated in most years; ponding occurs adjacent to the levee annually because the area is lower than the property to the west (The Nature Conservancy 2005). The topography slopes gently to the north and south from the slightly elevated center of the proposed restoration area. The Womble Tract adjoins the Jensen Tract to the southwest.

Eight natural plant communities occur close to the restoration area (see Appendix A): buttonbush scrub, Great Valley cottonwood riparian forest, elderberry blackberry scrub, valley wildrye grassland/valley oak woodland, Great Valley mixed riparian forest, Great Valley valley oak riparian forest, Great Valley willow scrub, and herbland (Holland 1986 as quoted in Hubbell et al. (2006a)).

3.2 Jensen Tract

The Jensen Tract is located about 1.75 miles south of Princeton on the east side of the Sacramento River at RM 161 inside the river levees (Section 31, T18N, R1W) (Figure 2). The Jensen Tract is owned by TNC. Access to the site is across a private easement from River Road.

The Jensen Tract comprises 98 acres, of which 81 acres are proposed for restoration. The proposed restoration area is currently an active English walnut orchard that is nearing the end of its productive life. The restoration area is bounded by forested riparian habitat on the north, east, and west, and a walnut orchard on the south. The western boundary of the tract is the Sacramento River. The northern and northeastern boundaries are contiguous with the Womble Tract. The topography in the proposed restoration area is generally level, and the tract floods approximately every 1 to 2 years.

Eight natural plant communities occur close to the restoration area: buttonbush scrub, Great Valley cottonwood riparian forest, elderberry blackberry scrub, valley wildrye grassland/valley oak woodland, Great Valley mixed riparian forest, Great Valley valley oak riparian forest, Great Valley willow scrub, and herbland (Holland 1986 as quoted in Hubbell et al. (2006b)).

Jensen Tract

3.3 Stegeman Tract

The Stegeman Tract is located approximately 0.25 mile east of the 1000-Acre Ranch tract, about 2.85 miles south of Princeton (Figure 2). The tract is on the west side of the Sacramento River at RM 160 (Section 6, T17N, R1W) and is accessed via a private easement from Highway 45. The Stegeman Tract is owned by the State of California and is the northerly parcel of the Stegeman Unit of CDFG's Sacramento River Wildlife Area and adjoins the 1000-Acre Ranch Tract on the west (The Nature Conservancy 2005).

The Stegeman Tract comprises 69 acres, of which 8 acres are proposed for restoration. The restoration area consists of an abandoned walnut orchard, which is surrounded by riparian forest habitat. The remaining 61 acres are riparian habitat, including forests to the west and savannahs closer to the river. The tract is flooded about every 1 to 4 years. The topography of the 8 acres proposed for restoration is generally level, but the restoration area is situated slightly higher than the surrounding riparian habitat.

Stegeman Tract

Five natural plant communities occur close to the restoration area: Great Valley mixed riparian forest, Great Valley cottonwood riparian forest, Great Valley willow scrub, elderberry savanna, and herbland (Holland 1986 as quoted in Hubbell et al. (2006c)).

3.4 1000-Acre Ranch Tract

1,000-Acre Ranch Tract

The 1000-Acre Ranch Tract is located approximately 2.85 miles south of Princeton on the west side of the Sacramento River at RM 160 (Section 6, T17N, R1W) (Figure 2). This tract is owned by TNC and adjoins the Stegeman Tract on the east. Access to the tract is across a private easement from Highway 45.

The 60-acre tract includes approximately 11 acres of flood protection levees and access roads. The 49-acre restoration area is currently planted as a prune orchard that is nearing the end of its productive life. The restoration area adjoins the levee on the north and west, remnant riparian forest to the east, and a walnut orchard to the south. No significant native recruitment is evident along the southern, western, or northern boundaries or within the restoration area itself (Holland 1986 as quoted in Hubbell et al. (2006)). The topography is generally level, and the tract is inundated about every 2 to 4 years (The Nature Conservancy 2005).

Five natural plant communities occur close to the restoration area: Great Valley mixed riparian forest, Great Valley cottonwood riparian forest, Great Valley willow scrub, elderberry savanna, and herbland (Holland 1986 as quoted in Hubbell et al. (2006d)).

3.5 Boeger Tract

The Boeger Tract is located about 2.5 miles north of Colusa on the east side of the Sacramento River at RM 148 (Section 8, T16N, R1W) (Figure 2). The Boeger Tract is owned by TNC, and access to the site is across a private easement from River Road.

The proposed restoration area comprises 51 acres of the 125-acre tract; the restoration area is currently tilled agricultural field crop land. The restoration area is surrounded by remnant riparian habitat, except for two small sections: the levee in the northeast corner and a walnut orchard at the southern

Boeger Tract

boundary. The tract is bounded by the river to the west and northwest, the levee to the east, and remnant riparian habitat on privately owned land to the south. The topography is generally level, and the tract floods about every 1 to 4 years (The Nature Conservancy 2005).

Six natural plant communities occur close to the restoration area: blackberry scrub, Great Valley cottonwood riparian forest, Great Valley mixed riparian forest, Great Valley valley oak riparian forest, Great Valley willow scrub, and herbland (Holland 1986 as quoted in Hubbell et al. (2006e)).

3.6 Colusa-North Tract

The Colusa-North Tract is located approximately 2 miles north of Colusa on the west side of the Sacramento River at RM 147 (Sections 7 and 18, T16N, R1W) (Figure 2). The tract is owned by the state and managed by CDFG. The Colusa-North Tract is north of the Ward Tract, which is to be restored by DWR. The Colusa-North Tract is the most northerly subunit of the Colusa Unit of CDFG's Sacramento River Wildlife Area. Access to the site is across private easements.

Colusa-North Tract

Approximately 5 acres of the 143-acre tract are proposed for restoration. The proposed restoration area currently supports an abandoned walnut orchard that is completely surrounded by remnant riparian forest. The tract floods about every 1 to 2 years (The Nature Conservancy 2005). The topography of the proposed restoration area is generally level, with the southern half being slightly lower; however, there are moderately steep areas along the side channels that run along the toe of the levee and down the middle of the tract.

Four natural plant communities occur close to the restoration area: Great Valley cottonwood riparian forest, Great Valley mixed riparian forest, Great Valley valley oak riparian forest, Great Valley willow scrub, and herbland (Holland 1986 as quoted in Hubbell et al. (2006f))

3.7 Cruise n' Tarry Tract

The Cruise n' Tarry Tract is located about 1 mile north of Colusa on the east side of the Sacramento River at RM 145.5 (Sections 17 and 20, T16N, R1W) (Figure 2). This tract, which is the site of a former privately owned commercial marina, is now in state ownership. The state recently leased the tract to Colusa County for possible recreation use, although plans have not yet been developed for improvements or public access.

The Cruise n' Tarry Tract lies immediately adjacent to the river on the west, the Colusa Weir on the north, and the levee on the east and south and is accessed from River Road. The Ward Tract is located directly across the river to the west.

The approximately 10-acre Cruise n' Tarry Tract comprises a mixture of open area, abandoned orchard, an inlet that is the location of the former marina, and a remnant of riparian habitat. Approximately 3 acres in the southern half of the tract are proposed for restoration.

Cruise n' Tarry Tract

One acre adjoining the Colusa Weir at the northern edge of the tract would be used by the state for short-term storage of woody debris and silt cleared from the Colusa Weir.

The inlet, which is located in the center of the tract, is approximately at the level of the river surface. Flooding of the tract occurs about every 1 to 4 years (The Nature Conservancy 2005). The topography around the inlet is level, and the cut banks along the river are steep.

Six natural plant communities occur close to the restoration area: Great Valley mixed riparian forest, Great Valley cottonwood riparian forest, buttonbush scrub, Great Valley willow scrub, blackberry scrub, and herbland (Holland 1986 as quoted in Hubbell et al. (2006g)).

SECTION 4: DESCRIPTION OF THE PROPOSED PROJECT

The proposed Project involves:

- restoration of approximately 251 acres of wildlife habitat on portions of seven tracts (totalling approximately 574 acres) near the Sacramento River between the community of Princeton and the City of Colusa in Colusa and Glenn Counties;
- acquisition by the State of California of three of the seven tracts, which are currently owned by TNC (Jensen, 1000-Acre Ranch, and Boeger); and
- long term management of the tracts for conservation and public recreation purposes.

As used in this document, "restoration" refers to all activities involved in converting the existing land cover to native plants and wildlife habitats. These activities include removal of non-native vegetation, including orchards; site preparation, including land surface treatment with mechanized equipment; installation of irrigation systems and use of surface water or groundwater supplies; planting of native trees, shrubs, and grasses; interim irrigation of plants as they become established; construction of minor public access improvements, such as parking areas, signage, and information kiosks; and long-term maintenance and weed control. Additional detail is provided below and in Appendix A.

The transfer of the three tracts from TNC to the State of California is included in the proposed Project, although the transfer of ownership would not be directly associated with physical changes in the environment. Long-term management includes future uses, improvements, and activities by the state at the seven tracts to the extent that such management is reasonably foreseeable.

The final planting design will include buffers and other design features intended to reduce potential effects associated with land use incompatibility on adjacent lands that are in active agricultural use; approximately 12 percent of the perimeters of the restoration tracts are adjacent to agricultural crops on adjoining lands in other ownerships. Such buffers and design features would be determined in consultation with the owners of adjoining agricultural lands.

4.1 Project Objectives

The objectives of the proposed Project are:

- to improve wildlife habitat by contributing to the creation of large, contiguous blocks of riparian habitat along the Colusa Subreach of the Sacramento River; and
- to enhance existing riparian vegetation and improve habitat quality by removing and controlling invasive species.

The existing riparian habitat in the Colusa Subreach supports a broad range of wildlife species. Restoration of riparian habitat at the seven tracts would increase and improve wildlife habitat along the subreach by:

- increasing the amount of riparian forest and filling "gaps" in the native vegetation cover,
- connecting habitat fragments and extending corridors of protected habitat, and

- improving sediment and nutrient cycling between the riparian zone and the river.

Restoration of wildlife habitat at the seven tracts would be accomplished using a combination of active restoration techniques and natural vegetation recruitment. Natural recruitment is the process by which plants reestablish naturally. Because all seven tracts are periodically flooded, natural recruitment would occur to some degree; however, experience at similar sites along the Sacramento River has shown that reliance on natural processes alone is slow and may have undesired results, including the proliferation of non-native invasive species, such as yellow-starthistle, Johnson grass, and Bermuda grass.

Vegetative cover on active and abandoned agricultural lands generally tends toward the proliferation of non-native plant species to the limitation or exclusion of native riparian species. Active restoration would "jump start" succession in the restored areas and provide benefits to wildlife species in a relatively short time. (Succession is defined as the gradual and orderly process of change in an ecosystem brought about by the progressive replacement of one community by another until a stable climax is established.) In similar restoration projects, measurable increases in habitat use by bird species have been demonstrated to occur within 3 years after restoration (Small et al. 2000).

Restoration of existing and abandoned orchards and row crop fields to native riparian vegetation species would add an additional 251 acres of riparian habitat to the 21-mile Colusa Subreach, resulting in an approximately 7 percent increase in riparian habitat. Most of the proposed restoration tracts are contiguous with areas of established riparian habitat, which increases their ecological value after restoration.

4.2 Restoration Techniques and Activities

Baseline assessments have been prepared for TNC for each of the seven proposed restoration tracts (Hubbell et al., 2006a, 2006b, 2006c, 2006d, 2006e, 2007a, 2007b). The assessments characterized each tract in terms of soils, topography, geomorphology, hydrology, and remnant riparian vegetation. Potential restoration plant communities were selected for each tract based on the characteristics of the remnant riparian vegetation community, soils, and estimated elevation; the influence of historic channels and estimated flood frequency at each tract were also considered in selecting the plant communities. The proposed restoration plans were developed using topography data from the U.S. Army Corps of Engineers (USACE) 1997 digital elevation model (DEM) with 2-foot contours, as well as Light Detecting and Ranging (LIDAR) data. Specific restoration plans for each tract are described in Appendix A.

4.2.1 Plant Communities

The plant communities proposed for the restoration tracts are based on Holland's riparian communities (Holland 1986). Because enhancement of biodiversity is an important component of the proposed restoration goal, the species composition of the Holland communities has been adjusted to reflect nearby remnant riparian plant communities at each of the seven tracts and local differences in those plant communities (Hubbell and Efseaff 1998).

The frequencies of woody species in the restoration plans for each tract are based on the species frequency in the remnant riparian vegetation, visual dominance, and biodiversity concerns (Peterson et

al. 2003 and Wood 2003 as quoted in Hubbell et al. 2005, 2006a, 2006b, 2006c, 2006d, 2006e, 2007a, 2007b). For proposed plant communities for which no data are available concerning nearby remnant vegetation, data were used from baseline assessments prepared for other sites that included those community types (e.g., Hubbell et al. 2003), or estimates were made based on the expected frequency of a species in those communities (Hubbell et al. 2005, 2006a, 2006b, 2006c, 2006d, 2006e, 2007a, 2007b).

The species composition and abundance recommendations for herbaceous species were based predominately on local visual dominance in remnant riparian areas, ecologically based substitutions of native species for non-native species common in remnant areas, and biodiversity enhancement (Peterson et al. 2003 and Wood 2003 as quoted in Hubbell et al. 2005, 2006a, 2006b, 2006c, 2006d, 2006e, 2007a, 2007b).

The proposed plant communities are:

- Mixed riparian forest (MRF)
- Cottonwood riparian forest (CWRF)
- Valley oak riparian forest (VORF)
- Valley oak riparian forest/valley needlegrass grassland (VORF/VNG)
- Willow scrub (WS)
- Willow scrub/valley wildrye grassland (WS/VWG)
- Rose/baccharis scrub (RBS)
- Rose/baccharis scrub/valley wildrye grassland (RBS/VWG)
- Blackberry scrub (BBS)
- Mule fat scrub (MFS)
- Mule fat scrub/valley wildrye grassland (MFS/VWG)
- Elderberry scrub/valley wildrye grassland (ES/VWG)
- Valley oak/elderberry scrub/valley wildrye grassland (VOES/VWG)

The proposed acreages of these plant communities at each of the restoration tracts is shown in Table 4-1.

Table 4-1. Proposed Plant Communities (Acres*), Colusa Subreach Planning Area

UNIT NAME	MRF	CWRF	VORF	VORF/VNG	WS	WS/VWG	RBS	RBS/VWG	BBS	MFS	MFS/VWG	ES/VWG	VOE/VWG	TOTAL
Womble	32.4				8.7		7.9		4.7					53.7
Jensen	55.9	1.5						23.9						81.3
Stegeman	4.6	1.7			2.1									8.4
1,000-Acre Ranch	26.5		22.6											49.1
Boeger	6.5	7.2	4.9			1.0		20.6			4.7		6.2	51.0
Colusa-North	1.2		1.2		0.1					1.5		0.9		5.0
Cruise n' Tarry		0.7		1.8	0.1		0.3							2.8
Total	**127.1**	**11.1**	**28.7**	**1.8**	**11.0**	**1.0**	**8.2**	**44.5**	**4.7**	**1.5**	**4.7**	**0.9**	**6.2**	**251.3**

Source: The Nature Conservancy 2007; EDAW 2007c

* Acreages are approximate.

The plant communities dominated by trees—mixed riparian forest, cottonwood riparian forest, valley oak riparian forest—account for more than half of the proposed plantings. Proposed tree-dominated communities are prevalent in these areas because the sites generally have deep, well-drained soils that originally supported riparian forests. The scrub and grassland plant communities generally indicate poorer soils. The willow scrub communities are adapted to the sandy soils that are usually closest to the river channel.

Planting would be in curved rows about 20 to 30 feet apart and oriented to the direction of flood flows. Within the rows, the plants would be about 10 feet apart. The resulting plant densities range from about 130 to 200 plants per acre. The plant design may be adjusted prior to planting to address concerns of neighboring landowners; adjustments could include establishment of buffer zones along adjacent cropland.

4.2.2 Site Preparation, Irrigation, and Planting Plans

Restoration would occur over a four-year time period. During Project Year 1, plants would be propagated from native seeds at a nursery. Also during Project Year 1, the existing orchards would be removed from the Jensen, Stegeman, 1000-Acre Ranch and Colusa-North tracts. Throughout the fall and winter, weeds would be allowed to grow; before planting in the spring, the weeds would be sprayed through direct application with approved agricultural herbicides (e.g., glyphosate, triclopyr) using spray rigs on ATVs.

In spring of Project Year 2, the sites would be disked and land planed. An underground irrigation system would be installed using a trencher. A tractor and trencher would be used to dig multiple trenches across the sites approximately 12 to 18 inches deep for the main underground irrigation line, following which the above-ground drip irrigation system would be installed. Irrigation water would be obtained on each site from existing wells, new wells, riparian withdrawal of surface water (Boggs Bend Slough for the Womble tract), or through arrangements with off-site well-owners. Table 4.2 shows the irrigation source for each of the tracts.

After installation of the irrigation system, nursery stock plants would be planted using shovels to dig individual holes no more than 10 inches deep. Plants propagated via cuttings (e.g., willows) would also be planted during this season. All plants would be planted by hand.

In the fall or winter of Project Year 2, native grasses would be drill seeded in between the rows of the woody trees and shrub species. The timing of the seeding would depend on soil moisture conditions, but would be anticipated to occur in mid-December. The restoration plantings would be monitored for 3 years after planting. Trees and other species would be replanted if survival is less than 80 percent of the original planting. Maintenance for 3 years after planting would include irrigation, disking prior to grass seeding, and herbicide application to control weeds in the restoration area. By the end of Project Year 4, it is anticipated that the restoration plantings would be well established. At that time, the wells and roads on the sites would be decommissioned, and the surface irrigation lines removed.

4.2.3 Roads and Staging Areas

Existing farming access roads would be used to the extent practicable. Existing roads would be adequate for all the tracts except the Colusa-North Tract, where, under the higher restoration option (see section 4.2.5), a new 700-foot access road from the levee would be required for vehicles and equipment. No excavation for roadways would be required, and no fill material would be imported. Staging areas at all tracts would be graded with a land plane (see below); the locations of the staging areas would be near the primary entrance location for the tracts. Table 4-2 summarizes the access, staging areas, and irrigation source for each tract.

Table 4-2. Restoration Elements for the Proposed Restoration Tracts

TRACT	ACCESS	STAGING AREA	IRRIGATION SOURCE
Womble	Existing road on easement over the levee from River Road	Southeast corner adjacent to existing ramp	Pumping from Boggs Bend Slough
Jensen	Existing road on easement over the levee from River Road	Southeast corner adjacent to the access road	Existing onsite well in northwest quadrant
Stegeman	Existing road on easement over the levee from Highway 45	Same as 1000-Acre Ranch	Same as 1000-Acre Ranch
1000-Acre Ranch	Existing road on easement over the levee from Highway 45	Northeast corner adjacent to ramp	Existing onsite well in northeast quadrant
Boeger	Existing road on easement over the levee from River Road	Northeast corner adjacent to ramp	New onsite well or use of existing offsite well
Colusa-North	Easement on levee road, then a new access through remnant habitat	Northeast corner of site	New onsite well or use of existing offsite well
Cruise n' Tarry	Existing road from River Road	Northeast corner or in existing parking area	New onsite well or use of existing offsite well

4.2.4 Equipment for Site Preparation, Planting, and Maintenance

A bulldozer (such as a D-7) would be used to remove the walnut trees on the Jensen Tract; a backhoe would be used to remove orchards on the other sites. Removal would also involve the use of chain saws and a chipper; chippings would be removed using a tractor trailer.

Disking would involve a tractor pulling a 10-inch disk. Land planing could occur on each tract, including in areas that would serve as access routes. The land plane is towed behind a tractor to smooth and level irregularities following disking. Land planes can be also be used for clearing weeds, ground-shaping, preparing seed beds, scarifying hard ground, aerating top soil, and general clean up. Fields would not be completely leveled, and existing topographic contours would be maintained.

A tractor and trencher would be used to dig trenches approximately 10 inches deep for underground irrigation lines. Pickup trucks would bring equipment and plants to the planting sites. Herbicide spraying for weeds would be accomplished by direct application from ATVs equipped with spray rigs. A tractor and drill seeder would be used to plant grass seeds between the rows of plants in the forest, scrub, and savanna areas.

4.2.5 Minor Improvements for Public Access

The proposed Project includes the construction of minor public access and recreation-related facilities. At the Womble Tract, improvements would include a carry-in / car-top boat access ramp, delineated vehicle parking area, and interpretive sign system. Three tracts—Stegeman, Boeger, and Colusa-North—would include boat-in camping. The Cruise n' Tarry Tract would include the establishment of delineated vehicle parking area, carry-in/car-top boat access ramp, temporary restroom, and interpretive sign system (EDAW 2007a). At all sites signing for identification and regulatory purposes is proposed in the future.

4.2.6 Options in Restoration Techniques and Activities

The discussion above describes the proposed restoration techniques and activities. For CEQA purposes, higher rather than lower levels of restoration are assumed in terms of the areas proposed to be treated, amount of vegetation removed, degree of site preparation, relative amounts of each plant community, the amount of active restoration versus natural recruitment, the extent of the installed irrigation systems, and the types of equipment used.

Minor variations and site-specific adjustments in these components are possible, resulting in lower levels of active restoration. For example, the types of restoration activities may be adjusted in areas adjacent to agricultural crops on adjoining lands in other ownerships; these adjustments would be determined in consultation with the owners of adjoining agricultural lands.

At the Stegeman and Colusa-North tracts, restoration activities could be limited to the cutting and removal of non-native trees (orchards). At Colusa-North Tract, this approach would obviate the need to construct the access road to the restoration area. At the Cruise n' Tarry Tract, the recent lease of the site to Colusa County may result in future plans for improvement of the tract for recreation use, which may in turn reduce or eliminate the potential for restoration of the tract. The restoration plans for each

of these three sites recognize that these restoration areas are relatively small and that economic factors may dictate a less intensive form of restoration in the future.

4.2.7 Best Management Practices

The proposed restoration activities would incorporate a number of best management practices (BMPs) to minimize potential adverse effects to the environment. BMPs are standard methods used in many applications, for example, to prevent or reduce airborne particulate matter or to prevent or reduce the movement of sediment, toxic substances, nutrients, and other pollutants from the land to surface water or groundwater. BMPs incorporated into the proposed Project include, but are not necessarily limited to, the following.

- Restoration activities shall be planned in advance to protect existing vegetation.
- Vegetative buffer zones shall be maintained where possible to provide treatment for runoff and reduce erosion and sedimentation.
- If temporaty crossing of a swale, intemittent stream, or other natural drainage feature is required, identify and use one crossing, keep it to the minimum size, and restore the crosssing at the close of construction.
- Install silt-control or silt-trapping fabric barriers around ground-disturbing activities within 50 feet of a suspected wetland, the river channel, or other surface waters.
- All land planning and other mechanical soil disturbance shall be suspended when winds (as instantaneous gusts) exceed 20 miles per hour.
- Vehicle use shall be restricted to designated access roads and staging areas to the greatest extent practicable.
- No stockpiling of soil and other backfill material shall be allowed on the restoration sites.
- All public roadways used by the Project contractor shall be maintained free from dust, dirt, and debris caused by construction activities.
- No cleaning, fueling, or maintaining of vehicles shall occur on the restoraton sites.
- All herbicides shall be applied by a licensed operator. No cleaning of equipment or storage of chemicals shall occur on-site.
- Native soils, topographic forms, and natural drainage disturbed during clearing and land planing shall be restored, to the maximum extent practicable.
- Upon completion of restoration (i.e., at the end of Project Year 3), vehicles associated with the proposed Project shall be restricted to existing roadways.
- Open burning of cleared vegetation shall be prohibited. Cleared vegetation shall be treated by legal means other than open burning, such as chipping, shredding, or grinding.

4.2.8 Summary of Ground Disturbance

In summary, the following activities would involve ground-disturbance as part of the proposed Project:

Project Year 1

- Orchard removal.
- Disking following orchard removal.

Project Year 2

- Disking.
- Land planing.
- Trenching for underground irrigation.
- Planing of access roads and staging areas.
- Planting of trees and shrubs. If replanting is needed, hand tools would be used.
- Drill seeding of grass.

Project Year 3

- Replanting and maintenance.
- Minor public access improvements (e.g., unpaved parking area at Womble Tract).

Project Year 4

- Removal of surface irrigation lines.
- Decommissioning of wells.
- Decommissioning of roads.

SECTION 5: EVALUATION OF ENVIRONMENTAL IMPACTS

This section uses the CEQA Environmental Checklist (CEQA Guidelines, Appendix G) as a basis for assessing the potential environmental effects that could result from the proposed Project. The impact analysis provided in this section takes into account the whole of the action, as required by CEQA, including on-site, off-site, and cumulative impacts. It also addresses construction, operation, and maintenance impacts as described in the previous section of this document.

Each of the issue areas was evaluated and one of the following four determinations was made:

- **No Impact:** No impact to the environment would occur as a result of implementing the Project.
- **Less than Significant Impact:** Implementation of the Project would not result in a substantial and adverse change to the environment and no mitigation is required.
- **Less than Significant with Mitigation Incorporated:** Implementation of the Project could result in a "potentially significant impact," as described below, except that project-specific mitigation measures are identified that reduce the effect to a less-than-significant level.
- **Potentially Significant Impact:** Implementation of the Project could result in an impact that has a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project" (CEQA Guidelines Section 15382).

If a potentially significant impact is identified, mitigation measures are provided that would reduce the impact to a less-than-significant level.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
I. AESTHETICS **Would the project:**				
(a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
(b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
(c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
(d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion of Impacts

(a) ***Less than Significant Impact.*** Views of the restoration areas on the seven tracts are limited. No designated scenic vistas have been identified within or in close proximity to these areas. The proposed Project would alter mid-range views, such as those along limited access levee roads; the visual change would be from agricultural fields or orchards to a mosaic of riparian forest and grassland. In general, these changes in views would not be visible from nearby residences or by motorists using county roads adjacent to the levees. Implementation of the proposed Project would have a less-than-significant impact and would not adversely affect scenic vistas within the Project vicinity.

(b) ***No Impact.*** While the Colusa Subreach of the Sacramento River offers a variety of scenery, including river views, the seven tracts do not contain unique or extraordinary scenic resources. The proposed restoration activities can be expected in the long term to result in views that are similar to views of other areas of riparian vegetation along the river.

The proposed Project would not adversely affect scenic resources associated with any designated or eligible state scenic highway in the vicinity of the Project. The seven restoration tracts run parallel with State Route 45 (SR 45), which is not designated as a "State Scenic Highway" (California Department of Transportation 2007). Within Colusa County, State Route 20 (SR 20) and State Route 16 (SR 16) are eligible state scenic highways; however, these roadways have not been officially designated (California Department of Transportation 2007). These two highways are northwest of the proposed Project vicinity and would not be affected by implementation of the proposed Project. There are no officially designated or eligible scenic highways in Glenn County (California Department of Transportation 2007).

(c) ***Less than Significant Impact.*** The proposed Project would have a less-than-significant impact on the visual character of the restoration tracts and their surroundings. Views from levee roadways would change from agricultural to a mosaic of riparian forest and grassland. From the Sacramento River, views of the tracts are dynamic and offer diversity resulting from changes in location, season, and topography. In general, these changes in views would not be visible from nearby residences, motorists, or boaters.

(d) ***No Impact.*** The Project design does not include lighting, and no construction lighting would be needed. There would be no adverse effect on daytime or nighttime views in the area.

Mitigation Measures

No mitigation is required.

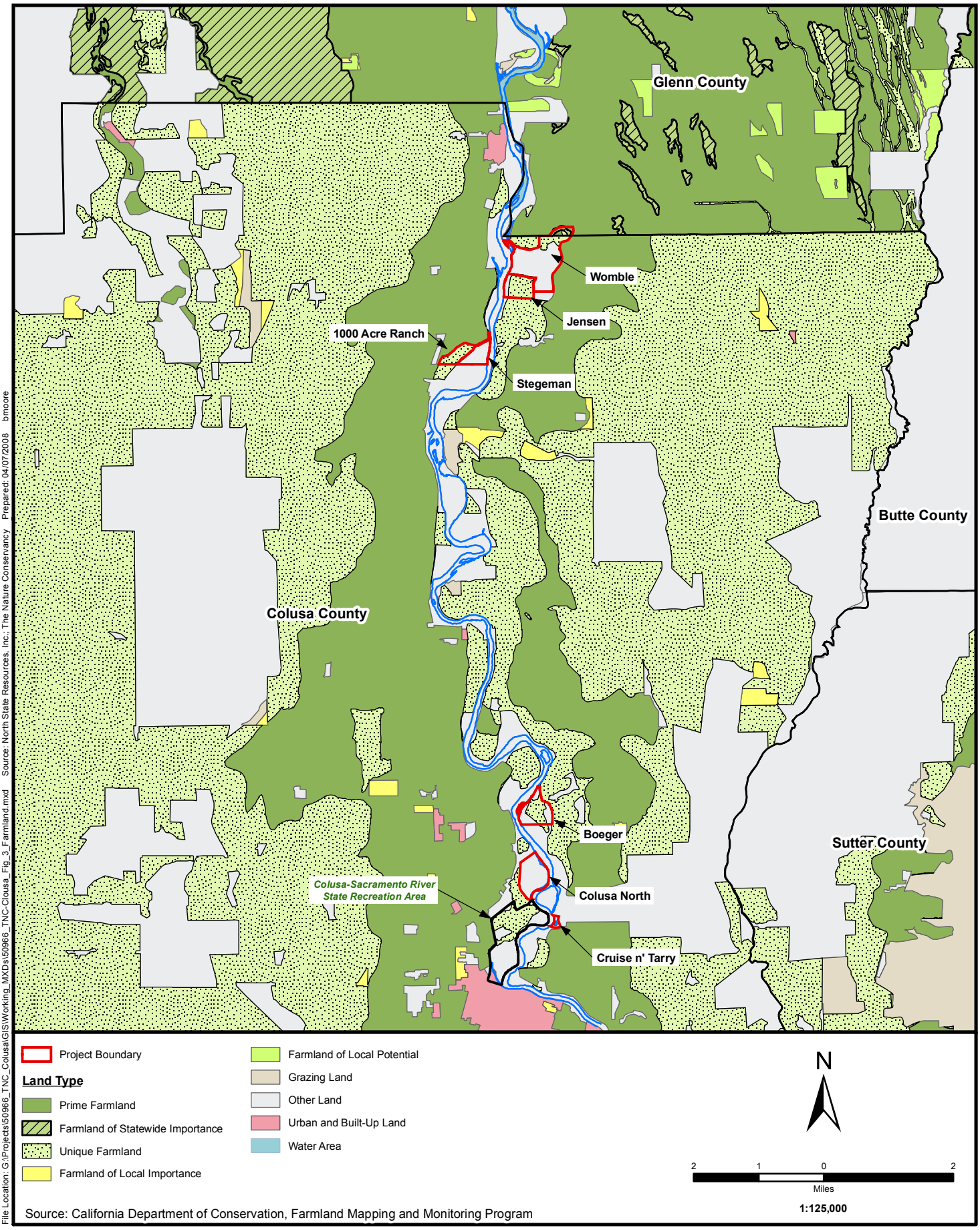
	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
II. AGRICULTURE RESOURCES Would the project:				
(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
(b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
(c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☒	☐

Discussion of Impacts

(a) ***Less than Significant Impact.*** The permanent loss of productive agricultural land in California, including in the Central Valley, is an ongoing environmental and socioeconomic concern monitored by federal, state, and local government agencies, farm bureaus and other agricultural organizations, non-government groups, conservation districts, and others.

The proposed Project includes changes in property ownership (at Jensen, 1000-Acre Ranch, and Boeger), as well as changes in vegetative cover and management approaches that would have implications for future agricultural use of the Colusa Subreach tracts. The proposed Project would involve removal of abandoned orchards and conversion of 251 acres of agricultural land to wildlife habitat. As shown on Figure 3, Farmland, all or portions of Womble, Jensen, 1000-Acre Ranch, and Boeger tracts include areas designated by the State Farmland Mapping and Monitoring Program as Unique Farmland. The Womble Tract also includes lands mapped by the state as Farmland of Statewide Importance. These tracts are owned by TNC and currently leased for agriculture.

Under the proposed Project, tracts that contain farmland would be converted from existing or potential agricultural use to native riparian vegetation. The annual change in the type and proportion of farmland acreage within Glenn and Colusa counties varies considerably per year (Economic and Planning Systems 2007), and 251 acres removed from production is not significant by itself. The tracts are located in the floodplain and subject to flood damage, which is a constraint for agricultural operations. The conversion would not be irreversible; unlike conversion to urban uses, the conversion to riparian habitat would not result in a permanent over-covering with developed land uses. However, there would be some obstructions to reestablishing agricultural uses because of the change in ownership to public land and because management approaches would be directed toward establishment and maintenance of wildlife habitat rather than agricultural production.



North State Resources, Inc.

Colusa Subreach Wildlife Habitat Restoration Project

Figure 3
Farmland

(b) ***Less than Significant Impact.*** The seven tracts are located entirely inside of flood control levees; this land is "Designated Floodway" (Loudon, pers. comm., 2008). "Designated Floodway" is defined as land that has been designated as a floodway by the State Reclamation Board. Areas between the Sacramento River and the levees are included in the Designated Floodway classification (Colusa County General Plan, Land Use Element, January 1989).

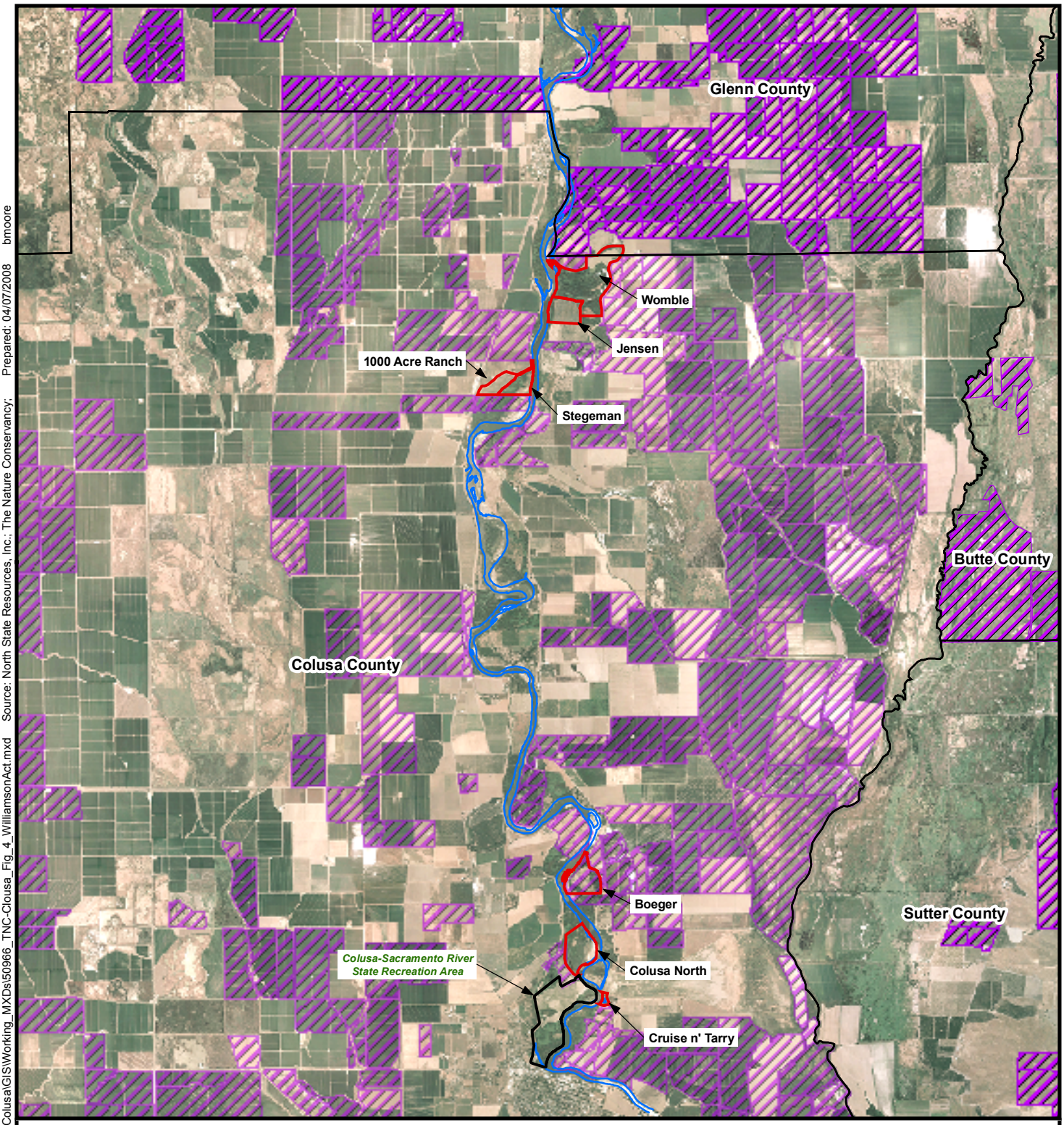
With the exception of the northern portion of the Womble Tract, the private lands included in the Project tracts are subject to Colusa County's zoning classification "Floodway or F-W zone" (Loudon, pers. comm. 2008). "Floodway" is intended to be applied to lands that lie within stream or tidal channels and to adjacent areas that are periodically inundated, or that would be inundated by a "design flood" (Colusa County Code, Section 4.1.3, 1991).

The northern portion of the Womble tract, which is located in Glenn County, is classified as Exclusive Agriculture (AE-40). This classification was established to provide areas for both intensive and extensive agricultural activities and to prevent the unnecessary conversion of agricultural land to urban uses (Glenn County Code, Chapter 330).

Currently, the Colusa County and Glenn County zoning designations apply to the three tracts owned by TNC (Jensen, 1000-Acre Ranch, and Boeger). The other four tracts are owned by the State of California and not subject to local agency zoning regulations. While the proposed conversion of these lands would occur coincident with title transfer, these lands will remain rural in character and not be incompatible with ongoing agricultural activities and other uses that are permitted on adjacent lands through County zoning regulations.

As shown on Figure 4, property associated with Boeger Tract is currently in a Williamson Act contract; parcels adjacent to the Stegeman and Womble tracts are also subject to Williamson Act contracts (Walker, pers. comm. 2008 and Nieheus, pers. comm. 2008). Under the provisions of the California Land Conservation Act of 1965, commonly known as the Williamson Act, landowners enter a restrictive-use contract to protect agricultural, recreational, and other open space lands in return for property tax incentives. Counties that adopt the program receive "subvention" payments from the state to partially make up for lost tax revenue. Williamson Act contracts run for ten years; the term renews each year unless one party submits a nonrenewal (cancellation) request.

Transfer of ownership of the Boeger Tract (or more specifically, the legal parcel of land associated with the tract) would trigger consideration of requirements under the Williamson Act, including the possible need to make certain findings as specified in California Government Code Section 51292. However, for CEQA purposes, potential changes in the Williamson Act contract do not in themselves constitute a physical impact on the environment. A potential change in status of a Williamson Act property may signify a loss in protection for agriculture resources, which could be indirectly associated with environmental impacts. As discussed above, the proposed Project does not represent this type of permanent loss of agricultural land. By restoring the property as wildlife habitat, the Project will ensure that the Boeger parcel would be maintained as open space and used for conservation purposes. Maintenance of these lands as open space is consistent with the general provisions of the Williamson Act contracts (Hackney, pers. comm. 2008; Murray, pers. comm. 2008). Therefore, the impacts would be considered less than significant.



Source: California Department of Conservation
Divsion of Land Resource Protection -
Williamson Act 2004-2006

File Location: G:\Projects\50966_TNC_Colusa\GIS\Working_MXDs\50966_TNC-Clousa_Fig_4_WilliamsonAct.mxd Source: North State Resources, Inc.; The Nature Conservancy; Prepared: 04/07/2008 bmoore

North State Resources, Inc.

Colusa Subreach Wildlife Habitat Restoration Project

Figure 4
Williamson Act Parcels

(c) ***Less than Significant Impact.*** The proposed Project involves conversion of 251 acres of the total 825 acres on the seven tracts. These tracts are entirely within the levees and are encompassed within the 100-year floodplain of the Sacramento River. Portions of these tracts have been used for agricultural purposes to varying degrees. Agricultural operations (orchards) within three of these tracts have been abandoned for variety of reasons, including reoccurring flooding, low productivity, and market conditions. While the proposed Project will change the character of 251 acres from agricultural to open space, this impact would be less than significant when placed in the context of the entire Colusa Subreach.

Mitigation Measures

No mitigation is required.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
III. AIR QUALITY Would the project:				
(a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
(b) Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☐	☒	☐
(c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
(d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
(e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion of Impacts

(a) ***No Impact.*** The Sacramento Valley Air Basin includes Butte, Colusa, Glenn, Shasta, Sutter, Tehama, and Yuba counties. These counties comprise the Northern Sacramento Valley Planning Area (NSVPA) districts (Northern Sacramento Valley Planning Area 2006). Each county within the NSVPA has its own individual air management district or air pollution control district. These districts are responsible for monitoring air quality, issuing and enforcing permits, inspecting businesses, and responding to complaints from the public within their jurisdiction. Colusa County is located in the Colusa County Air Pollution Control District, and Glenn County is located in the Glenn County Air Pollution Control District. Implementation of the proposed Project would not conflict with or obstruct implementation of the applicable air quality plan.

(b) and (c) ***Less than Significant Impact.*** Under State of California standards, Colusa County and Glenn County have been designated as "non-attainment/transitional" for ozone and "non-attainment" for particulate matter less than 10 microns (PM_{10}) (California Air Resources Board 2007). "Non-attainment/transitional" is defined as a subcategory of the non-attainment designation. An area is designated non-attainment/transitional to signify that the area is close to attaining the standard for that pollutant (Colusa County Air Pollution Control District 2000).

Under federal standards, Colusa County and Glenn County have been designated as "attainment/ unclassified" for ozone and "unclassified" for PM_{10} (California Air Resources Board 2007). "Unclassified" is any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant (Colusa County Air Pollution Control District 2000).

Various restoration activities would result in generation of PM_{10} from ground-disturbing activities and the emission of ozone precursor pollutants from internal combustion engines. Diesel- and gasoline-powered vehicles and equipment would be used during site preparation, installation of irrigation equipment, planting, and post-restoration maintenance, including the operation of diesel-powered pumps for water supply during the plant establishment period. A preponderance of evidence indicates that these emissions are "greenhouse gasses" (GHG) that contribute on a global scale to human-based changes in climate.

Current mandates, including the California Global Warming Solutions Act of 2006 and the Governor's Executive Order S-3-05, are aimed at reducing greenhouse gas emissions to levels that existed over a decade ago. With regard to CEQA, methodologies for analyzing climate change effects and identifying thresholds of significance are currently evolving and open to various interpretations. The effects of the proposed Project, however, would not be substantial. Project-related emissions would be kept to a minimum by compliance with air pollution control BMPs. In the longer term, restoration of habitat would result in the growth of additional vegetation that would aid in carbon sequestration, a beneficial effect. Implementation of the proposed Project would not violate or contribute substantially to an existing or projected air quality violation. Over time, the proposed Project would result in less airborne emissions and pollutants than similar areas maintained in agricultural operation. Revegetation of currently exposed fields under the proposed Project would reduce PM_{10} from wind erosion.

(d) ***No Impact.*** Fugitive dust (particulate matter/PM_{10}) and exhaust emissions (including PM_{10} and ozone) from vehicles and equipment used during restoration activities (e.g., orchard removal and site grading) are anticipated during Project Years 1 and 2.

Potential impacts to neighboring properties from fugitive dust caused during the initial clearing and grading activities would be analogous to existing onsite or nearby conditions (i.e., current agricultural operations). These activities would be associated with temporary and intermittent vegetation removal, site preparation, and associated maintenance within the first 4 years. The establishment of native vegetation would reduce the potential for wind erosion of soils exposed during agricultural operations.

Public recreational use of the tracts is not expected to result in a substantial increase in motor vehicle pollution compared to the existing traffic load and capacity. The proposed Project would therefore

have a less-than-significant impact on long-term local emissions associated with increases in mobile sources.

(e) ***No Impact.*** The proposed Project does not involve activities or uses that would generate objectionable odors affecting a substantial number of people.

Mitigation Measures

No mitigation is required.

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

Discussion of Impacts

(a) ***Less than Significant with Mitigation Incorporated.*** In the Colusa Subreach planning area, 42 plant, fish, and animal special-status species were identified that are known to occur or could occur in the project area. Appendix B identifies and assesses the habitat suitability and potential impacts for each of these 42 species (see Appendix B, Tables B-1 and B-2).

The proposed Project involves activities that would remove vegetation and disturb the ground surface, including vegetation removal, land planing, installation of irrigation systems, application of herbicides, and access by trucks and heavy equipment. Given that the primary objective of the proposed Project is to improve wildlife habitat, adverse impacts to special-status species would be expected to be minimal; however, complete avoidance may not be possible in all areas for all activities. Vegetation removal or degradation and ground-disturbing activities would be associated with implementation of the proposed Project.

As explained in Appendix B, the project would have a "less-than-significant impact" or "no impact" on 22 of the 42 species evaluated, including all of the special-status plants evaluated. Results of the assessment also indicate that Project-related activities could result in potentially significant impacts on 20 special-status species unless suitable mitigation is implemented. A brief discussion of the species is provided in the following paragraphs. Additional information on this topic is provided in Appendix B, along with a description of the suitable habitat present on the restoration tracts.

Invertebrates

- valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). Federally listed as threatened.

Blue elderberry (*Sambucus mexicana*) and (mountain) red elderberry (*S. racemosa var. microbotrys*) are the host plants for the valley elderberry longhorn beetle (VELB). No blue elderberries are planned to be removed as part of the project, but there could be a direct impact on VELB from accidental damage to elderberry shrubs during implementation and maintenance of the restoration plantings. Complete avoidance of VELB host plants may not be practicable, as the planting of native plants and maintenance would occur within 100 feet of blue elderberries in order to prevent the establishment of non-native invasive plants.

Fish

- green sturgeon, southern Distinct Population Segment (DPS) (*Acipenser medirostris*). Federally listed as threatened, designated Critical Habitat;
- central valley steelhead (*Onchorhynchus mykiss*). Federally listed as threatened, designated Critical Habitat;
- Chinook salmon, winter-run (*Onchorhynchus tshawytscha*). Federally and state listed as endangered, designated Critical Habitat and Essential Fish Habitat;
- Chinook salmon, spring-run (*Onchorhynchus tshawytscha*). Federally and state listed as threatened, designated Critical Habitat and Essential Fish Habitat;
- river lamprey (*Lampetra ayresii*). State species of special concern;
- hardhead (*Mylopharodon conocephalus*). State species of special concern;

- Chinook salmon, fall-run (*Onchorhynchus tshawytscha*). State species of special concern, designated Essential Fish Habitat;
- Sacramento splittail (*Pogonichthys macrolepidoptus*). State species of special concern.

The fish species listed above are known to occur in the Sacramento River and could inhabit portions of the tracts during overbank flooding. The Project would not involve any work in the active channel or on banks of the Sacramento River, nor would the Project be expected to result in conditions causing entrainment or entrapment of fish above current conditions; thus, no direct impacts to the fish species listed above are anticipated. Potential indirect impacts to these species related to sediment and pollutant contamination of the river could occur as a result of ground-disturbing activities and operation of equipment. These effects are found to be not significant.

Nesting Raptors

- Cooper's hawk (*Accipiter cooperii*). State species of special concern;
- western burrowing owl (*Athene cunicularia hypugaea*). State species of special concern;
- Swainson's hawk (*Buteo swainsoni*). State listed as threatened;
- white-tailed kite (*Elanus leucurus*). State fully protected;
- bald eagle (*Haliaeetus leucocephalus*). Federally threatened (delisted 2007), state listed as endangered and fully protected;
- osprey (*Pandion haliaetus*). State species of special concern.

Overstory vegetation associated with riparian habitat occurs at all seven tracts in varying proportions and provides suitable nesting habitat for the special-status raptors listed above. In the event that raptors use existing orchards for nesting habitat, orchard removal at the Stegeman and Colusa-North tracts could result in a significant direct impact to a nesting raptor if an orchard tree contained an active nest. The proposed construction of 700 feet (one-half acre) of temporary access road within the Colusa-North Tract would require removal of native riparian trees for the full implementation of planned restoration activities. The removal of riparian trees at this site could also result in a direct impact to nesting raptors. In addition, nesting raptors could be indirectly affected by noise from tree removal activities and road construction activities at certain tracts.

Other Nesting Birds

- western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). Candidate for federal listing, state listed as endangered;
- California yellow warbler (*Dendroica petechia brewsteri*). State species of special concern;
- yellow-breasted chat (*Icteria virens*). State species of special concern;
- loggerhead shrike (*Lanius ludovicianus*). State species of special concern.

Along the Sacramento River, these species make use of suitable nesting habitat associated with dense riparian habitat larger than 50 acres that contain willows and cottonwoods (Laymon and Halterman 1989). Suitable nesting habitat for these species is present within remnant riparian forests at six of the

tracts. The Cruise n' Tarry Tract is unique in terms of its small size and previous use as a recreational facility.

The Colusa-North Tract is the only site that would require construction of an access road. Construction of a 700-foot access road on this tract would result in the removal of an estimated one-half acre of native riparian trees for the full implementation of planned restoration activities. This is the only site where nesting birds could be subject to direct impacts resulting from the removal of a tree containing an active nest. Noise related to orchard removal and other mechanized ground-disturbing activities could indirectly affect nesting birds.

Bats

- pallid bat (*Antrozous pallidus*). State species of special concern;
- Townsend's western big-eared bat (*Corynorhinus townsendii*). State species of special concern.

Riparian vegetation occurring within the seven tracts provides varying amounts of suitable roosting habitat for the pallid bat and the Townsend's western big-eared bat. Bats could move into or out of this riparian vegetation at any time. Removal of large oak trees for the construction of the 700-foot temporary access road at the Colusa-North Tract could directly affect a maternity roost.

Loss of habitat, disruption of reproductive activities (nesting), or loss of individuals would be considered potentially significant effects. Implementation of the mitigation measures identified below would reduce the potential impacts to less-than-significant levels.

(b) ***Less than Significant with Mitigation Incorporated.*** The proposed Project would generally not affect riparian habitat within or adjacent to the restoration tracts. Access roads and staging areas for the proposed restoration activities would in most places be the same as those that have been used in the past for agricultural activities. The exception to this general assessment would be at the Colusa-North Tract, where a temporary access road (700 feet, one-half acre) would provide access for restoration activities through remnant riparian forest, a sensitive natural community. The impact of this road on riparian habitat would be temporary because the road would be returned to the original grade and revegetated with riparian plant species after four Project years. The impact to riparian habitat would be less than significant following implementation of Mitigation Measure BIO-5.

(c) ***Less than Significant with Mitigation Incorporated.*** The restoration designs do not target remnant riparian habitat or wetlands for treatment; therefore, by design, loss or degradation of existing wetlands would not be associated with implementation of the proposed Project. Retention of wetlands and avoidance of any adverse impacts would be consistent with the objectives of wildlife habitat restoration and the preferred (and expected) approach under the proposed Project.

Although verified wetland delineations have not been performed in conjunction with the proposed Project, reconnaissance-level information identified several features that exhibit wetland indicators. Specifically, the Womble and Colusa-North tracts contain isolated features that show evidence of wetland vegetation and hydrology. Standard restoration methods, including the use of tractors and land planers, as well as the possible construction of a new, temporary access road at Colusa-North, could have adverse effects on wetland hydrology or discharge fill material into such features. Loss of

wetland area or functions would be considered to be a significant impact. Thus, additional measures are needed to clearly identify potential wetlands and avoid impacts. Implementation of the mitigation measures identified below would reduce such impacts to less-than-significant levels.

(d) ***Less than Significant Impact.*** Implementation of the proposed Project would not include activities along the bank or in the channel of the Sacramento River or its tributaries; therefore, the proposed Project would not interfere with the movement of migratory fish. The hydraulic analysis performed for the proposed Project indicates that there would be no substantial changes to the bed or banks of the Colusa Subreach of the Sacramento River (Ayers 2008). Implementation of the proposed Project would ultimately improve the quality of the riparian corridor for anadromous fish and migratory birds by increasing the extent and continuity of suitable breeding and foraging habitat. While the construction of a temporary access road through a portion of the Colusa-North Tract would result in temporary impacts to riparian habitat, the proposed Project overall would not substantially interfere with or impede the movement of resident or migratory fish and wildlife species, and the proposed Project would not impede the use of native wildlife nursery sites. Therefore, these temporary impacts are considered less than significant, and no mitigation is required.

(e) ***No Impact.*** The Colusa County General Plan (Colusa County 1989) does not address riparian vegetation or riparian habitat. A portion of the Womble Tract occurs within Glenn County and is subject to the Glenn County Plan. The Natural Resources Element of the Glenn County General Plan calls for the protection of riparian habitat along the Sacramento River (Glenn County 1993). No adverse impacts to riparian habitat are proposed on the Womble Tract. No conflicts are identified with local ordinances or policies addressing the protection of biological resources; thus, no impacts are identified and no mitigation is required.

(f) ***No Impact.*** No adopted Habitat Conservation Plan or Natural Community Conservation Plan applies to the Colusa Subreach area. The proposed Project is not in conflict with the principles or recommendations of the *Sacramento River Conservation Area Handbook* (Sacramento River Conservation Area Forum 2003) nor the CALFED Ecosystem Restoration Program Plan (California Bay-Delta Program 2000). No impacts are identified and no mitigation is required.

Mitigation Measures

BIO-1: Valley Elderberry Longhorn Beetle (VELB)

(i) Surveys shall be conducted at each of the seven tracts prior to implementation of restoration activities to identify, and mark for protection, elderberry shrubs potentially affected by activities.

(ii) Prior to restoration at each tract, a Worker Environmental Awareness Program for restoration workers shall be conducted by a qualified biologist. The program shall provide all workers with information on their responsibilities with regard to sensitive biological resources, including the federally listed VELB and the need to protect its elderberry host plant.

(iii) Measures to protect buffer areas shall be instituted prior to construction and will include fencing and signs. The distance of the buffer area from the drip line of elderberry shrubs with one or more stems measuring 1.0 inch or greater in diameter at ground level shall be set at the

greatest distance practicable without compromising the goal of planting native vegetation. The distance of the buffer area shall extend at least 20 feet from the drip line of the elderberry plant.

(iv) No insecticides, herbicides, fertilizers, or other chemicals associated with the proposed project that might harm the beetle or its host plant shall be used within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.

(v) Any damage to the buffer area during construction shall be restored following construction primarily using re-vegetation with native riparian plants as appropriate.

BIO-2: Nesting Raptors and Other Nesting Birds

(i) The removal of orchard trees and native trees at the Womble, Stegeman, and Colusa-North tracts, shall be conducted outside of the nesting season (nesting season is February 15 to August 30) to the maximum extent practicable.

(ii) For all proposed Project activities conducted during the nesting season that have a potential to disrupt nesting birds, pre-construction surveys shall be conducted. Pre-construction surveys for nesting raptors and migratory birds, including but not necessarily limited to, yellow-billed cuckoo, California warbler, yellow-breasted chat, and loggerhead shrike, shall be conducted by a qualified biologist. A minimum of one survey must be conducted no more than 14 days prior to the initiation of Project activities. If an active nest is found in close proximity to (i.e., within 250 feet) an active restoration area that will be disturbed by proposed Project activities, a qualified biologist shall determine the extent of a construction-free buffer zone to be established around the nest.

BIO-3: Bats

(i) In the event that native trees greater than or equal to 12 inches in diameter at 4.5 feet above grade within the Colusa-North Tract would be removed, a pre-construction survey for roosting bats shall be conducted prior to removal. No activities that would result in disturbance to active roosts of special-status bat species shall proceed prior to the completed survey. If no active roosts are found, then no further mitigation is needed. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified biologist will determine the extent of a construction-free zone to be established around the roost; access and time limits shall also be identified. If either a maternity roost or hibernaculum (i.e., a location used for hibernation) is present, the following measures shall also be implemented. CDFG shall also be notified of any active nurseries or hibernacula identified in the survey.

- If active maternity roosts or hibernacula are found, the Colusa-North temporary access road will be relocated to avoid the loss of the tree occupied by the roost, if feasible.
- If an active nursery roost is located and the access road can not be relocated to avoid removal of the occupied tree or structure, demolition of that tree or structure should commence before maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31) and the disturbance-free buffer zones described above shall be observed during the maternity roost season (March 1 to July 31),

- If a non-breeding bat roost or hibernacula is found in a structure or tree scheduled to be removed, the individuals shall be safely evicted, under the direction of a qualified biologist (as determined by a Memorandum of Understanding with CDFG), by opening the roosting area to allow air flow through the cavity. Demolition shall then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for airflow and the demolition). This action should allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed shall first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.

BIO-4: Riparian Habitat at Colusa-North Tract

(i) If a temporary access road is constructed at Colusa-North, the impact to existing habitat shall be minimized by implementing the following measures:

- The access road shall be designed with the minimum width needed for tractors and other equipment and the minimum length needed from the existing levee road to the site.
- Upon completion of Project activities at the Colusa-North Tract, the land surface affected by the access road shall be restored as closely as practicable to preconstruction contours and revegetated with native riparian species.

BIO-5: Wetlands

(i) Prior to the initiation of any ground-disturbing activities at the Womble and Colusa-North tracts, a qualified biologist shall identify all features that may exhibit wetland characteristics (i.e., suspected of meeting wetland criteria, including waters subject to USACE jurisdiction, as well as other waters not subject to USACE jurisdiction but subject to the jurisdiction of the Regional Water Quality Control Board (RWQCB)). These features plus an appropriate protective buffer shall be flagged or fenced prior to the start of start of site preparation, irrigation system installation, or other ground disturbance.

(ii) Mechanized equipment operation in and within 100 feet of identified features shall be avoided to the extent practicable. If avoidance of discharge of dredged or fill material is not practicable, the following measures shall be implemented.

- Conduct a wetland delineation pursuant to USACE requirements to determine the nature and extent of "waters of the United States" that are subject to restoration activies within the Womble and Colusa-North tracts.
- Prior to any discharge of dredged or fill material into "waters of the United States," including wetlands, authorization under a Nationwide Permit or Individual Permit shall be obtained from the USACE. For fill requiring a USACE permit, water quality certification shall be obtained from the RWQCB prior to discharge of dredged or fill material.
- Prior to any activities that would obstruct the flow of or alter the bed, channel, or bank of any intermittent or ephemeral creeks, notification of streambed alteration shall be

submitted to the CDFG, and, if required, a Streambed Alteration Agreement shall be obtained.

- Construction activities that would have an impact on "waters of the United States" shall be conducted during the dry season to the extent practicable to minimize erosion.
- All measures contained in permits or associated with agency approvals shall be implemented.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
V. CULTURAL RESOURCES Would the project:				
(a) Cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5?	☐	☒	☐	☐
(b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
(c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
(d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion of Impacts

(a), (b), and (d) ***Less Than Significant With Mitigation Incorporated.*** The cultural resources inventory of the entire Project area, including 622 acres subjected to a records search and 414 acres subjected to both a records search and a pedestrian survey, indicates the presence of one possible cultural resource site (Westwood 2005). This feature may be related to a previously recorded and investigated site determined to be eligible for listing on the National Register of Historic Places (NRHP) that is located in the vicinity; however, in the absence of surface artifacts, this identification remains tentative (Westwood 2005). The known boundaries of the feature possibly extend into the Project area and the likelihood exists that it is cultural in origin and related to the previously recorded site. Moreover, this feature, if deemed cultural, may satisfy significance criterion D of both the National Historic Preservation Act (NHPA) (36.CFR800.5(a)(1)) (Westwood 2005) and CEQA (Title 14 CCR Chapter 3 Article 5, Section 15064.5). Although no surface artifacts were observed during a surface scrape of the deposit, subsurface cultural materials may be revealed during restoration activities.

The Project site is not known to contain any human remains; however, if previously unknown remains are inadvertently discovered during Project implementation, the mitigation measures described at the end of this section shall be implemented to reduce potential impacts associated with the proposed Project to a less-than-significant level.

(c) ***No Impact.*** The Colusa Subreach of the Sacramento River is not known to support any unique paleontological resources or unique geologic features.

Mitigation Measures

The following mitigation measures shall be incorporated into the Project design and all construction plans and specifications (construction documents) to reduce the potential impacts of the proposed Project to a less-than-significant level. The "professional archaeologist" in the measures below refers to an archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards for prehistoric and historical archaeology. California State Code, Sections 6253, 6254, and 6254.10, authorizes state agencies to exclude archaeological site information from public disclosure under the Public Records Act.

CR-1: Construction Worker Training and Inadvertent Discoveries

Prior to initiation of construction or ground-disturbing activities, TNC shall provide worker awareness training and informational materials to all construction workers regarding the possibility of discovering prehistoric or historic cultural resource materials. Personnel shall be instructed that if materials are encountered that may represent archaeological material, work within 50 feet of the find shall be halted and a professional archaeologist shall be consulted. Once the find has been identified, TNC's project archaeologist will make the necessary plans for treatment of the cultural resources and for the evaluation and resolution of any adverse effect to such properties pursuant to the NHPA and CEQA. Work may continue on other parts of the proposed Project while mitigation for historical or unique archaeological resources takes place.

CR-2: Protection of Known Cultural Site.

A professional archaeologist shall be present during ground-disturbing activities on the one tract (identified in the confidential cultural resources investigation) where cultural materials are suspected. The archaeologist shall have authority to stop work if needed. If potentially significant cultural materials are detected, all work shall halt within a 100-foot radius of the find until clearance is provided by the archaeologist. CDFG, in consultation with TNC's project archaeologist, shall determine the need for additional cultural resources monitoring in areas removed from the identified feature.

CR-3: Monitor for Known Cultural Site

An experienced Native American monitor, representing a local group such as the Cortina Band of Indians (Cortina Indian Rancheria, Wintun Tribe) shall be present during ground-breaking activities on the one tract (identified in the confidential cultural resources investigation). In the event of the inadvertent discovery of human remains, the monitor will facilitate Native American consultation, but will not replace the required protocol outlined in Mitigation Measure CR-4, below. DFG, in consultation with TNC's project archaeologist, shall determine the need for additional cultural resources monitoring in areas removed from the identified feature

CR-4 Inadvertent Discovery of Remains

If human remains are encountered during construction, work in the affected portion of the Project shall stop and the County Coroner's Office shall be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by Public Resources Code, Section 5097. The NAHC will notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains.

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

Discussion of Impacts

(a)(i), (ii), (iii), and (iv) ***No Impact.*** There are no Alquist-Priolo Earthquake Fault Zones in Colusa or Glenn counties (California Geological Survey 2007). The portions of Colusa and Glenn counties included in the Project area are not at significant risk of landslide or seismic-related ground failure (Colusa County 1989).

(b) ***Less than Significant Impact.*** Wind erosion and occasional flood events influence the current level of erosion in throughout the CSP. Proposed ground-disturbing activities at the seven tracts will expose soil resources to surficial erosion processes, primarily overland flow, but to a lesser extent from overbank flooding. The restoration activities are similar to the grading activities that have occurred in conjunction with previous agricultural practices. The conversion of these tracts from transitional vegetation to riparian habitat would help to stabilize soils and reduce the long-term potential for soil erosion at each tract.

(c) ***No Impact.*** The Project site is not in a geologically hazardous area and involves no structural development.

(d) ***No Impact.*** Although the restoration areas on any of the seven tracts could contain expansive soils, the proposed Project does not involve construction of any major structures, pilings or abutments, or foundations for permanent facilities. The impact of Project implementation resulting from activities potentially taking place on expansive soils is anticipated to be less than significant.

(e) ***No Impact.*** The Project does not involve, nor would it affect the use of, septic tanks or alternative wastewater disposal systems.

Mitigation Measures

No mitigation is required.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
VII. HAZARDS AND HAZARDOUS MATERIALS Would the project:				
(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
(b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
(c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
(d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
(f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
(g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
(h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion of Impacts

(a) and (b) ***Less than Significant Impact.*** The proposed Project would not involve any activities such as industrial or manufacturing uses that would require the transport, use, or disposal of substantial quantities of hazardous materials. Implementation of the proposed Project would include the routine use herbicides. The routine transport, use, and disposal of such materials would be limited and would not present a health risk when the materials are handled according to the manufacturer's instructions. In addition, federal, state, and local laws regulate all aspects of hazardous material transport, use, and storage. Such regulations are intended to minimize hazards to the public and environment.

Mechanized equipment and vehicles used during site preparation would require the use of small quantities of hazardous materials such as oils, fuels, and hydraulic fluids, but restrictions will be placed on equipment maintenance, refueling, and storage, with such activities being confined to a designated staging area. As part of the proposed Project, TNC will adhere to the standard BMPs that address spill control and prevention, and the potential adverse impacts from construction-related accidental spills of hazardous materials is considered to be less than significant.

(c) ***No Impact.*** There are no existing or proposed schools located within one-quarter mile of any of the proposed restoration tracts.

(d) ***No Impact.*** There are no listed hazardous materials sites located within the proposed restoration tracts. The restoration tracts are not included on the Department of Toxic Substances Control (DTSC) Hazardous Waste and Substances Site List (Cortese List), compiled pursuant to Government Code Section 65962.5.

(e) and (f) ***No Impact.*** The 7 restoration tracts are located outside the established approach/departure clear zones of public and military airports in the region, including the Colusa County Airport approximately 1 mile southeast of the City of Colusa. Beale Air Force Base is located approximately 34 miles southwest of the City of Colusa. Several small private airfields exist in the surrounding region, including Davis Airport, 2 miles southwest of Colusa, and Gunnersfield Ranch airfield, 4 miles west of the Sacramento River at Stegeman. Habitat restoration and proposed uses associated with the Project would not present airstrike risks or otherwise conflict with airport operations.

(g) ***No Impact.*** The Project does not involve a use or activity that could interfere with emergency-response or emergency-evacuation plans for the area. The change in management and ownership would not physically interfere with access to the river by emergency services.

(h) ***Less than Significant Impact.*** Although the proposed restoration tracts have a relatively low wildland fire-hazard potential (Colusa County 1989), fire potential is influenced by vegetation type, slope, and use. Riparian vegetation, generally flat topography, and anticipated low public recreational use of the tracts makes the potential for wildfire within these areas less than significant.

Mitigation Measures

No mitigation is required.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
VIII. HYDROLOGY AND WATER QUALITY Would the project:				
(a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
(b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
(d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
(e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
(f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
(g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
(h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
(i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
(j) Inundation of seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion of Impacts

As discussed in Section 2.4.1, Stakeholder Concerns, a detailed hydraulic analysis was conducted for the Colusa Subreach, which assessed the potential effects resulting from proposed wildlife habitat restoration of riparian habitat within the floodway (Ayers Associates 2008). The analysis also provided information regarding the river channel depth and migration and the capacity of the 100-year floodplain between the levees within the Colusa Subreach. The hydraulic modeling covered the entire Colusa Subreach including the Ward Tract to allow for the consideration of cumulative effects. The model was used to compare the existing conditions high flow levels and the 1957 Design Flow levels with the water surface profiles of the proposed tracts after restoration.

Table 5-1 provides a summary of information derived from the hydraulic analysis. Additional information and detailed explanations are provided in the report.[7] In summary, the study concluded that:

[7] The final hydraulic analysis report is available on the CSP website at *http://www.sacramentoriver.ca.gov*.

- The minor velocity increases and decreases associated with the proposed Project will not significantly affect erosional or depositional patterns in the river channel or floodplain.
- The computed water surface elevation for the post-project restoration sites would be at or below the existing conditions or the 1957 design profile, with minor exceptions.
- No adverse effects would be associated with levee seepage from the restoration sites.
- Impacts on adjacent lands were found to be less than significant.

Table 5-1. Summary of Results of the Hydraulic Study Before and After Restoration

TRACT	RIVER MILE (RM)	EXISTING RIVER FLOW VELOCITY	CHANGE IN RIVER FLOW VELOCITY WITH PROJECT	CHANGE IN WATER SURFACE ELEVATION WITH PROJECT	IMPACTS TO ADJOINING PROPERTIES
Womble	RM 162	<2 fps (backwater)	-0.53	0.74 ft below design; 0.05 ft below existing	Increase in velocity up to 0.43 fps adjacent to property; not high enough to cause erosion.
Jensen	RM 161	1 to 3 fps (active floodplain)	-0.5 fps (riparian forest); +1 fps (scrub/grassland)	slightly < existing; slightly > design (no impacts)	Max. velocity <3 fps, not high enough to cause erosion; lower velocities downstream; no impacts
Stegeman	RM 160	<3 fps (active floodplain)	+1.5 fps	< design; 0.1 ft above existing (no impacts)	Velocity up to 4 fps in channel; bank erosion may occur on CDFG property downstream of armoring
1000-Acre Ranch	RM 160	<2 (backwater)	Reduction in velocity (1 fps or less)	varies upstream and downstream; negligible increase above existing	No negative effects associated with velocity; no impacts on adjacent property
Boeger	RM 148	2 to 3 fps (narrow reach)	+0.3 fps	< design flow; 0.25 ft. above existing (no impacts)	Increase limited to center of channel; no negative effects; no impact on adjacent property; opposite riverbank adequately armored
Colusa-North	RM 147	<1 fps (ineffective velocity area)	<0.2 fps	< design flow; 0.05 ft. above existing (no impacts)	No negative effects associated with velocity; no impacts on adjacent CDFG property
Cruise n' Tarry	RM 146	<2 fps (backwater; eddy)	No change	< design flow; same as existing	No negative effects associated with velocity; no impacts on adjacent property
Ward	RM 146	up to 3 fps	Reduction in velocity; effect varies	< design flow; same to +0.1 as existing (no impacts)	Velocity increases up to 0.2 fps adjacent to Cruise n' Tarry; some new deposition possible in areas of reduced velocity. No effect on repaired site or armored bank.

Notes: 1. Velocities are given in feet per second (fps).
2. The Ward Tract is a separate DWR project under CEQA, which is included here for information and cumulative effects.
3. Design flow is 1957 USACE data.

(a) ***No Impact.*** The proposed Project does not include discharge that would be expected to violate water quality standards, and it would not involve wastewater discharge. Agricultural activities would be curtailed at several tracts; however, at all active restoration sites, ground-disturbing activities particularly in the first two years would result in portions of the tracts being exposed to erosional process, including potential Sacramento River flood flows.

Over several years, the establishment of riparian vegetation would provide sufficient ground cover to reduce the Project-related erosion that could affect water quality. While there is some potential for overbank flooding to contribute sediment to the Sacramento River, this would only occur during flows that would have elevated turbidity and suspended sediments throughout the Colusa Subreach. The amount of sediment delivered to the surface waters under such conditions is not likely to be greater than under existing conditions; in fact, over time, with revegetation, it should be less. The proposed project is not projected to contribute to these levels to a degree that would violate water quality standards, nor adversely affect the designated beneficial uses for the Sacramento River.

(b) ***Less than Significant Impact.*** Irrigation of the restoration area would use groundwater from existing and new wells. The amount of water required would not be expected to substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level. The production rates at nearby wells would not be expected to be affected.

(c) and (d) ***Less than Significant Impact.*** The effects of the proposed restoration of riparian habitat were investigated in the detailed hydraulic analysis conducted for the Colusa Subreach (Ayers Associates 2008). Implementation of the proposed Project would not be expected to substantially alter the existing drainage pattern of individual tracts. The restoration work, which includes activities such as site preparation and land planing, do not involve excavation or grading by heavy equipment, nor would they result in the development of new impervious surfaces. The proposed Project would not change topographic contours greatly, and the proposed activities do not include alteration of a perennial stream or river.

As presented in Table 3-2, the 7 restoration tracts are located at varying distances from the Sacramento River. The restoration areas closest to the river are Cruise n' Tarry (20 feet), Stegeman (50 feet), and Boeger (50 feet). Other restoration areas range from 200 to 2300 feet at the closest point. Intervening vegetated ground cover can be expected to intercept and filter stormwater runoff, and the proposed Project is not likely to result in substantial erosion of siltation on- or off-site during storm events.

Ground exposure during construction and/or decommissioning of roads, trails, parking areas and irrigation systems could temporarily increase sediment yield to the Sacramento River during larger flood flow events. Because the areas of disturbance would total more than 1 acre, restoration projects may be required to file a Stormwater Pollution Prevention Plan (SWPPP) with the Central Valley Regional Water Quality Control Board and adhere to the specified best management practices. With this level of impact and the requirement to adhere to BMPs, no mitigation is required.

Based on current understanding, climate change may have effects on the Sierra snowpack and the hydrology of California's major rivers including the Sacramento, which may, in turn, have effects on water storage and supply systems, flood management, and other water-related uses and conditions. While the full implications are not entirely understood, Project-related changes in ground cover and

hydraulic roughness do not appear likely to contribute significantly to, or be affected by, climate change-induced hydrologic effects.

(e) ***No Impact.*** In a hydrologic context, the proposed Project is not the kind of project that would contribute to urban runoff (i.e., create or contribute storm water that would exceed capacities of systems or contribute substantial additional sources of polluted runoff).

(f) ***No Impact.*** Site preparation and planting of native vegetation would have no impact on water quality.

(g) ***No Impact.*** Figure 5 illustrates the seven restoration tracts on FEMA flood hazard maps. All tracts are located within Zone A. The proposed Project, however, does not include, or induce the need for, housing, and it would not result in development of houses in the 100-year floodplain.

(h) ***Less than Significant Impact.*** The proposed Project would not place structures within a 100-year flood hazard area. Restoration of native vegetation would be associated with minor changes in flood flows; however, as discussed in item (d), these changes are determined to be less than significant.

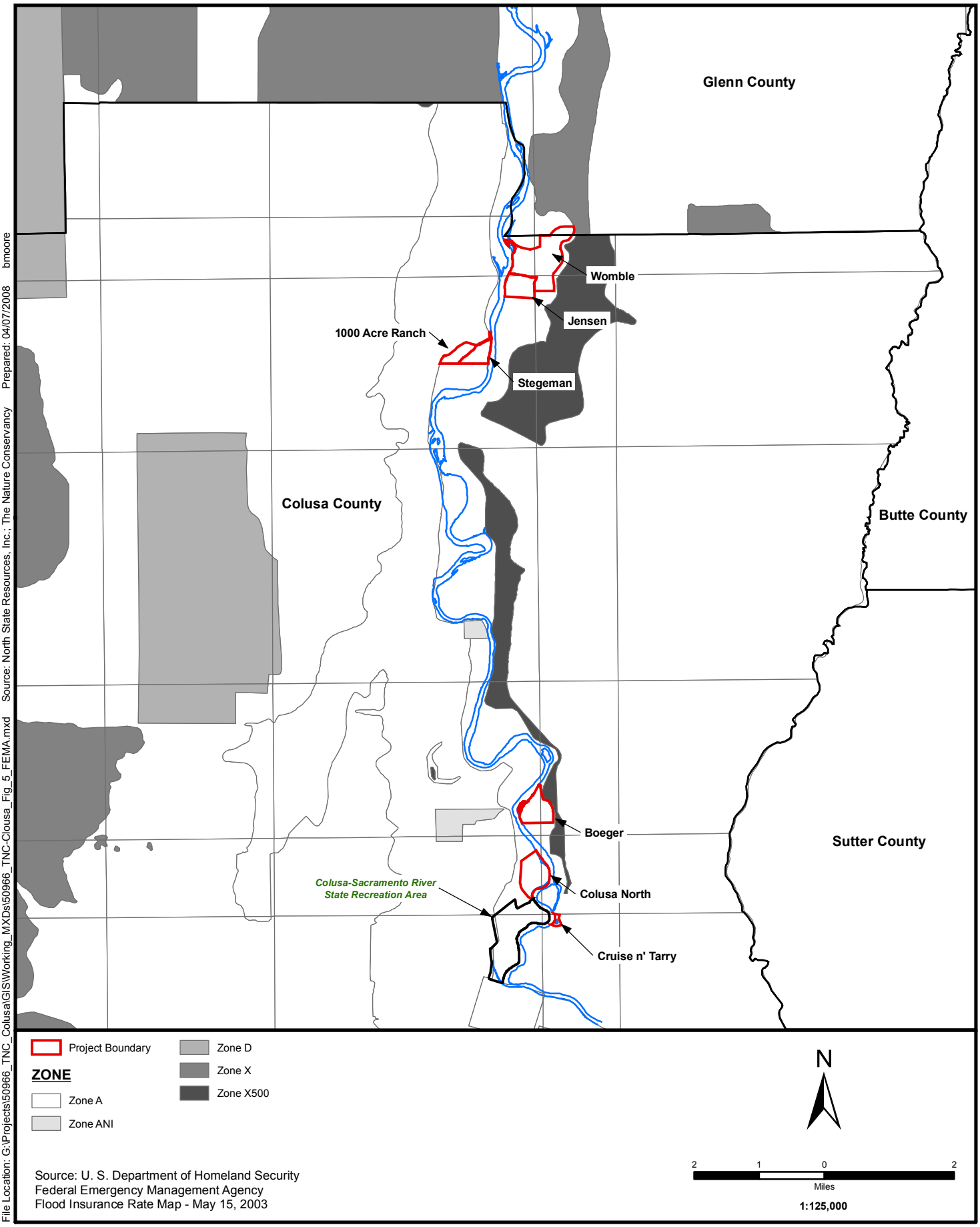
(i) ***No Impact.*** Implementation of wildlife habitat restoration would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

(j) ***No Impact.*** The affected environment is not subject to inundation as a result of seiche, tsunami, or mudflow.

Mitigation Measures

No mitigation is required.

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



Source: U. S. Department of Homeland Security
Federal Emergency Management Agency
Flood Insurance Rate Map - May 15, 2003

File Location: G:\Projects\50966_TNC_Colusa\GIS\Working_MXDs\50966_TNC-Clousa_Fig_5_FEMA.mxd Source: North State Resources, Inc.; The Nature Conservancy Prepared: 04/07/2008 bmoore

Figure 5
FEMA 100 year Flood Zone Map

Discussion of Impacts

(a) ***No Impact.*** The proposed Project would **have** not physically divide or otherwise affect established communities, such as Colusa and Princeton.

(b) ***Less than Significant Impact.*** The seven proposed restoration tracts are entirely inside of the flood control levees and at various flows, subject to inundation with a frequency of 1 to 5 years. These tracts encompass alluvial features (floodplains and terraces) that, to varying degrees were cleared of riparian vegetation and converted to agricultural crops over time. None of the proposed activity areas within these tracts extend to the active channel of the Sacramento River, with the exception of the constructed inlet at the Cruise n' Tarry Tract, which is essentially a backwater. Within the levees that extend along the Colusa Subreach, the lands are entirely devoted to wildlife habitat and agricultural crops, with the exception of small areas used for recreation, flood control, and water supply facilities. There are no residential or urban uses within the project area.

(c) ***No Impact.*** The proposed Project would not conflict with any existing habitat conservation or natural community conservation plans.

Mitigation Measures

No mitigation is required.

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

Discussion of Impacts

(a) and (b). ***No Impact.*** The California Geological Survey (CGS) is responsible for designating the location and significance of key extractable mineral resources. Although lands adjacent to the Sacramento River and its tributaries represent potentially viable commercial sand and gravel resources, no key extractive resources have been designated by the CGS within, or in close proximity to the proposed project area (California Department of Conservation 2007). Furthermore, these tracts would remain undeveloped and the proposed project would not preclude future extraction of mineral resources, if present. Therefore, implementation of the proposed Project would have no impact on the availability of any known mineral resource or otherwise affect mineral resources.

Mitigation Measures

No mitigation is required.

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

Discussion of Impacts

(a), (b), and (c). ***No Impact.*** Implementation of the proposed Project would not produce noise levels or groundborne vibration that would exceed the local general plans or noise ordinances or applicable standards of other agencies. The proposed restoration tracts are generally acoustically isolated and are not located near any known sensitive receptors. The distance of the proposed restoration tracts from known sensitive receptors (e.g., residences) is sufficient to allow for substantial attenuation of noise at these locations. Because the tracts are located in the vicinity of other lands currently in agricultural production, noise generated by restoration activities (e.g., bulldozer, chainsaws, trucks, etc.) would be similar to the existing noise environment. The levees, which are located between the proposed restoration tracts and nearby homes, would serve to buffer project-generated noise; levees have been shown to decrease ambient noise levels by as much as 15 decibels (dBA) in areas where the levees are

several feet higher than the "line of sight" between the noise source and the receiver (Colusa County 1989).

Recreational use of the restoration tracts would have no impact on ambient noise levels within the Project vicinity. Outdoor recreational opportunities at the sites would include boating, fishing, birdwatching, and hiking. None of the tracts would be open for motorized recreation.

Vehicles accessing the proposed Project area for the purposes of Project implementation and, later, maintenance and monitoring and recreation, are anticipated to be light and intermittent. .

(d) ***Less than Significant Impact.*** Temporary and intermittent increases in ambient noise could occur during initial Project activities (e.g., site grading, orchard removal); however, given the relatively isolated locations and because such activities would use equipment similar to that which is currently used for agricultural operations in the vicinity, temporary increases in noise are considered less than significant. As described above, the distance of the proposed restoration tracts from known sensitive receptors and the buffering effect afforded by the levees would attenuate any temporary increases in ambient noise resulting from Project activities and preclude Project implementation from having significant impacts on ambient noise levels in the Project vicinity.

(e) and (f). ***No Impact.*** The proposed Project is not located in the vicinity of any public airports or private airstrips or within any airport noise contours.

Mitigation Measures

No mitigation is required.

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

Discussion of Impacts

(a), (b), (c) ***No Impact.*** The proposed Project would not affect population and housing. The proposed restoration tracts are owned by the state and TNC. The management objectives for the restoration tracts include preservation, restoration, and enhancement of natural ecosystems and do not include new homes or businesses.

Mitigation Measures

No mitigation is required.

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

Discussion of Impact

(a)(i) and (ii). ***Less than Significant Impact.*** Implementation of the proposed Project is judged to have a less-than-significant impact in terms of fire and police protection services. The amount of fuel for wildland fires would increase as a result of proposed changes in vegetation types (i.e., row-crop agriculture changed to riparian forest and grassland); anticipated improvements in public access would be associated with a slightly higher level of fire risk. The anticipated level and type of use (low-intensity, non-motorized recreation) is unlikely to cause a significant increase in the number of fire incidents handled by existing fire protection services. Fire protection on non-federal lands in the Project vicinity is provided through a mutual aid agreement by local rural fire districts such as the Glenn-Colusa Fire Protection District located in Butte City and the Colusa Rural Fire Protection District located in Colusa, and the California Department of Forestry and Fire Protection (Colusa

County 1989). The existing level of service is considered to be adequate to fight any fires that may occur within the Project area.

Similarly, the impact of the proposed Project on the level of service and performance capabilities of area police protection agencies is considered less than significant. County sheriff's departments provide general public safety and law enforcement services for the unincorporated areas of Glenn and Colusa counties, which include the proposed restoration tracts. Although some increase over time in public use of the Colusa Subreach area is anticipated that could lead to a proportionate increase in the demand for police and emergency services, the increase is anticipated to be small.

(a) (iii) and (iv). ***No Impact.*** Restoration of wildlife habitat at the seven tracts would have no discernable effect on the need for new or expanded schools. The proposed Project would not directly or indirectly affect residential development that would create a demand for new or expanded park facilities.

(a)(v). ***Less than Significant Impact.*** A low to moderate increase in public use of public lands over the long term would be associated with the proposed Project, resulting from improved but still controlled public access. In association with the fire and police services noted above (items i and ii), emergency rescue services may also be subject to slightly more frequent calls. The increase in public service demand is a less-than-significant cumulative effect, related to a trend in acquisition of public lands, other land use changes, and general population growth.

Mitigation Measures

No mitigation is required.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
XIV. RECREATION **Would the project:**				
(a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
(b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Discussion of Impacts

(a) ***Less than Significant Impact.*** Public use of the seven tracts would be determined by the public agencies that manage, or will manage, the tracts. Three of the tracts—Womble, Stegeman, and Colusa-North—are part of the Sacramento River Wildlife Area managed by the CDFG and are open to public use. Permitted existing or future public uses include hunting, fishing, hiking, birdwatching and

wildlife observation, photography, and environmental education. It is expected that following restoration, the three tracts anticipated to be managed by CDFG—Jensen, 1000-Acre Ranch, and Boeger—would also be open to public use. The Cruise n' Tarry Tract is currently closed to public use, and the potential for opening the tract to public use is currently unknown.

Public access to the seven tracts is either by walking, driving, or boat. Boat access exists to all seven tracts, although river access to the Cruise n' Tarry is limited. Three of the tracts—Womble, Jensen, and Cruise n' Tarry—are accessible from River Road. Because of the limited access and the physical nature of riparian habitats, the intensity and frequency of public use are expected to be low, which would be similar to the public use of other public properties in the CSP area (EDAW 2007a). Existing recreational opportunities in areas in the vicinity of the seven tracts would not be substantially affected by the proposed Project. Therefore, the impacts would be considered less than significant.

(b) ***Less than Significant Impact.*** Minor construction activities would be associated with public access improvements. Depending on location, construction of the proposed recreation-related facilities could have adverse effects on sensitive resources, including special-status species and cultural resources; measures are provided under those topics to reduce the potential effects to less-than-significant levels.

Mitigation Measures

No mitigation is required.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
XV. TRANSPORTATION/TRAFFIC Would the project:				
(a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
(b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
(c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
(d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
(e) Result in inadequate emergency access?	☐	☐	☒	☐
(f) Result in inadequate parking capacity?	☐	☐	☒	☐
(g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

Discussion of Impacts

(a), (b). ***Less than Significant Impact.*** Although six of the seven restoration tracts are either currently open—Womble, Stegeman, and Colusa-North—or would be open—Jensen, 1000-Acre Ranch, and Boeger—to public access, it is anticipated that Project implementation would have a less-than-significant impact on roads and traffic. Six of the tracts—Womble, Jensen, Stegeman, 1000-Acre Ranch, Boeger, and Colusa-North—are expected to be accessible from the river by boat. Three of these tracts—Womble, Jensen, and Cruise n' Tarry—are expected to be accessible from public roads (e.g., River Road).

Because of the limited access and the physical nature of riparian habitats, the intensity and frequency of public use is expected to be low, consistent with other existing public lands in the CSP area. The anticipated low intensity of recreation use was specified in the Colusa Subreach Recreation Access Plan in 2007 (EDAW 2007a). Because the level of public use is anticipated to be low, implementation of the proposed Project would have a less-than-significant impact on the level of service offered by area roads.

(c) ***No Impact.*** The proposed Project would have no impact on air traffic operations.

(d) ***No Impact.*** The proposed Project does not include any hazardous roadway design features nor would it require any incompatible uses of area roadways.

(e) ***Less than Significant Impact.*** Minor increases in traffic on rural roads as a result of the proposed Project could impede emergency vehicle access, primarily on the roads that run along the tops of the levees; however, such impacts would be less than significant since (1) the level of traffic associated with recreational users of the tracts is anticipated to be low, and (2) the proposed restoration tracts are accessible via River Road, but the projected level of public use is not anticipated to increase traffic levels to a level that would restrict access for emergency service vehicles.

(f) ***Less than Significant Impact.*** Only the Womble, Jensen and Cruise n' Tarry Tracts are accessible from public roads. An onsite primitive parking is proposed to serve the Womble and Jensen Tracts

and an existing parking lot adjoins the Cruise n' Tarry Tract. Off-road parking areas are expected to be sufficient to satisfy the anticipated low level of use that they would receive from the public. Thus, implementation of the proposed Project would have a less-than-significant impact on available parking capacity.

(g) ***No Impact.*** The proposed Project does not conflict with adopted plans, programs, or policies concerning alternative transportation.

Mitigation Measures

No mitigation is required.

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

Discussion of Impacts

(a), (b), (c) (e), (f), (g) ***No Impact.*** The Project will have no impact on utilities and service systems.

(d) ***Less than Significant Impact.*** Restoration activities include the use of irrigation systems. Irrigation systems would be installed in the second year of tract restoration activities and would be used for a period of 3 years thereafter. Water sources include existing on- and offsite wells, and pumping from a slough that is not directly connected to the Sacramento River. No direct pumping from the river is proposed.

Mitigation Measures

No mitigation is required.

	Potentially Significant Impact	*Less than Significant With Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
XVII. MANDATORY FINDINGS OF SIGNIFICANCE				
(a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒
(b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
(c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Discussion

The conversion of 251 acres from former or existing orchards and fields to native vegetation and wildlife habitat on seven sites along the Colusa Subreach of the Sacramento River would result in primarily beneficial effects to the environment, particularly in the long term. The proposed Project does not threaten to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or

prehistory. This initial study finds that, overall, these resources would be protected and enhanced by the Project.

The effects of the proposed Project are generally limited in all areas. In several areas, the Project may contribute an additional increment to cumulative environmental effects. The permanent conversion of agricultural land to non-agricultural uses is an ongoing adverse trend in the state; however, the Project's effects would not be irreversible. The lands are located in a designated floodway, and the total acreage is relatively small within the County agricultural land base. Construction equipment and activities would generate emissions and particulate matter in air basin that is already impacted; these emissions include greenhouse gasses that contribute to climate change. However, these effects would be short-term and would be reduced by best management practices.

Similarly, potential erosion of exposed soils and sedimentation of surface waters is a possible cumulative effects concern; however, the proposed active restoration sites are for the most part located at some distance from the river channel, with intervening vegetation lands, and after the planted native vegetation is established, the restored sites would typically be less prone to erosion. The Project also incorporates best management practices for reducing erosion and sedimentation. Re-establishing native vegetation (and, in hydraulic terms, modifying the "roughness") at the seven restoration sites has implications for flood flow velocity changes and possible erosion or deposition in the floodway. Such concerns were examined in detail in a separate hydraulic analysis and found to be less than significant, both individually as well as cumulatively. Therefore, the initial study finds that the environmental effects associated with the Colusa Subreach Project are individually limited and not cumulatively considerable.

The proposed Project would not be associated with any activities that conceivably could have direct or indirect adverse effects on human beings. The Project would not result in, or indirectly promote, people residing in the floodplain, nor would existing communities be disrupted, nor would the Project create substantial new demands on services or utilities. Therefore, the Colusa Subreach Project would not be associated with substantial adverse effects on human beings, either directly or indirectly.

SECTION 6: DETERMINATION

On the basis of this initial evaluation:

☐ I find that the Project COULD NOT have a significant effect on the environment and a NEGATIVE DECLARATION will be prepared.

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

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

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

☐ I find that although the Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

Signature

8/26/08

Date

Kent Smith

Printed Name

California Dept. of Fish and Game

For

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This expanded initial study was prepared under the direction of the California Department of Fish and Game, Region 2, by North State Resources, Inc., under contract to The Nature Conservancy.

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SECTION 8: REFERENCES

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APPENDIX A

Site-Specific Planting Plans for Colusa Subreach Tracts

Appendix A. Site-Specific Planting Plans for Colusa Subreach Tracts

This appendix provides detailed descriptions of the active restoration planting plans for each of the seven tracts proposed to be restored to riparian wildlife habitat along the Colusa Subreach. The figures that accompany the descriptions show the proposed plant communities at each tract in the context of the adjacent and nearby remnant riparian habitat. For two of the small tracts, Stegeman and Colusa-North, passive restoration alternatives have also been identified by The Nature Conservancy. The discussion of each restoration tract includes a description of the relationship between the proposed restoration area and the adjoining land ownerships.

To the extent possible, planting of native vegetation would simulate the surrounding natural patterns. Plantings would be placed in arcuate bands to facilitate flood flows and to follow natural terraces and historical traces of fluvial geomorphology. Potential restoration plant communities were selected for each tract based on the characteristics of the remnant riparian vegetation community, as well as the prevalent soils, and estimated elevations. The influence of historic channels and estimated flood frequency at each tract were also considered in selecting the plant communities. The proposed restoration plans were developed using topography data from the U.S. Army Corps of Engineers (USACE) 1997 digital elevation model (DEM) with 2-foot contours, as well as Light Detecting and Ranging (LIDAR) data.

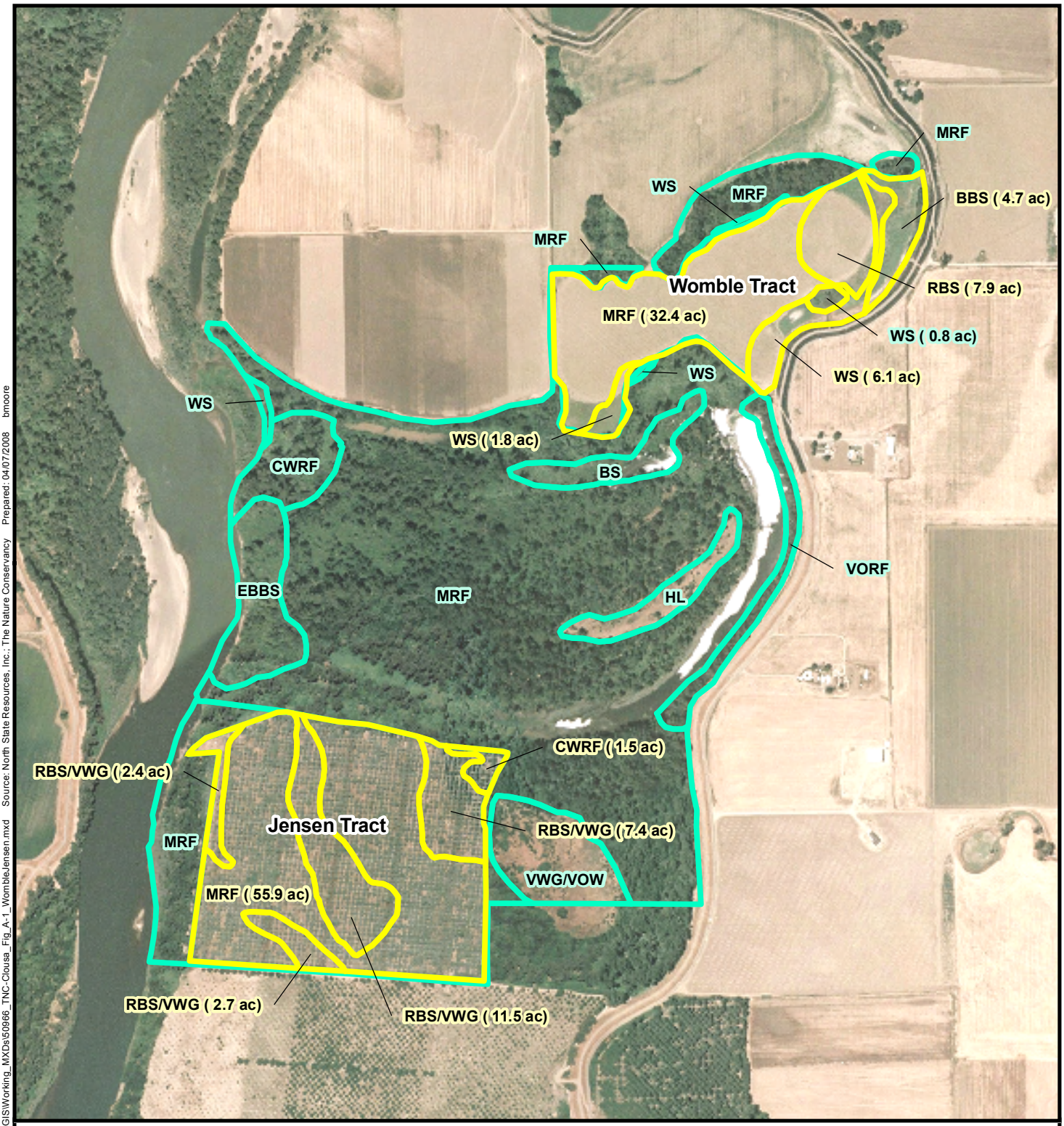
Species composition and distribution frequencies are shown in Tables 1-4 of the baseline assessments prepared for each of the seven tracts; the baseline assessments are available on the Colusa Subreach Planning website at *www.sacramentoriver.org/SRCAF/index.php*.

Womble Tract

Active restoration is proposed to restore native vegetation on 54 acres of the 320-acre Womble Tract. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the Womble Tract are shown on Figure A-1.

The existing patches of mixed riparian forest adjacent to the northern portion of the Womble Tract have required more than 50 years to attain their current size (Hubbell et al. 2006a). This suggests that the development of high-quality habitat would occur slowly (Hubbell et al. 2006a). In addition, the higher elevation of the western two-thirds of the proposed restoration area would probably preclude the amount of flooding required for successful restoration through natural processes (Hubbell et al. 2006a). The higher floodplain could also contribute to an increased risk of infestation by non-native invasive species, such as yellow-starthistle, Johnson grass, and Bermuda grass.

Mixed riparian forest is proposed to be restored to most of the site to connect the existing mixed riparian forest north and south of the restoration area. The mixed riparian forest area is predominantly at a higher elevation than the rest of the site. It has loamier soils and a greater



Proposed Plant Community

Existing Plant Community

Vegetation Interpretation by:
Department of Biological Sciences
CSU Chico, 2005
Orthorectified aerial photography by:
U. S. Department of Agriculture,
National Agriculture Imagery Program (NAIP), 2005

BS - Buttonwillow Scrub
BBS - Blackberry Scrub
CWRF - Cottonwood Riparian Forest
EBBS - Elderberry Savannah/Blackberry Scrub
HL - Herbland
MRF - Mixed Riparian Forest
RBS/VWG - Rose/Baccharis Scrub/Valley Wildrye Grassland
RBS - Rose/Baccharis Scrub
VWG/VOW - Valley Wildrye Grassland/Valley Oak Woodland
VORF - Valley Oak Riparian Forest
WS - Willow Scrub

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Feet

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North State Resources, Inc.

Colusa Subreach Wildlife Habitat Restoration Project

Figure A-1
Proposed and Existing Vegetation, Womble and Jensen Tract Area

depth to the water table and is mainly within the estimated 2- to 4-year floodplain. These characteristics are typical of areas that support mixed riparian forest (Hubbell et al. 2006a).

Rose/baccharis scrub vegetation would be planted in an area adjacent to the eastern edge of the proposed mixed riparian forest. The Womble Baseline Assessment Report (Hubbell et al. 2006a) found evidence of a gravel pit in this part of the site in the 1968 Glenn County Soil Survey (U.S. Department of Agriculture 1968) as well as on a 1952 aerial photo. Soils in this area tend to be coarser-textured and thus drier than surrounding areas and are very slightly mounded. Flooding in this area occurs on average every 2 to 4 years.

Narrow stringers of willow scrub vegetation are proposed to be planted (1) along the eastern edge of the rose/baccharis scrub, widening to the south, and (2) in a small area in the southeast corner of the proposed restoration area. Blackberry scrub would occupy the east end of the proposed restoration site. Both the willow scrub and blackberry scrub restoration areas are subject to ponding annually, as a result of their slightly lower elevation (USACE 1997). The area proposed for restoration as blackberry scrub encompasses an area that historically was occupied by an oxbow lake (Hubbell et al. 2006a). The area coincides with the elevation of surrounding elderberry blackberry scrub and the California blackberry-dominated shrub layer in the northern patch of mixed riparian forest adjacent to the site.

Approximately 14 percent of the proposed restoration area on the Womble Tract abuts existing cropland. The active restoration area abuts agricultural land to the north and west; the land to the east is separated by the flood protection levee and River Road. The majority of the property to the west is annually planted in field crops. The restoration area abuts about 1100 feet of the ownership to the west. Along that joint property line, approximately 350 feet of the boundary is remnant habitat and 750 feet of the boundary is field crops. The adjoining property abuts remnant habitat to the south and west and along most of its northern perimeter. The proposed restoration would result in a relatively small increase in the portion of the cropland perimeter that abuts riparian habitat.

The agricultural property to the north is substantially separated from the Womble Tract by remnant riparian habitat. The common boundary is about 4000 feet in length; three gaps in the vegetation, totaling about 300 feet, would allow the proposed restoration to abut the field crops to the north.

Jensen Tract

Active restoration is proposed to restore native vegetation on 81 acres of the 98-acre Jensen Tract. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the Jensen Tract are shown on Figure A-1.

The patches of existing mixed riparian forest adjacent to the northern portion of the proposed restoration site have required more than 50 years to attain their current size (Hubbell et al. 2006b). This suggests that the development of high-quality habitat would occur very slowly (Hubbell et al. 2006b). In addition, the higher elevation of the proposed restoration site would

likely preclude it from flooding to the degree required for natural process restoration to be successful (Hubbell et al. 2006b). The higher floodplain also contributes to an increased risk of infestation by non-native invasive species such as yellow-starthistle, Johnson grass, and Bermuda grass.

After removal of the existing walnut orchard, most of the site would be converted to mixed riparian forest, which would expand the existing mixed riparian forest north and west of the site. The restoration area is appropriate for riparian forest habitat because of its clay loam soils, the fact that its elevation is similar to that of the remnant vegetation, and its location within the 1- to 2-year floodplain.

The mid-section and portions of the site along the western, southern, and northeast boundaries would be restored to rose/baccharis scrub and valley wildrye grassland. The combination of these two vegetative habitat types would reflect both the composition of the valley wildrye grassland/valley oak woodland found in nearby remnant vegetation as well as the physical factors of the proposed restoration area (Hubbell et al. 2006b). Planting of rose/baccharis scrub vegetation would provide structural and habitat diversity to the site.

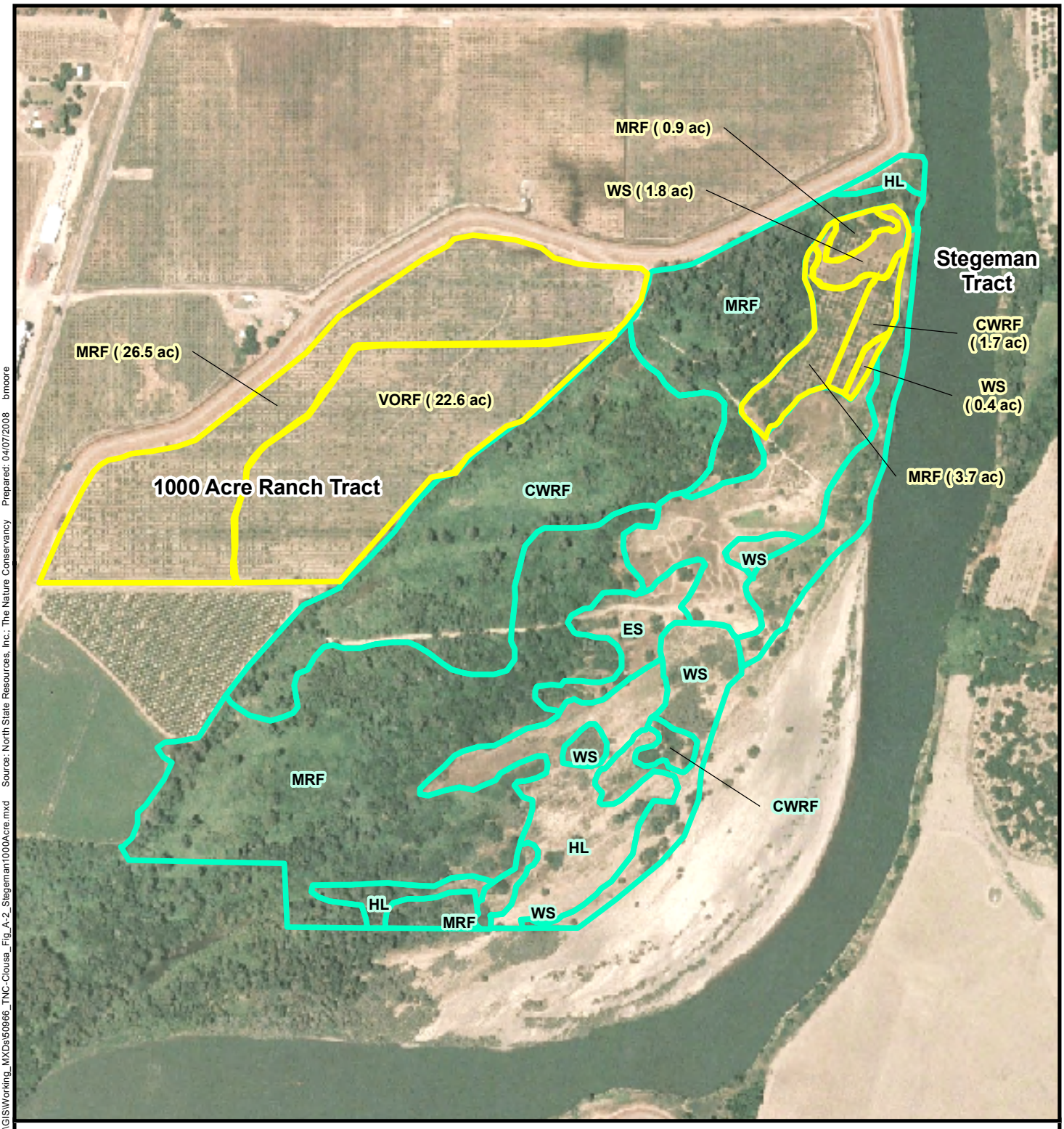
A small pocket of cottonwood riparian forest would be planted in the northeast corner of the proposed restoration site. Restoration of this portion of the site to cottonwood riparian forest would expand the cottonwood forest near the oxbow lake located to the northeast and increase habitat diversity. The higher water table in this portion of the restoration area, the fact that its elevation is similar to that of the adjacent remnant vegetation, and its location in the 2-year floodplain make it conducive to supporting cottonwood riparian forest.

The Jensen Tract abuts agricultural land to the south and riparian habitat the other three sides. Approximately 27 percent of the proposed restoration area is adjacent to existing cropland. The land to the south is a mature walnut orchard with about 2100 feet adjacent to the proposed restoration area. The walnut orchard currently abuts riparian vegetation along its western perimeter and to the east of the proposed restoration area.

Stegeman Tract

Active restoration is proposed to restore native vegetation on 8 acres of the 69-acre Stegeman Tract. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the Stegeman Tract are shown on Figure A-2.

Although the proposed Stegeman Tract restoration site is near the main channel of the Sacramento River and lies primarily lies in the estimated 1- to 2-year floodplain, elevation data (USACE 1997) show that the entire proposed restoration site is higher by at least several feet than the large area of remnant vegetation to the west and south (Hubbell et al. 2006c). This suggests that the proposed restoration site would probably not flood to the degree required for natural process restoration to be successful (Hubbell et al. 2006c). In addition, the Stegeman Tract Baseline Assessment Report found through a comparison of air photos (1999 and 2004) that the



Proposed Plant Community

Existing Plant Community

Vegetation Interpretation by:
Department of Biological Sciences
CSU Chico, 2005
Orthorectified aerial photography by:
U. S. Department of Agriculture,
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BS - Buttonwillow Scrub
BBS - Blackberry Scrub
CWRF - Cottonwood Riparian Forest
EBBS - Elderberry Savannah/Blackberry Scrub
HL - Herbland
MRF - Mixed Riparian Forest
RBS/VWG - Rose/Baccharis Scrub/Valley Wildrye Grassland
RBS - Rose/Baccharis Scrub
VWG/VOW - Valley Wildrye Grassland/Valley Oak Woodland
VORF - Valley Oak Riparian Forest
WS - Willow Scrub

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Figure A-2
Proposed and Existing Vegetation, Stegeman and 1000-Acre Ranch Tract Area

proposed restoration site had remained essentially unchanged during the 5-year period assessed and that significant colonization by native species had not occurred (Hubbell et al. 2006a). This means that active intervention (orchard removal and weed control) is warranted in order to prevent the continued infestation of non-native invasive species, such as yellow starthistle, Johnson grass, and Bermuda grass.

Mixed riparian forest would be restored to the north and over much of the western and southern portions of the site where soils were determined by the baseline report (Hubbell et al. 2006c) to be most conducive to tree growth. Willow scrub would be planted in the sandiest areas of the site where poor orchard growth and regular flooding (1- to 2-year intervals) was found to occur (Hubbell et al. 2006c). Willow scrub would also be planted in a small area along the site's eastern boundary. Also in the eastern portion of the site, cottonwood riparian forest would be planted to allow for extension of the existing cottonwood riparian forest habitat throughout the approximate 1-year floodplain. Soils here are coarser textured and thus better drained than those where mixed riparian forest is proposed (Hubbell et al. 2006c).

An alternative to restoration planting of the Stegeman Tract would be passive restoration, which would involve only the removal of the abandoned walnut orchard and initial weed control. This would be a lesser cost option that may be pursued because the restoration area is relatively small, and economies of scale would make the active restoration of the tract more expensive on a cost-per-acre basis. Also, the tract lacks an onsite well to provide a water supply for initial irrigation. This alternative would result in a much slower conversion to native plant communities with increased competition from nonnative invasive species. The inherent limitations of this small restoration site may be overcome if the restoration can be combined with that of the nearby 1000-acre Ranch Tract. It is expected that CDFG will determine in the future whether active or passive restoration of the tract will be pursued.

The proposed restoration on the Stegeman Tract is completely surrounded by existing riparian habitat on state-owned property. The flood protection levee further separates the restoration site from the nearest cropland, a young pecan orchard, which is about 400 feet to the northwest.

1000-Acre Ranch Tract

Active restoration is proposed to restore native vegetation on 49 acres of the 1000-Acre Ranch Tract. The total size of this tract is 60 acres. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the 1000-Acre Ranch Tract are shown on Figure A-2.

Upon removal of the existing prune orchard, a curved band of mixed riparian forest would be planted from the north along the western boundary and over much of the southern portion of the tract, connecting to the existing mixed riparian forest habitat to the east. Although the entire tract was modeled within the 5-year floodplain where valley oak riparian forest would be anticipated, the shallow depth to the water table and the clayey soils of the western portion of the tract make it more appropriate for mixed riparian forest restoration (Hubbell et al. 2006d).

Valley oak riparian forest would be planted in the sandier, coarser-textured soils of the eastern portion of the tract. In this portion, the depth to the water table is greater and the reduced flood interval (approximately every 2 to 4 years) is typical for valley oak riparian forest habitat. Although the area proposed for restoration to valley oak riparian forest is adjacent to remnant cottonwood riparian forest, there are several large valley oaks along its western edge (Hubbell et al. 2006d).

The proposed restoration area on the 1000-Acre Ranch Tract abuts remnant riparian habitat on the east and the flood protection levee on the north and west. Approximately 18 percent of the perimeter is adjacent to cropland. The southern border of the tract abuts a walnut orchard along a boundary of about 1250 feet. The majority of the walnut orchard parcel is existing riparian habitat, and the orchard abuts that onsite riparian habitat to the east.

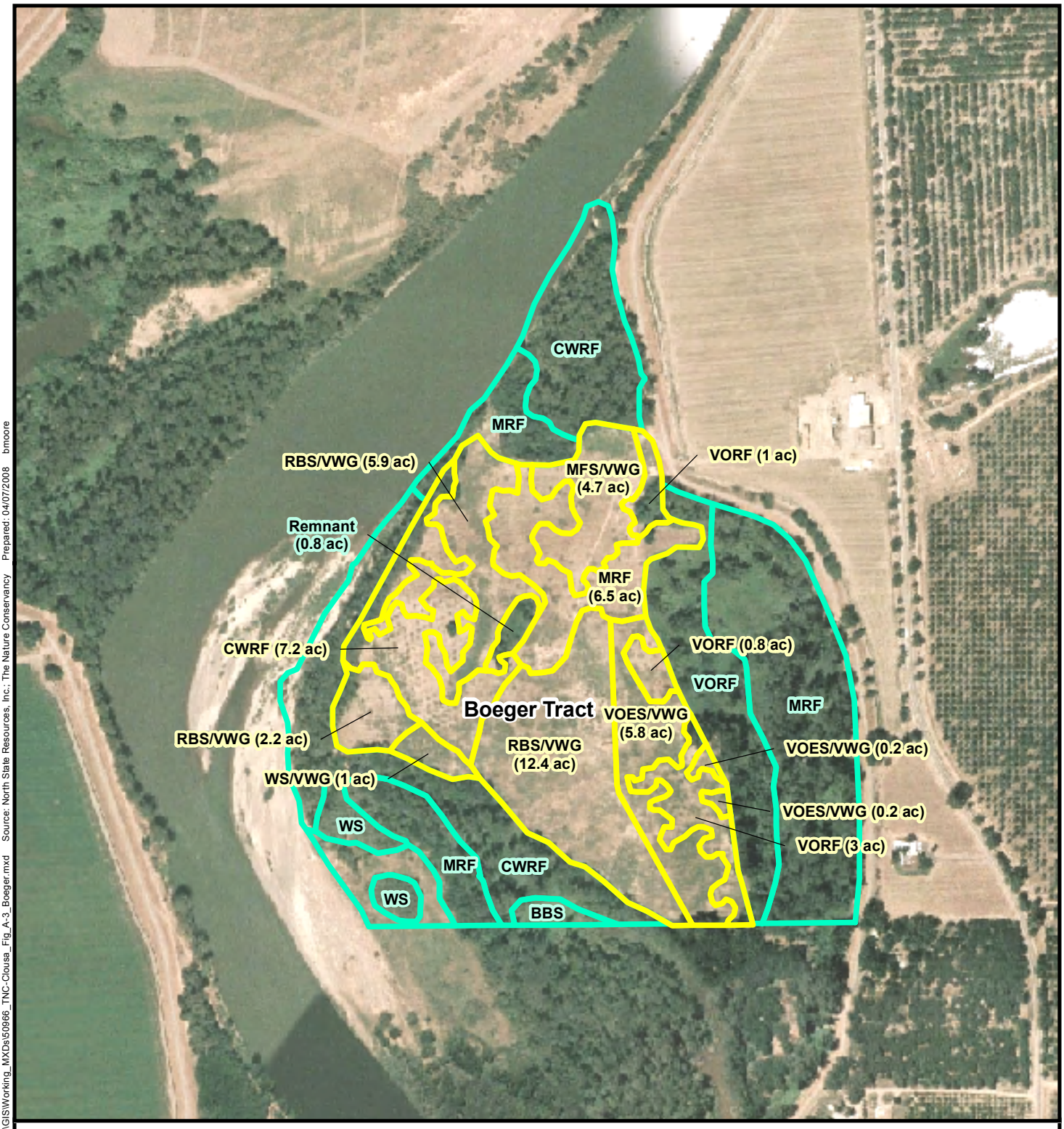
Boeger Tract

Active restoration is proposed to restore native vegetation on 51 acres of the 125-acre Boeger Tract. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the Boeger Tract are shown on Figure A-3.

Although the Boeger Tract is located near the main channel of the Sacramento River, is predominantly in the 1- to 2-year floodplain, and has generally similar elevation (USACE 1997) to the adjacent remnant riparian vegetation, the baseline report prepared for the tract (Hubbell et al. 2007e) determined that natural regeneration in the surrounding vicinity was better suited to lower elevations than those that occur within the proposed restoration area. The proposed restoration area would probably not flood to the degree required for natural process restoration to be successful. The higher floodplain also contributes to an increased risk of infestation by non-native invasive species, such as yellow-starthistle, Johnson grass, and Bermuda grass.

Differences in elevation, soils, and flood potential result in a mosaic pattern of proposed habitat restoration species plantings. Rose baccharis scrub/valley wildrye grassland would be planted in the coarser, drier sandy loam soils that occupy much of the southern and western portions of the site. Although rose/baccharis scrub does not currently occur in the Boeger Tract, species such as California rose and baccharis occur as a major understory component of many of the remnant vegetation communities in the Colusa Subreach project area (Hubbell et al. 2007b). Similarly, valley wildrye grassland, while not found to occur in the Boeger Tract, does occur throughout the Colusa Subreach project area under suitable environmental conditions (e.g., soils, elevation), such as those found within the proposed restoration area. Planting of rose/baccharis scrub/valley wildrye grassland in the proposed restoration area would provide structural and habitat diversity in the proposed restoration area.

Mixed riparian forest plantings in the northern half of the proposed restoration area would expand the existing mixed riparian forest habitat north and east of the site. The wetter, finer-textured clay loams and elevations similar to similar adjacent habitat would be conducive to the establishment of mixed riparian forest.



Proposed Plant Community

Existing Plant Community

Vegetation Interpretation by:
Department of Biological Sciences
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BS - Buttonwillow Scrub
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MRF - Mixed Riparian Forest
RBS/VWG - Rose/Baccharis Scrub/Valley Wildrye Grassland
RBS - Rose/Baccharis Scrub
VWG/VOW - Valley Wildrye Grassland/Valley Oak Woodland
VORF - Valley Oak Riparian Forest
WS - Willow Scrub

N

0 325 650
Feet

File Location: G:\Projects\50966_TNC_Colusa\GIS\Working_MXDs\50966_TNC-Clousa_Fig_A-3_Boeger.mxd Source: North State Resources, Inc.; The Nature Conservancy Prepared: 04/07/2008 bmoore

North State Resources, Inc.

Colusa Subreach Wildlife Habitat Restoration Project

Figure A-3
Proposed and Existing Vegetation, Boeger Tract Area

Mule fat scrub/valley wildrye grassland would be planted in the northeast portion of the proposed restoration site. These habitat types would reflect both the physical factors of this part of the site and the herbaceous composition of the mule fat scrub. Combining mule fat scrub with valley wildrye grassland would provide structural and habitat diversity in the proposed restoration area.

Cottonwood riparian forest would be planted in the western half of the proposed restoration site, which would expand the existing forest to the west of the proposed restoration site. This area has clay loam and silty clay loam soils and an elevation that is similar to that of the remnant vegetation; it is in the 1-year floodplain and has a slightly higher water table than the rest of the site (Hubbell et al. 2007e).

Valley oak riparian forest plantings along the eastern proposed restoration site boundary would expand the existing valley oak riparian forest to the east. The elevation of this area is similar to that of the remnant vegetation, and the area is within the estimated 4-year floodplain (Hubbell et al. 2006e). Valley oak savannah/valley wildrye grassland would be planted adjacent to valley oak riparian forest areas. Valley oak savannah often intergrades with valley oak riparian forest and/or woodlands (Hubbell et al. 2006e). With the particular configuration of sandy soils, estimated floodplains, and the adjacent valley oak riparian forest, there is an opportunity to create a forest/savannah/shrubland mosaic that would provide important structural diversity and patchiness for wildlife (Hubbell et al. 2007e).

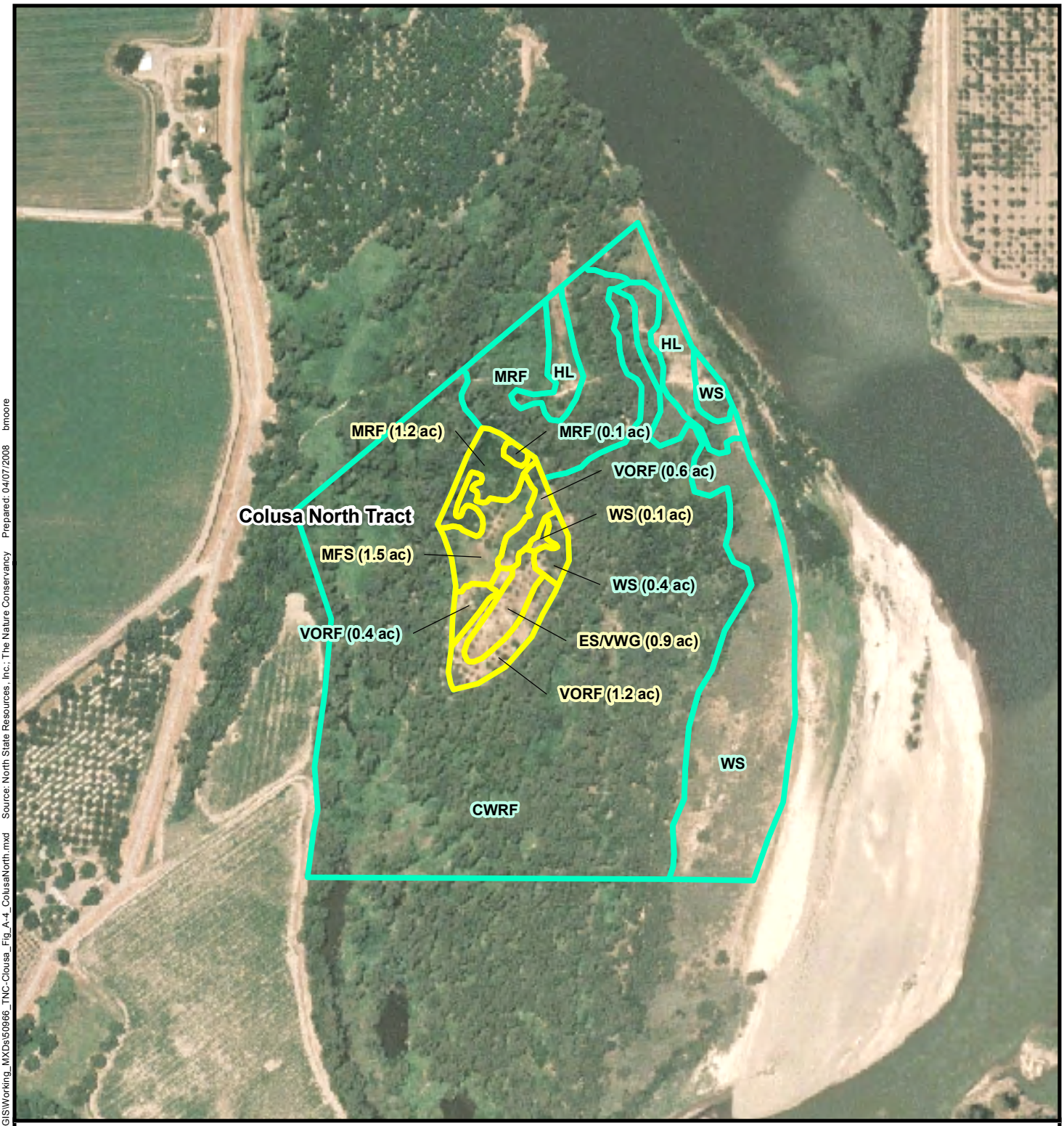
A very small pocket of willow scrub/valley wildrye grassland would be planted in the southwest corner of the proposed restoration site to increase the number of existing willow scrubs. Willow scrub and valley wildrye grassland would be combined to reflect both the physical factors of the proposed restoration area and the herbaceous composition of the willow scrub.

The restoration area on the Boeger Tract does not directly abut existing cropland. Approximately 97 percent of the perimeter abuts remnant riparian habitat, and 3 percent abuts the levee. A young walnut orchard to the north east is separated by the flood protection levee along a 200-foot gap in the riparian vegetation. Riparian vegetation lies across the levee from almost all of the young orchard. A mature walnut orchard to the south is separated by riparian vegetation that averages about 30 feet in width. The orchard is completely surrounded by riparian vegetation, most of it on the same property.

Colusa-North Tract

Active restoration is proposed to restore native vegetation on 5 acres of the 143-acre Colusa-North Tract. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the Colusa-North Tract are shown on Figure A-4.

Mixed riparian forest would be planted adjacent to the existing mixed riparian forest in the northern portion of the site. The elevation and soils, consisting of fine-textured clay and silty clay loam over sandy loam, indicate that this portion of the site will be wetter than the rest of the site and thus more likely to support a mixed riparian forest.



Proposed Plant Community

Existing Plant Community

Vegetation Interpretation by:
Department of Biological Sciences
CSU Chico, 2005
Orthorectified aerial photography by:
U. S. Department of Agriculture,
National Agriculture Imagery Program (NAIP), 2005

BS - Buttonwillow Scrub
BBS - Blackberry Scrub
CWRF - Cottonwood Riparian Forest
EBBS - Elderberry Savannah/Blackberry Scrub
HL - Herbland
MRF - Mixed Riparian Forest
RBS/VWG - Rose/Baccharis Scrub/Valley Wildrye Grassland
RBS - Rose/Baccharis Scrub
VWG/VOW - Valley Wildrye Grassland/Valley Oak Woodland
VORF - Valley Oak Riparian Forest
WS - Willow Scrub

N

0 250 500
Feet

File Location: G:\Projects\50966_TNC_Colusa\GIS\Working_MXDs\50966_TNC-Clousa_Fig_A-4_ColusaNorth.mxd Source: North State Resources, Inc.; The Nature Conservancy Prepared: 04/07/2008 bmoore

Figure A-4
Proposed and Existing Vegetation, Colusa-North Tract Area

Much of the central portion of the site and the area to the west would be planted with mule fat scrub. Mule fat scrub was found by the Colusa-North Baseline Assessment Report (Hubbell et al. 2007a) to be recruiting extensively within this portion of the site. When combined with valley wildrye grassland, the restored habitat would reflect the herbaceous composition of naturally occurring mule fat scrub habitat.

A majority of the southern portion of the proposed restoration area would be planted to savannah/valley wildrye grassland surrounded on all but its northern end by valley oak riparian forest. Although valley wildrye grassland, dominated by blue wildrye (*Elymus glaucus* ssp. *glaucus*), was not found to occur at the Colusa-North Tract (Hubbell et al. 2007a), it does occur adjacent to the Colusa Subreach project area, adjacent to the Jensen Tract. The baseline report prepared for the Colusa-North Tract (Hubbell et al. 2007a) found the species mix and percentages of existing vegetation in this area (USACE 1997) to be weighted toward mixed riparian forest species more tolerant of dry soils such as valley oak and blue elderberry, both of which occur nearby. The savannah (which, in its natural occurrences typically includes elderberry shrub) and valley wildrye grassland communities would provide structural diversity for the restoration area and thus create different types of habitat within the tract.

Willow scrub would be planted immediately to the north of the proposed savannah/valley wildrye grassland, thus expanding the existing willow scrub found within the tract. Willow scrub combined with valley wildrye grassland reflects both the physical characteristics of the proposed restoration site as well as the herbaceous composition of the willow scrub.

An alternative to restoration planting of the Colusa-North Tract is passive restoration, which would involve the removal of the abandoned walnut orchard and initial weed control. This would be a lesser cost option that could be pursued because the restoration area is relatively small and the tract would be relatively more expensive to restore on a cost-per-acre basis. Additional considerations include the lack an onsite well to provide a water supply for initial irrigation and the need to establish a temporary roadway through existing habitat to the site for active restoration. The Colusa North restoration site is completely surrounded by riparian habitat on state-owned property. It does not abut any agricultural land and is more than 700 feet away from the nearest crops.

Cruise n' Tarry Tract

The Cruise n' Tarry Tract is a small restoration site included in the Colusa Subreach project. This discussion assumes one approach calling for partial active restoration. Whether the tract would be restored to riparian habitat is subject to a future decision. For the purposes of this assessment, active restoration is proposed to restore native vegetation on 3 acres of the 10-acre tract. The proposed vegetation communities within the restoration area along with remnant riparian habitat in the general vicinity of the Cruise n' Tarry Tract are shown on Figure A-5.

Proposed Plant Community

Existing Plant Community

Vegetation Interpretation by:
Department of Biological Sciences
CSU Chico, 2005
Orthorectified aerial photography by:
U. S. Department of Agriculture,
National Agriculture Imagery Program (NAIP), 2005

BS - Buttonwillow Scrub
BBS - Blackberry Scrub
CWRF - Cottonwood Riparian Forest
EBBS - Elderberry Savannah/Blackberry Scrub
HL - Herbland
MRF - Mixed Riparian Forest
RBS/VWG - Rose/Baccharis Scrub/Valley Wildrye Grassland
RBS - Rose/Baccharis Scrub
VWG/VOW - Valley Wildrye Grassland/Valley Oak Woodland
VORF - Valley Oak Riparian Forest
WS - Willow Scrub

N

0 225 450
Feet

File Location: G:\Projects\50966_TNC_Colusa\GIS\Working_MXDs\50966_TNC-Clousa_Fig_A-5_CruiseNTarry.mxd Source: North State Resources, Inc.; The Nature Conservancy Prepared: 04/07/2008 bmoore

Figure A-5
Proposed and Existing Vegetation, Cruise n' Tarry Tract Area

The proposed restoration site's location within the 4-year floodplain suggests that much of the site would probably not flood to the degree required for natural process restoration to be successful. Riverbanks at this site are generally steep and actively eroding. Higher floodplain lands such as those found in much of the Cruise n' Tarry Tract are more likely to become infested with non-native invasive species, such as yellow starthistle, Johnson's grass, and Bermuda grass (Hubbell et al. 2006b).

A majority of the Cruise n' Tarry Tract would not be subject to active restoration, as remnant valley oak riparian forest has established itself. However, restoration would be applied to several smaller areas adjacent to the existing valley oak riparian forest. In the northern part of the proposed restoration site, rose/baccharis scrub would be planted over an area thought to be underlain by a gravel bar. Lack of tree invasion indicates the likelihood of a gravel bar approximately 10 feet below the surface, despite the presence of a clay loam soil surface layer and an approximate 4-year flood return interval.

Willow scrub would be planted along the steep banks of the inlet on the tract since it is adjacent to the water and its low elevation coincides with the elevation of willow scrub onsite and in the remnant riparian vegetation across the river (USACE 1997). This lowland is likely to flood more frequently than the rest of the proposed restoration site, despite being within the 4-year floodplain (Hubbell et al. 2007b). Planting this area with willow scrub would expand the current willow scrub habitat.

Cottonwood riparian forest would be planted in the southwest corner of the proposed restoration site in order to connect an existing patch of adjacent cottonwoods to the existing cottonwood riparian forest found onsite along the inlet. This area's adjacency to the Sacramento River and its elevation coincides with the elevation of cottonwood riparian forest found in the remnant riparian vegetation across the river and in other previously restored habitats along the Sacramento River (Hubbell et al. 2007b). It is further likely that parts of this portion of the proposed restoration area flood more frequently than the estimation of once every 4 years (Hubbell et al. 2007b). Gleyed soils and a high water table support this conclusion, and further indicate the suitability of this portion of the site for restoration as cottonwood riparian forest.

Valley oak riparian forest is the ecologically based recommendation for the southeast portion of the proposed restoration site. Planting of this habitat type in this area would enhance and extend the existing valley oak riparian forest within the Colusa Subreach. Mulberry removal would be necessary to allow for planting of valley oaks. The State of California SB 1334 recommends a mitigation ratio for valley oaks of 5:1 (i.e., five valley oaks for each mulberry removed) or on a per-acre basis using TNC's current ratio of 90 valley oaks/acre (assuming an 80 percent survival rate after three years) (Hubbell et al. 2007b).

The Cruse n' Tarry Tract is a small restoration site that would be relatively more expensive to restore on a cost-per-acre basis. It also lacks an existing water supply source for irrigation. The tract is owned by the Sacramento and San Joaquin Drainage District, a state agency governed by the Central Valley Flood Protection Board (CVFPB). The CVFPB approved a lease of the site to the County of Colusa in December of 2007. The County has expressed a general intent to manage the property for public access to the river although plans for such use have not yet been

developed. At this time it is unknown if the proposed active restoration would be compatible with changes to the site that Colusa County may propose in the future.

The Cruse n' Tarry Tract was included in Colusa Subreach restoration planning at the direction of the CVFPB's former General Manager. At the time, the CVFPB indicated that the state might wish to have the site restored for mitigation purposes. Given the recent lease of the site to Colusa County, the potential for restoration of the site is uncertain. TNC has indicated that restoration of the small site is not a priority and that the restoration plan developed through Colusa Subreach planning will be provided to the State to simply identify the restoration potential of the site. Whether the tract is restored to riparian habitat will be determined by the Central Valley Flood Protection Board and Colusa County in the future. Because plans for the future use or improvement of the tract for recreation purposes by Colusa County have not yet been determined and because such changes not a part of the Colusa Subreach Planning process, recreation improvement changes to the tract are considered speculative and have not been included in this analysis.

The Cruse n' Tarry Tract does not abut any cropland. It is separated from other properties by the flood protection levee on the south and the levee and River Road on the east.

APPENDIX B

Supplemental Information Regarding Biological Resources

APPENDIX C

State Clearinghouse Documentation and Comment Letter

Appendix B. Supplemental Information Regarding Biological Resources

This appendix provides supplemental information regarding biological resources that could be affected by The Nature Conservancy's proposal to restore wildlife habitat along the "Colusa Subreach" between the City of Colusa and the community of Princeton. The proposed project would restore native riparian habitat to approximately 251 acres on seven tracts of land. The environmental effects would generally be beneficial. Some restoration activities, however, such as orchard removal, field preparation, installation of irrigation systems, and vehicle access and use, would have potentially adverse effects to biological resources.

The proposed restoration tracts are entirely within the 100-year floodplain of the Sacramento River between flood control levees. Within these tracts, riparian vegetation has been removed and, to varying degrees, the tracts have been converted to agricultural crops. Portions of each tract are below the ordinary high water level of the river and are subject to inundation with a frequency of 1 to 5 years (Ayres Associates 2008).

The proposed active restoration area at the Colusa-North Tract is the only one of the proposed restoration sites that does not have an existing access road suitable for agricultural equipment. In order to fully implement project activities at the Colusa-North site, construction of an access road to the restoration area on this tract would require the clearing of at least 700 linear feet of remnant riparian vegetation.

The dominant type of land use adjacent to the restoration sites is remnant riparian forest. The remnant riparian forest includes the Great Valley mixed riparian forest and Great Valley cottonwood riparian forest (EDAW 2007) vegetation types (California Department of Fish and Game 2003). Both of these vegetation types are dominated by a diversity of winter deciduous, broadleafed trees and shrubs that provide high-value habitat for many wildlife species, including raptors, migratory songbirds, and bats.

The mixed riparian forest contains a dense multi-layered canopy, including Fremont's cottonwood (*Populus fremontii*), valley oak (*Quercus lobata*), western sycamore (*Platanus racemosa*), Goodings's black willow (*Salix gooddingii*), Oregon ash (*Fraxinus latifolia*), and box elder (*Acer negundo*). Native understory shrubs and vines include blue elderberry (*Sambucus mexicana*), wild rose (*Rosa californica*), poison oak (*Toxicodendron diversilobum*), and wild grape (*Vitis californica*). The cottonwood riparian forest is dominated by a canopy of Fremont's cottonwood (*Populus fremontii*) and black willow (*Salix gooddingii*).

Methodology

To assess potential impacts to special-status species, North State Resources, Inc. (NSR) conducted a pre-field investigation to identify special-status species occurring in the area. The following documents, including database query results, were also reviewed:

- *List of Endangered and Threatened Species That May Occur in, or Be Affected by Projects in Colusa County* (U.S. Fish and Wildlife Service 2007).
- California Natural Diversity Database (CNDDB) search for records of special-status plant and wildlife species, and natural plant communities in the following eight USGS quadrangles: *Princeton, Butte City, Moulton Weir, Sanborn Slough, Colusa, Meridian, Arbuckle, and Grimes* (California Department of Fish and Game 2007a).
- *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2007); one query for documented special-status plant species occurrences in the *Sanborn Slough, California* and the eight surrounding USGS quadrangles, and another for the *Meridian, California* and eight surrounding USGS quadrangles.
- *Endangered and Threatened Animals of California* (California Department of Fish and Game 2006a)
- *Special Animals* (California Department of Fish and Game 2007b),
- *Endangered, Threatened, and Rare Plants of California* (California Department of Fish and Game 2006b)
- *Special Vascular Plants, Bryophytes, and Lichens List* (California Department of Fish and Game 2006c).
- *Colusa Subreach Planning Pest and Regulatory Effects Study, Public Draft Project Report* (EDAW 2007).
- *Mitigation for Tisdale Bypass Rehabilitation Project at Colusa-Sacramento River State Recreation Area* (Jones and Stokes 2007)
- Baseline assessments for each of the seven tracts (Hubbell et al. 2006a, 2006b, 2006c, 2006d, 2006e, 2006f, 2007a, 2007b)

NSR staff also conducted reconnaissance surveys at the proposed restoration tracts on October 22 and November 9, 2007, to assess the suitability of the habitat for 104 special-status species identified in the pre-field investigation. The project sites do not provide suitable habitat (e.g. alkaline soils, vernal pools, breeding habitat) for more than half of the 104 species identified in the pre-field investigation, and these species were not further evaluated.

Results

Forty-two special-status species, including wildlife, fish, and plant species, were identified that are known to occur or could occur in the project area. Habitat suitability and potential impacts were identified for each of these 42 species (Table B-1 and Table B-2). The project would have a “less than significant impact” or “no impact” on 22 of the 42 species evaluated, including all of the special-status plants evaluated.

Results of the assessment indicate that vegetation removal or degradation and ground-disturbing activities associated with implementation of the proposed Project could result in significant impacts on 20 special-status species unless mitigation measures are implemented. The regulatory status of each of these species is identified below along with a description of the suitable habitat present on the restoration tracts.

Impacts on all of these species would be less than significant following implementation of mitigation measures.

Invertebrates

- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). Federally listed as threatened.

Blue elderberry (*Sambucus mexicana*) and (mountain) red elderberry (*S. racemosa var. microbotrys*) are the host plants for the valley elderberry longhorn beetle (VELB). During the reconnaissance field visits, NSR staff noted blue elderberry with stems greater than 1.0 inch in diameter in low numbers at all the tracts. Some of the tracts have one or two blue elderberry shrub clusters on the perimeter, and other tracts have a few clusters suggestive of relic populations.

No elderberries are planned to be removed as part of the project, but there could be a direct impact on VELB from accidental damage to elderberry shrubs during implementation and maintenance of the restoration plantings. Complete avoidance of VELB host plants may not be practicable, as the planting of native plants and maintenance will need to occur within 100 feet of blue elderberries in order to prevent the establishment of non-native invasive plants. Protocol-level VELB surveys should be conducted at each of the restorations sites no more than 2 years prior to implementation of restoration at a given site.

Fish

- green sturgeon, southern Distinct Population Segment (DPS) (*Acipenser medirostris*). Federally listed as threatened, designated Critical Habitat;
- central valley steelhead (*Onchorhynchus mykiss*). Federally listed as threatened, designated Critical Habitat;
- Chinook salmon, winter-run (*Onchorhynchus tshawytscha*). Federally and state listed as endangered, designated Critical Habitat and Essential Fish Habitat;
- Chinook salmon, spring-run (*Onchorhynchus tshawytscha*). Federally and state listed as threatened, designated Critical Habitat and Essential Fish Habitat;
- river lamprey (*Lampetra ayresii*). State species of special concern;
- hardhead (*Mylopharodon conocephalus*). State species of special concern;
- Chinook salmon, fall-run (*Onchorhynchus tshawytscha*). State species of special concern, designated Essential Fish Habitat;
- Sacramento splittail (*Pogonichthys macrolepidoptus*). State species of special concern.

The fish species listed above are known to occur in the Sacramento River and could occur within the project tracts during overbank flooding. The Sacramento River provides suitable migratory and rearing habitat for all these species, including designated Critical Habitat for threatened salmonids as noted above. Essential Fish Habitat (EFH) is defined by the Magnuson-Stevens Fishery Conservation and Management Act and amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267). EFH refers to those waters and substrates necessary for spawning, breeding, feeding, or growth to maturity. Freshwater EFH for salmon consists of four major components: spawning and incubation habitat; juvenile rearing habitat; juvenile migration corridors; and adult migration corridors and adult holding habitat (Pacific Fishery Management Council 2003).

The project would not involve any work in the active channel or on the bank of the Sacramento River nor would the Project be expected to result in conditions causing entrainment or entrapment of fish above current conditions; thus, no direct impacts to the fish species listed above are anticipated. Potential indirect impacts to these species related to sediment and pollutant contamination of the river could occur as a result of ground-disturbing activities and operation of equipment.

Nesting Raptors

- Cooper's hawk (*Accipiter cooperii*). State species of special concern;
- western burrowing owl (*Athene cunicularia hypugaea*). State species of special concern;
- Swainson's hawk (*Buteo swainsoni*). State listed as threatened;
- white-tailed kite (*Elanus leucurus*). State fully protected;
- bald eagle (*Haliaeetus leucocephalus*). Federally threatened (delisted 2007), state listed as endangered and fully protected;
- osprey (*Pandion haliaetus*). State species of special concern.

Overstory vegetation associated with riparian habitat occurs at all seven tracts in varying proportions and provides suitable nesting habitat for the special-status raptors listed above. In the event that raptors use existing orchards for nesting habitat, orchard removal at some of the tracts could result in a significant direct impact to a nesting raptor if an orchard tree contained an active nest. The Colusa-North Tract is the only site that would require removal of native riparian trees for the full implementation of planned restoration activities. The removal of riparian trees at this site could also result in a direct impact to nesting raptors. In addition, nesting raptors could be indirectly affected by noise from tree removal activities and road construction activities at certain tracts.

Other Nesting Birds

- western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). Candidate for federal listing, state listed as endangered;
- California yellow warbler (*Dendroica petechia brewsteri*). State species of special concern;
- yellow-breasted chat (*Icteria virens*). State species of special concern;
- loggerhead shrike (*Lanius ludovicianus*). State species of special concern.

Along the Sacramento River, western yellow-billed cuckoos nest in patches of dense riparian habitat larger than 50 acres that contain willows and cottonwoods (Laymon, 1989 #95). Patches of suitable nesting habitat are present within remnant riparian forests at all of the tracts except Cruise n' Tarry. All of the tracts have riparian habitat of sufficient size and composition to provide nesting habitat for California yellow warbler, yellow-breasted chat, and loggerhead shrike.

The Colusa-North Tract is the only site that would require construction of an access road. Construction of a 700-foot access road on this tract would result in the removal of an estimated one-half acre of native riparian trees for the full implementation of planned restoration activities. This is the only site where nesting birds could be subject to direct impacts resulting from the removal of a tree containing an active nest. Noise related to orchard removal and other mechanized ground-disturbing activities could indirectly affect nesting birds.

Bats

- pallid bat (*Antrozous pallidus*). State species of special concern;
- Townsend's western big-eared bat (*Corynorhinus townsendii*). State species of special concern;

Riparian vegetation occurring within the seven tracts provides varying amounts of suitable roosting habitat for the pallid bat and the Townsend's western big-eared bat. Bats could move into or out of this riparian vegetation at any time. Removal of large oak trees for the construction of the 700-foot temporary access road at the Colusa-North Tract could directly affect a maternity roost.

Table B-1. Special-Status Plant Species Potentially Occurring in the Project Area

Common Name *Scientific Name*	Status[1] (Fed/State/CNPS)	General Habitat Description	Flowering Period	Potential for Occurrence/Potential Impacts[2]
Ferris' milk-vetch *Astragalus tener* var. *ferrisiae*	-/-/1B	Meadows and seeps (vernally mesic), valley and foothill grassland (subalkaline flats); elevation 5–75 meters	April–May	**Unlikely to be present.** No alkaline soils present. **Less-than-significant impact.**
rose-mallow *Hibiscus lasiocarpus*	-/-/2	Freshwater marshes and swamps; elevation 0–120 meters	June–September	**Unlikely to be present.** Suitable aquatic habitat occurs only in the perennial oxbow lake (Boggs Bend Slough) adjacent to the Womble Tract and in the seasonal pond (inlet) at Cruise n' Tarry. There will be no direct impacts on these aquatic features. **Less-than-significant impact.**
Wright's trichocoronis *Trichocoronis wrightii* var. *wrightii*	-/-/2	Meadows and seeps, marshes and swamps, riparian scrub, vernal pools/alkaline; elevation 5–435 meters	May–September	**Unlikely to be present.** No alkaline soils present. **Less-than-significant impact.**
Brazilian watermeal *Wolffia brasiliensis*	-/-/2	Freshwater rivers and streams. (Sacramento River and its tributaries)	April–December	**Unlikely to be present.** Suitable aquatic habitat occurs only in the Sacramento River, the perennial oxbow lake (Boggs Bend Slough) adjacent to the Womble Tract, and the seasonal pond at Cruise n' Tarry. There will be no direct impacts on these aquatic features. **Less-than-significant impact.**

[1] Status notes:

FED = Federal
ST = State
Federal & State Codes:
E = Endangered; T = Threatened; R = Rare

CNPS = California Native Plant Society
CNPS Codes:
List 1B = Rare, Threatened or Endangered in California and elsewhere;
List 2 = Rare, Threatened or Endangered in California, but more common elsewhere

[2] The potential impacts noted in this column are a summary of the determinations made for each of the species in the table. All species for which the project was determined to have a "less than significant impact with mitigation" are discussed further in the Expanded Initial Study.

Table B-2. Special-Status Wildlife Species Potentially Occurring in the Project Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Potential for Occurrence/Potential Impacts[2]
Federal or State Listed Species			
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/--	Elderberry shrubs associated with riparian forests that occur along rivers and streams.	**May be present.** Elderberry shrubs are present on or adjacent to all project sites. Protocol-level VELB surveys have not been conducted within the project sites. **Less-than-significant impact with mitigation.**
green sturgeon, southern distinct population segment *Acipenser medirostris*	T/SC	Spawn in Sacramento and Feather rivers; juveniles are thought to rear mainly in the estuary. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock. Spawn in the mainstem Sacramento River when temperatures range between 46-60 °F.	**Present**. Known to occur in the Sacramento River throughout all accessible reaches upstream at least to Anderson-Cottonwood Irrigation District dam near Redding, California. **Less-than-significant impact.**
steelhead, California Central Valley distinct population segment *Oncorhynchus mykiss* Critical Habitat	T/--	Spawn and rear in freshwater rivers and streams. (Sacramento and San Joaquin rivers and their tributaries)	**Present**. Occur in the mainstem Sacramento River and tributary streams. Adults migrate upstream during the fall/winter and spawn from winter to early spring. Juveniles rear in natal areas for 1-2 years before migrating to the ocean. Suitable spawning and rearing habitat exists in the Sacramento River. **Less-than-significant impact.**
Central Valley spring-run evolutionarily significant unit Chinook salmon *Oncorhynchus tshawytscha* Critical Habitat Essential Fish Habitat	T/T	Freshwater rivers and streams. (Sacramento River and its tributaries)	**Present.** Occur in the mainstem Sacramento River and its major perennial tributary streams. Adults migrate upstream during the spring and spawn from mid-August to mid-October. Suitable spawning and rearing habitat exists in the Sacramento River. **Less-than-significant impact.**
Sacramento River winter-run evolutionarily significant unit Chinook salmon *Oncorhynchus tshawytscha* Critical Habitat Essential Fish Habitat	E/E	Freshwater rivers and streams. (Sacramento River and its tributaries)	**Present**. Occur in the mainstem Sacramento River. Adults migrate upstream during the winter and spawn from mid-April to August. Suitable spawning and rearing habitat exists in the Sacramento River. **Less-than-significant impact.**

Table B-2. Special-Status Wildlife Species Potentially Occurring in the Project Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Potential for Occurrence/Potential Impacts[2]
California red-legged frog *Rana aurora draytonii*	T/SC	Requires aquatic habitat for breeding, also uses a variety of other habitat types including riparian and upland areas. Adults use dense, shrubby or emergent vegetation associated with deep-water pools with fringes of cattails and dense stands of overhanging vegetation.	**Unlikely to be present.** Boggs Bend Slough is an oxbow lake (perennial pond) adjacent to Womble and Jensen tracts that supports fresh emergent wetland. The slough is a public fishing spot and is known to support warm water fish species and bull frogs, which are predators of California red-legged frog. The abandoned marina at Cruise n' Tarry is a much smaller pond and is seasonal. Neither of these aquatic features provide suitable habitat for California red-legged frog and the nearest CNDDB occurrence is more than 25 miles away. No project activities will occur in either of these aquatic features. **Less-than-significant impact.**
giant garter snake *Thamnophis gigas*	T/T	Freshwater marshes and low-gradient streams with emergent vegetation; adapted to drainage canals and irrigation ditches with mud substrate.	**Unlikely to be present.** High winter flows within flood control levees makes project habitat unsuitable. Giant garter snake requires year-round habitat suitability**.** **Less-than-significant impact.**
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	C/--	Nesting habitat is cottonwood/willow riparian forest. Occurs only along the upper Sacramento Valley portion of the Sacramento River, the Feather River in Sutter Co., the south fork of the Kern River in Kern Co., and along the Santa Ana, Amargosa, and lower Colorado rivers	**May be present**. Known to occur as breeders in the region in late spring and early summer. **Less-than-significant impact with mitigation.**
willow flycatcher *Empidonax traillii*	--/E	Wet meadow and montane riparian habitats; dense willow thickets required for nesting and roosting.	**Absent as breeder**. Rare migrant in spring and summer. **Less-than-significant impact.**
bald eagle *Haliaeetus leucocephalus*	T/E	Forages on live and dead fish and nests in large trees or snags. Requires large bodies of water, including ocean shorelines, lake margins, and large, open river courses for foraging, nesting, and wintering habitat.	**Present**. Incidental observations of eagles foraging over the project area. No nests reported or observed on the site. **Less-than-significant impact with mitigation.**
bank swallow *Riparia riparia*	--/T	Colonial nester on vertical banks or cliffs with fine-textured soils near water.	**May be present**. Known to occur in the region in spring and summer. Nesting habitat is outside of the project area. Forages in both riparian and agricultural habitats. **Less-than-significant impact.**
Other Special-Status Species			
river lamprey *Lampetra ayresii*	--/SC	The biology of river lampreys has not been studied in California, general habitat and life history thought to be similar to Pacific lamprey.	**Present**. Occur in the mainstem Sacramento River and tributary streams. **Less-than-significant impact with mitigation.**

Table B-2. Special-Status Wildlife Species Potentially Occurring in the Project Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Potential for Occurrence/Potential Impacts[2]
hardhead *Mylopharodon conocephalus*	--/SC	Quiet deep pools of large, warm, clear streams over rocks or sand.	**Present**. Occur in the mainstem Sacramento River and tributary streams. **Less-than-significant impact.**
Central Valley fall/late-fall run evolutionarily significant unit Chinook salmon *Oncorhynchus tshawytscha* Essential Fish Habitat	--/SC	Freshwater rivers and streams. (Sacramento and San Joaquin rivers and their tributaries)	**Present**. Occur in the mainstem Sacramento River and tributary streams. Adults migrate upstream during the fall and spawn from mid-October to February. Suitable spawning and rearing habitat exists in the Sacramento River. **Less-than-significant impact.**
Sacramento splittail *Pogonichthys macrolepidoptus*	--/SC	Shallow, dead-end sloughs with submerged vegetation.	**Present**. Occur in the mainstem Sacramento River and tributary streams. Adults migrate upstream during the fall and spawn from mid-October to February. Suitable spawning and rearing habitat exists in the Sacramento River. **Less-than-significant impact.**
northwestern pond turtle *Actinemys marmorata marmorata*	--/SC	Slow water aquatic habitat with available basking sites. Hatchlings require shallow water with dense submergent or short emergent vegetation. Require an upland oviposition site in the vicinity of the aquatic site	**May be present**. No work is planned to occur in Boggs Bend Slough, adjacent to the Womble tract, nor in the seasonal pond at Cruise n' Tarry. Any potential impact would be indirect. **Less-than-significant impact.**
western burrowing owl *Athene cunicularia hypugaea*	--/SC	Open habitats, dry grasslands and ruderal habitats with ground squirrel burrows.	**May be present**. Suitable breeding and foraging habitat occurs in the project area. **Less-than-significant impact with mitigation.**
sharp-shinned hawk *Accipiter striatus*	--/SC	Typically nests in dense conifer stands near water, winters in woodlands. Forages in many habitats in winter and migration.	**Absent as breeder**. Species does not breed in project area but may occur as a migrant. **Less-than-significant impact.**
Cooper's hawk *Accipiter cooperi*	--/SC	Nests in woodlands, forages in many habitats in winter and migration.	**May be present**. Suitable breeding and foraging habitat occurs in and adjacent to the project area. **Less-than-significant impact with mitigation.**
short-eared owl *Asio flammeus*	--/SC	Nests on the ground and occurs in open country, including grasslands, wet meadows, and cleared forests.	**Absent as breeder**. Species does not breed in project area but may occur as a migrant. **Less-than-significant impact.**
long-eared owl *Asio otus*	--/SC	Requires wooded areas for roosting and breeding and often frequents riparian habitats. Forages in open habitats, primarily for small rodents	**Absent as breeder**. Species does not breed in project area but may occur as a migrant. **Less-than-significant impact.**
ferruginous hawk *Buteo regalis*	--/SC	Forages in grasslands and occasionally in other open habitats during migration and winter.	**Absent as breeder**. Species does not breed in project area but may occur as a migrant. **Less-than-significant impact.**

Table B-2. Special-Status Wildlife Species Potentially Occurring in the Project Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Potential for Occurrence/Potential Impacts[2]
northern harrier *Circus cyaneus*	--/SC	Forages in marshes, grasslands and ruderal habitats; nests in extensive marshes and wet fields.	**Absent as breeder**. Suitable breeding habitat does not occur on the site or adjacent areas within the flood control levees. However, the species may forage in the area. **Less-than-significant impact.**
California yellow warbler *Dendroica petechia brewsteri*	--/SC	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods.	**May be present**. Suitable breeding and foraging habitat occurs in or immediately adjacent to the project area. **Less-than-significant impact with mitigation.**
white-tailed kite *Elanus leucurus*	--/FP	Nests in lowlands with dense oak or riparian stands near open areas, forages over grassland, meadows, cropland and marshes.	**May be present**. Suitable breeding and foraging habitat occurs in or immediately adjacent to the project area. **Less-than-significant impact with mitigation.**
merlin *Falco columbarius*	--/SC	Frequents ocean shorelines, lake margins, and large, open river courses near tree stands for both nesting and wintering habitat. Does not breed in California.	**Absent as breeder**. Suitable breeding habitat does not occur on the site or surrounding area. However, the species may forage in the area. **Less-than-significant impact.**
prairie falcon *Falco mexicanus*	--/SC	Occurs in open habitats such as grasslands, desert scrub, rangelands and croplands. Nests on open cliffs.	**Absent as breeder**. Species does not breed in project area but may occur as a migrant. **Less-than-significant impact.**
American peregrine falcon *Falco peregrinus anatum*	--/E, FP	Forages in many habitats; and is most common near water. Requires cliffs for nesting.	**Absent as breeder**. Suitable breeding habitat not present. **Less-than-significant impact.**
yellow-breasted chat *Icteria virens*	--/SC	Breeds in riparian habitats having dense understory vegetation, such as willow and blackberry.	**May be present**. Suitable breeding and foraging habitat occurs in or immediately adjacent to the project area **Less-than-significant impact with mitigation.**.
loggerhead shrike *Lanius ludovicianus*	--/SC	Prefers open habitats with scatters shrubs and trees throughout the Central Valley of California. Nests in shrubs and trees.	**May be present**. Suitable breeding and foraging habitat occurs in or immediately adjacent to the project area. **Less-than-significant impact with mitigation.**
long-billed curlew *Numenius americanus*	--/SC	Large coastal estuaries, upland herbaceous areas and croplands. Breeds in wet meadow habitat.	**Absent as breeder**. Suitable breeding habitat does not occur on the site or surrounding area. **Less-than-significant impact.**
osprey *Pandion haliaetus*	--/SC	Ocean shorelines, lake margins and large, open river courses for both nesting and wintering habitat.	**Present**. Suitable breeding and foraging habitat occurs in the project area. Nest and bird observed in snag adjacent to Womble tract. **Less-than-significant impact with mitigation.**
double-crested cormorant *Phalacrocorax auritus*	--/SC	Inland lakes; fresh, salt and estuarine waters.	**Absent as breeder**. Suitable breeding habitat does not occur on the site or surrounding area. **Less-than-significant impact.**

Table B-2. Special-Status Wildlife Species Potentially Occurring in the Project Area

Common Name *Scientific Name*	Status[1] (Fed/State)	General Habitat Description	Potential for Occurrence/Potential Impacts[2]
white-faced ibis *Plegadis chihi*	--/SC	Nest in dense marsh vegetation near foraging areas in shallow water or muddy fields.	**Absent as breeder**. Suitable breeding habitat does not occur on the site or surrounding area. However, the species may forage in the area. **Less-than-significant impact.**
pallid bat *Antrozous pallidus*	--/SC	Forages over many habitats; roosts in buildings, large oaks or redwoods, rocky outcrops and rocky crevices in mines and caves, and under bridges. Roosts must protect bats from high temperatures	**May be present.** Suitable breeding and foraging habitat occurs in the project area. **Less-than-significant impact with mitigation.**
ringtail *Bassariscus astutus*	--/FP	Riparian habitats and in brush stands of most forest and shrub habitats. Nests in rock recesses, hollow trees, logs, snags, abandoned burrows or woodrat nests.	**May be present**. Suitable breeding and foraging habitat occurs in the project area. Ringtails are nocturnal and do not occupy denning areas for more than a few days at a time. **Less-than-significant impact.**
Townsend's western big-eared bat *Corynorhinus townsendii*	--/SC	Roosts in colonies in caves, mines, tunnels, or buildings in mesic habitats. The species forages along habitat edges, gleaning insects from bushes and trees. Habitat must include appropriate roosting, maternity and hibernacula sites free from disturbance by humans.	**May be present.** Suitable breeding and foraging habitat occurs in the project area. **Less-than-significant impact with mitigation.**
American badger *Taxidea taxus*	--SC	Herbaceous, shrub, and open stages of most habitats with dry, friable soils.	**Unlikely to be present.** Suitable breeding and foraging habitat does not occur in the project area. **Less-than-significant impact.**

[1] Federal and State Status Codes: E = Endangered; T = Threatened; SC = Species of Special Concern; FP = Fully Protected

[2] The potential impacts noted in this column are a summary of the determinations made for each of the species in the table. All species for which the project was determined to have a "less than significant impact with mitigation" are discussed further in the Expanded Initial Study.

APPENDIX C

State Clearinghouse Documentation and Comment Letter

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

June 23, 2008

Kent Smith
California Department of Fish and Game
North Central Region
1701 Nimbus Road
Rancho Cordova, CA 95670

Subject: Colusa Subreach Wildlife Habitat Restoration Project at Seven Tracts along the Sacramento River Between Colusa and Princeton
SCH#: 2008052098

Dear Kent Smith:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on June 20, 2008, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

Enclosures
cc: Resources Agency

Post-it™ Fax Note 7671	Date 6-23-08	# of pages ▶ 4
To Bruce	From Sheila	
Co./Dept.	Co. OPR	
Phone #	Phone # 916 445-0613	
Fax # 916 446-2792	Fax # 323-3018	

Document Details Report

State Clearinghouse Data Base

SCH# 2008052098
Project Title Colusa Subreach Wildlife Habitat Restoration Project at Seven Tracts along the Sacramento River Between Colusa and Princeton
Lead Agency Fish & Game #2

Type MND Mitigated Negative Declaration

Description TNC in association with the Sacramento River Conservation Area Forum (SRCAF) and other partners propose to restore approximately 251 acres of wildlife habitat on portions of seven tracts within the levees of the Sacramento River between Princeton and Colusa. The wildlife habitat restoration activities are proposed through a planning and stakeholder involvement program called Colusa Subreach Planning (CSP). The seven restoration tracts from north to south are identified as Womble, Jensen, Stegeman, 1000-Acre Ranch, Boeger, Colusa-North, and Cruise n' Tarry. Three of the restoration sites, which are currently owned by TNC (Jensen, 1000-Acre Ranch, and Boeger), are proposed to be acquired by the State of California. The total area of the seven tracts is approximately 825 acres.

The purpose of the proposed project is to restore the ability of the Colusa Subreach to support native wildlife, including species listed under the state and federal endangered species acts and other special-status species. Restoration activities include removal of non-native vegetation; site preparation; installation of irrigation systems and use of surface water or groundwater supplies; planting of native trees, shrubs, and grasses; interim irrigation of plants as they become established; and construction of minor public access improvements. Restoration would occur over a four-year time period.

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

Document Details Report
State Clearinghouse Data Base

Lead Agency Contact

Name	Kent Smith
Agency	California Department of Fish and Game
Phone	(916) 358-2382 **Fax**
email	
Address	North Central Region 1701 Nimbus Road
City	Rancho Cordova **State** CA **Zip** 95670

Project Location

County	Colusa, Glenn
City	Colusa
Region	
Lat / Long	
Cross Streets	
Parcel No.	
Township	**Range** **Section** **Base**

Proximity to:

Highways	SR 45, SR 20, SR 162
Airports	
Railways	
Waterways	Sacramento River (seven tracts along a 21-mile reach)
Schools	
Land Use	Colusa County General Plan: "Designated Floodway" (all seven tracts) Glenn County General Plan: "Exclusive Agriculture" (portion of Womble) Colusa County Zoning: "Floodway or F-W zone" (northern portion of Womble)

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Cumulative Effects; Economics/Jobs; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Landuse; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife

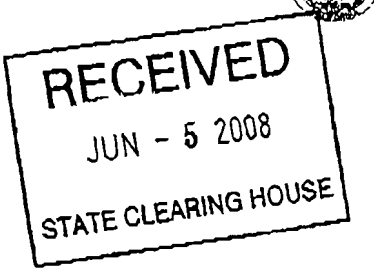
Reviewing Agencies Resources Agency; Regional Water Quality Control Bd., Region 5 (Sacramento); Department of Parks and Recreation; Native American Heritage Commission; Central Valley Flood Protection Board; Office of Historic Preservation; Department of Water Resources; Department of Conservation; California Highway Patrol; Caltrans, District 3; Department of Boating and Waterways; Air Resources Board, Transportation Projects; State Water Resources Control Board, Division of Water Rights; State Water Resources Control Board, Clean Water Program

Date Received 05/21/2008 **Start of Review** 05/22/2008 **End of Review** 06/20/2008

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

STATE OF CALIFORNIA Arnold Schwarzenegger, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax



May 27, 2008

Clear
6.20.08
e

Kent Smith
California Department of Fish and Game-Region 2-North Central Region
1701 Nimbus Rod
Rancho Cordova, CA 95670

RE: SCH# 2008052098 Colusa Subreach Wildlife Habitat Restoration Project at Seven Tracts along the Sacto River, Colusa/Princeton; Colusa County

Dear Mr. Smith:

The Native American Heritage Commission (NAHC) has reviewed the Notice of Completion (NOC) referenced above. The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resource, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA Guidelines 15064(b)). To comply with this provision the lead agency is required to assess whether the project will have an adverse impact on historical resources within the area of project effect (APE), and if so to mitigate that effect. To adequately assess and mitigate project-related impacts to archaeological resources, the NAHC recommends the following actions:

- ✓ Contact the appropriate regional archaeological Information Center for a record search. The record search will determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- ✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- ✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check. **USGS 7.5 minute quadrangle name, township, range and section required.**
  - A list of appropriate Native American contacts for consultation concerning the project site and to assist in the mitigation measures. **Native American Contacts List attached.**
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,
Katy Sanchez
Katy Sanchez
Program Analyst

CC: State Clearinghouse

APPENDIX D

Notice of Determination

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

For U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Sacramento, CA 95814

☐ County Clerk

County of: _____

Address: _____

From:

Public Agency: Department of Fish and Game, Region 2

Address: 1701 Nimbus Road, Rancho Cordova, CA 95670

Contact: Kent Smith

Phone: 916-358-2382

Lead Agency (if different from above):

Address: (same as above)

Contact: _____

Phone: _____

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2008052098

Project Title: Colusa Subreach Wildlife Habitat Restoration on Seven Tracts along the Sacramento River

Project Location (include county): Between Colusa and Princeton, Colusa County and Glenn County

Project Description:

The Nature Conservancy (TNC) in association with the Sacramento River Conservation Area Forum (SRCAF) and other partners propose restoration of approximately 251 acres of wildlife habitat on portions of seven tracts within the levees of the Sacramento River between the unincorporated community of Princeton and the City of Colusa.

This is to advise that the Department of Fish and Game, Region 2 has approved the above described project on

☒ Lead Agency or ☐ Responsible Agency

_____ (Date) and has made the following determinations regarding the above described project:

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☒ were ☐ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at: (address above) or The Nature Conservancy, 500 Main Street, Chico, CA 95928 (530-897-6370)

Signature (Public Agency) Kent C. Smith Title Environmental Program Manager

Date 8/26/08 Date Received for filing at OPR _____

RECEIVED
AUG 27 2008
STATE CLEARING HOUSE

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2005

APPENDIX E

Mitigation Monitoring and Reporting Program

MITIGATION MONITORING AND REPORTING PROGRAM

Colusa Subreach Wildlife Habitat Restoration Project

CEQA Authority and Requirements

The California Environmental Quality Act (CEQA) (Section 21081.6) and the CEQA Guidelines (Section 15097) require a lead agency to adopt a mitigation monitoring or reporting program when it has approved a project with changes or conditions that are adopted in order to mitigate or avoid significant effects on the environment. This Mitigation Monitoring and Reporting Program (MMRP) has been prepared Colusa Subreach Wildlife Habitat Restoration Project (Project).

Mitigation measures provided in this MMRP were identified in the Initial Study and Mitigated Negative Declaration for the Project as feasible and effective in mitigating project-related environmental impacts, and have been adopted by the Department as part of the overall project approval.

Role of Lead Agency

The California Department of Fish and Game, Region 2 (Department) has reviewed the Project under CEQA as the lead agency. The Department has found the mitigation measures identified in the Initial Study[1] and Mitigated Negative Declaration to be feasible and effective for mitigating project-related environmental impacts. These measures have been adopted by the Department as part of the overall project approval.

The Department has primary responsibility for the execution and proper implementation of the MMRP. In some cases, the Department may delegate that responsibility to the project engineer or construction contractor, another public agency, or a private nonprofit corporation in the implementation of specific mitigation measures prior to and/or during construction. Subject to this delegation, any of these entities may function as the Responsible Party for specific mitigation measures. The Department will continue to monitor mitigation measures required during operation of the Project.

Monitoring Plan

The purpose of the MMRP is to document the monitoring and reporting requirements for the Project to ensure compliance during project implementation. The MMRP is intended to be used by the Department, participating agencies, and contractors during implementation of the Project.

The monitoring timing, frequency, and responsible parties for implementing the Project mitigation measures are summarized in Table 1, Summary Mitigation Monitoring Requirements.

[1] *Evaluation of Environmental Effects Associated with Wildlife Habitat Restoration on Seven Tracts along the Sacramento River between Colusa and Princeton – CEQA Initial Study for the Colusa Subreach Wildlife Habitat Restoration Project.* Prepared by North State Resources, Inc. for the California Department of Fish and Game and The Nature Conservancy. May 2008.

TABLE 1. SUMMARY OF MITIGATION MONITORING OR REPORTING REQUIREMENTS

Mitigation Measure	Implementation Phase	Monitoring Frequency / Timing	Responsible Parties	Verification (date and initials)
BIOLOGICAL RESOURCES				
Mitigation Measure #1–Valley Elderberry Longhorn Beetle (VELB)				
▪ Surveys shall be conducted at each of the seven tracts prior to implementation of restoration activities to identify, and mark for protection, elderberry shrubs potentially affected by activities.	Pre-construction	During review and development of final design package	Department / Project Engineer / Project Contractor	
▪ Prior to restoration at each tract, a Worker Environmental Awareness Program for restoration workers shall be conducted by a qualified biologist. The program shall provide all workers with information on their responsibilities with regard to sensitive biological resources, including the federally listed VELB and the need to protect its elderberry host plant.	Pre-construction / Construction	Once prior to initiating construction; as required during construction phase	Department / Project Engineer / Project Contractor	
▪ Measures to protect buffer areas shall be instituted prior to construction and will include fencing and signs. The distance of the buffer area from the drip line of elderberry shrubs with one or more stems measuring 1.0 inch or greater in diameter at ground level shall be set at the greatest distance practicable without compromising the goal of planting native vegetation. The distance of the buffer area shall extend at least 20 feet from the drip line of the elderberry plant.	Pre-construction / Construction	During review of final design package, prior to initiating construction; as needed during construction phase	Department / Project Engineer / Project Contractor	
▪ No insecticides, herbicides, fertilizers, or other chemicals associated with the proposed project that might harm the beetle or its host plant shall be used within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.	Pre-construction	During review of final design package, and if some removal is required it should occur outside of the nesting season	Department / Project Engineer / Project Contractor	
▪ Any damage to the buffer area during construction shall be restored following construction primarily using re-vegetation with native riparian plants as appropriate.	Pre-construction	During review of final design package, and if some removal is required it should occur outside of the nesting season	Department / Project Engineer / Project Contractor	

Mitigation Measure	Implementation Phase	Monitoring Frequency / Timing	Responsible Parties	Verification (date and initials)
Mitigation Measure #2–Nesting Raptors and Other Nesting Birds				
▪ The removal of orchard trees and native trees at the Womble, Stegemen and Colusa-North tracts, shall be conducted outside of the nesting season (nesting season is February 15 to August 30) to the maximum extent practicable.	Pre-construction	During review of final design package and, if required, prior to initiating construction	Department / Project Engineer / Project Contractor	
▪ For all proposed Project activities conducted during the nesting season that have a potential to disrupt nesting birds, pre-construction surveys shall be conducted. Pre-construction surveys for nesting raptors and migratory birds, including but not necessarily limited to, yellow-billed cuckoo, California warbler, yellow-breasted chat, and loggerhead shrike, shall be conducted by a qualified biologist. A minimum of one survey must be conducted no more than 14 days prior to the initiation of Project activities. If an active nest is found in close proximity to (i.e., within 250 feet) an active restoration area that will be disturbed by proposed Project activities, a qualified biologist shall determine the extent of a construction-free buffer zone to be established around the nest.	Pre-construction	If required, prior to initiating construction	Department / Project Engineer / Project Contractor	
Mitigation Measure #3–Bats				
▪ In the event that native trees greater than or equal to 12 inches in diameter at 4.5 feet above grade within the Colusa-North Tract would be removed, a pre-construction survey for roosting bats shall be conducted prior to removal. No activities that would result in disturbance to active roosts of special-status bat species shall proceed prior to the completed survey. If no active roosts are found, then no further mitigation is needed. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified biologist will determine the extent of a construction-free zone to be established around the roost; access and time limits shall also be identified. If either a maternity roost or hibernaculum (i.e., a location used for hibernation) is present, the following measures shall also be implemented. CDFG shall also be notified of any active nurseries or hibernacula identified in the survey. ▪ If active maternity roosts or hibernacula are found, the Colusa-North temporary access road will be relocated to avoid the loss of the tree occupied by the roost, if feasible. ▪ If an active nursery roost is located and the access road can not be relocated to avoid removal of the occupied tree or structure, demolition of that tree or structure should commence before maternity colonies form (i.e., prior to	Pre-construction / Construction	During review of final design package and, if required, during construction phase	Department / Project Engineer / Project Contractor	

Mitigation Measure	Implementation Phase	Monitoring Frequency / Timing	Responsible Parties	Verification (date and initials)
March 1) or after young are volant (flying) (i.e., after July 31) and the disturbance-free buffer zones described above shall be observed during the maternity roost season (March 1 to July 31). ▪ If a non-breeding bat roost or hibernacula is found in a structure or tree scheduled to be removed, the individuals shall be safely evicted, under the direction of a qualified biologist (as determined by a Memorandum of Understanding with CDFG), by opening the roosting area to allow air flow through the cavity. Demolition shall then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for airflow and the demolition). This action should allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed shall first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.				
Mitigation Measure #4–Riparian Habitat at Colusa North Tract				
▪ If a temporary access road is constructed at Colusa-North, the impact to existing habitat shall be minimized by implementing the following measures: ▪ The access road shall be designed with the minimum width needed for tractors and other equipment and the minimum length needed from the existing levee road to the site. ▪ Upon completion of Project activities at the Colusa-North Tract, the land surface affected by the access road shall be restored as closely as practicable to preconstruction contours and revegetated with native riparian species.	Pre-construction / Construction	During review of final design package and, if required, during construction phase	Department / Project Engineer / Project Contractor	

Mitigation Measure	Implementation Phase	Monitoring Frequency / Timing	Responsible Parties	Verification (date and initials)
Mitigation Measure #5–Wetlands				
▪ Prior to the initiation of any ground-disturbing activities at the Womble and Colusa-North tracts, a qualified biologist shall identify all features that may exhibit wetland characteristics (i.e., suspected of meeting wetland criteria, including waters subject to USACE jurisdiction, as well as other waters not subject to USACE jurisdiction but subject to the jurisdiction of the Regional Water Quality Control Board (RWQCB)). These features plus an appropriate protective buffer shall be flagged or fenced prior to the start of start of site preparation, irrigation system installation, or other ground disturbance.	Pre-construction / Construction	During review of final design package and, if required, during construction phase	Department / Project Engineer / Project Contractor	
▪ Mechanized equipment operation in and within 100 feet of identified features shall be avoided to the extent practicable. If avoidance of discharge of dredged or fill material is not practicable, the following measures shall be implemented. ▪ Conduct a wetland delineation pursuant to USACE requirements to determine the nature and extent of "waters of the United States" that are subject to restoration activies within the Womble and Colusa-North tracts. ▪ Prior to any discharge of dredged or fill material into "waters of the United States," including wetlands, authorization under a Nationwide Permit or Individual Permit shall be obtained from the USACE. For fill requiring a USACE permit, water quality certification shall be obtained from the RWQCB prior to discharge of dredged or fill material. ▪ Prior to any activities that would obstruct the flow of or alter the bed, channel, or bank of any intermittent or ephemeral creeks, notification of streambed alteration shall be submitted to the CDFG, and, if required, a Streambed Alteration Agreement shall be obtained. ▪ Construction activities that would have an impact on "waters of the United States" shall be conducted during the dry season to the extent practicable to minimize erosion. ▪ All measures contained in permits or associated with agency approvals shall be implemented.	Pre-construction / Construction	During review of final design package and, if required, during construction phase	Department / Project Engineer / Project Contractor	

Mitigation Measure	Implementation Phase	Monitoring Frequency / Timing	Responsible Parties	Verification (date and initials)
CULTURAL RESOURCES				
Mitigation Measure #6–Construction Worker Training and Inadvertent Discoveries Prior to initiation of construction or ground-disturbing activities, TNC shall provide worker awareness training and informational materials to all construction workers regarding the possibility of discovering prehistoric or historic cultural resource materials. Personnel shall be instructed that if materials are encountered that may represent archaeological material, work within 50 feet of the find shall be halted and a professional archaeologist shall be consulted. Once the find has been identified, TNC's project archaeologist will make the necessary plans for treatment of the cultural resources and for the evaluation and resolution of any adverse effect to such properties pursuant to the NHPA and CEQA. Work may continue on other parts of the proposed Project while mitigation for historical or unique archaeological resources takes place.	Project Design / Pre-Construction / Construction	As required during the construction phase	Department / Project Engineer / Project Contractor	
Mitigation Measure #7–Protection of Known Cultural Sites A professional archaeologist shall be present during ground-disturbing activities on the one tract (identified in the confidential cultural resources investigation) where cultural materials are suspected. The archaeologist shall have authority to stop work if needed. If potentially significant cultural materials are detected, all work shall halt within a 100-foot radius of the find until clearance is provided by the archaeologist. CDFG, in consultation with TNC's project archaeologist, shall determine the need for additional cultural resources monitoring in areas removed from the identified feature.	Project Design / Pre-Construction / Construction	As required during the construction phase	Department / Project Engineer / Project Contractor	
Mitigation Measure #8–Monitor for Known Cultural Site An experienced Native American monitor, representing a local group such as the Cortina Band of Indians (Cortina Indian Rancheria, Wintun Tribe) shall be present during ground-breaking activities on the one tract (identified in the confidential cultural resources investigation). In the event of the inadvertent discovery of human remains, the monitor will facilitate Native American consultation, but will not replace the required protocol outlined in Mitigation Measure 9, below. CDFG, in consultation with TNC's project archaeologist, shall determine the need for additional cultural resources monitoring in areas removed from the identified feature.	Project Design / Pre-Construction / Construction	As required during the construction phase	Department / Project Engineer / Project Contractor	

Mitigation Measure	Implementation Phase	Monitoring Frequency / Timing	Responsible Parties	Verification (date and initials)
Mitigation Measure #9–Inadvertent Discovery of Remains If human remains are encountered during construction, work in the affected portion of the Project shall stop and the County Coroner's Office shall be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by Public Resources Code, Section 5097. The NAHC will notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains.	Project Design / Pre-Construction / Construction	As required during the construction phase	Department / Project Engineer / Project Contractor	

Maintenance Plan – Colusa-North Tract

The proposed riparian habitat restoration will infill larger, existing areas of remnant riparian vegetation to maximize the connectivity and overall ecological value of that habitat for native species and game species. The proposed restoration involves a small portion of the five Tracts as most of the Tracts are already in riparian habitat. Only 167 acres of the 717 total acres, 23% of the total area, will be modified in any way. The remaining 77% of the land will be unchanged from the current condition. Five acres of the 143-acre Colusa-North Tract will be restored. The remaining 94% of the Tract will be unchanged.

The proposed plant communities are designed to achieve the full, natural vegetation potential that can be supported on the respective portions of each site. These communities were determined on the basis of the site characteristics, which include but are not limited to, soils, drainage and inundation frequency. These restored areas will gradually blend into the remnant riparian habitats that surround them and eventually they will be indistinguishable from the surrounding remnant habitat.

The hydraulic analysis prepared as a part of Colusa Subreach Planning modeled the proposed vegetation communities with roughness coefficients that matched the remnant riparian areas in the Colusa Subreach so that the maximum future effect of the restoration is incorporated into the analysis results. The modeling considered the restoration to be at full growth and, therefore, demonstrates a "full growth" or "worst case" flood impact that will not occur for many years. The analysis, which is detailed for each restoration site, demonstrates that the completed restoration will not result in unacceptable increases in either flood flow elevation or flood flow velocity and that the restorations will not unreasonably affect the flood management system or surrounding properties; either individually or cumulatively. As a result, following initial establishment of the vegetation no physical management actions are required to ensure compliance with Flood Protection Board standards.

Maintenance During Restoration

The intensive activity and maintenance that will occur over a four-year period is specified in a detailed Restoration Plan that was developed for of each of the five restoration sites as part of Colusa Subreach Planning. This initial activity and maintenance will ensure that the proposed plant communities will be established consistent with the Restoration Plan and the Hydraulic Analysis. This work will include the following:

Year One

- Collect native seeds and cuttings for overstory and understory plantings
- Propagate plantings in a nursery
- Perform weed control

Year Two

- Prepare fields for planting and lay out the plan onsite
- Install, maintain, and operate irrigation system
- Plant overstory and understory materials in the spring
- Seed understory native grass in the fall
- Perform weed control
- Monitor regularly
- Prepare annual report

Year Three

- Perform weed control
- Maintain and operate irrigation system
- Monitor regularly and replace plants as required
- Prepare annual report

Year Four

- Perform weed control
- Maintain and operate irrigation system
- Monitor regularly
- Prepare the final report

Maintenance Following Restoration

- Periodic visits by agency enforcement and lands management staff
- Annual review of each restoration site

The restoration planting will be irrigated and maintained for a three-year period to ensure the cost effective establishment of the proposed plant communities. By the end of the three year maintenance period the plants will be established to the point that irrigation and weed control are no longer required. The riparian habitat will function just like the surrounding remnant riparian habitat and no unusual maintenance will be required. DFG will manage the property for wildlife habitat and for public recreation use consistent with other comparable lands along the Sacramento River.

The DFG and Department of Water Resources (DWR) are developing a Memorandum of Understanding for maintenance of flood control projects in the Sacramento River and Feather River wildlife areas. The agencies mutually agree to maintain channel capacity while managing, monitoring, restoring and enhancing lands set aside for fish and wildlife. The agencies further agree to coordinate land management efforts and facilitate the respective parties' efforts to meet public safety and environmental stewardship goals. DWR will complete routine maintenance in accordance with this MOU and the Streambed Alteration Agreement issued by DFG for Routine Maintenance of Flood Control Projects (Notification No. 1600-2010-0108-R2).