

# **BUTTE REGIONAL CONSERVATION PLAN IN-LIEU FEE PROGRAM PROSPECTUS**

## **BUTTE COUNTY, CALIFORNIA IN-LIEU FEE SPONSOR:**

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# Acronyms and Abbreviations

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BCAG	Butte County Association of Governments
BRCP	Butte Regional Conservation Plan
CAZ	Conservation Acquisition Zone
CDFW	California Department of Fish and Wildlife
Central Valley Water Board	Central Valley Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Register
CRAM	California Rapid Assessment Method
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
ESA	Federal Endangered Species Act
FDIC	Federal Deposit Insurance Corporation
GAAP	Generally Accepted Accounting Principles
HCP	Habitat Conservation Plan
HGM	Hydrogeomorphic
ILF Program	Butte Regional Conservation Plan In-Lieu Fee Program
IRT	Interagency Review Team
LEDPA	Least Environmentally Damaging Practicable Alternative
NCCP	Natural Community Conservation Plan
NCCPA	Natural Community Conservation Planning Act
NFWF	National Fish and Wildlife Foundation
NMFS	National Marine Fisheries Service
NWP	Nationwide Permit
PDP	Project Development Plan
PEHL	Public and Easement Habitat Land
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
RGP	Regional General Permit
RIBITs	Regulatory In-lieu fee and Bank Information Tracking System
Service Area	In-Lieu Fee Program Service Area
SWRCB	State Water Resources Control Board
UPA	Urban Permit Area
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service

# Butte Regional Conservation Plan In-Lieu Fee Program Prospectus

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## 1 Introduction

The Butte County Association of Governments (BCAG) is a joint powers authority governed by a 10-member board of directors that includes all five members of the Butte County Board of Supervisors as well as one city council representative from each of the five incorporated cities in Butte County. BCAG was originally established in 1969. BCAG is proposing the Butte Regional Conservation Plan In-Lieu Fee Program (ILF Program) to replace the loss of aquatic resource functions and services resulting from activities covered under the *Butte Regional Conservation Plan* (BRCP) and occurring in the BRCP Plan Area. The ILF Program Service Area (Service Area) will be the same as the BRCP Plan Area. Through participation in the BRCP and the ILF Program, project proponents would meet compensatory mitigation requirements for unavoidable impacts to waters of the United States resulting from implementation of their projects.<sup>1</sup> Under the rules published by U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (USACE) in the *2008 Mitigation Rule* (33 Code of Federal Regulations [CFR] Parts 325 and 332, and 40 CFR Part 230), compensatory mitigation is required to replace the loss of wetland, stream, and other aquatic resource functions and services resulting from activities authorized by Department of the Army permits under Section 404 of the Clean Water Act (CWA). This prospectus outlines the circumstances and manner in which BCAG, USACE, and the Interagency Review Team (IRT) would develop and administer the ILF Program in compliance with the Mitigation Rule.

Mitigation projects under the ILF Program would be implemented with a watershed approach and based on the *Watershed Analysis for the Butte Regional Conservation Plan Area* (ICF International 2015), as directed by the Mitigation Rule; and would be consistent with the conservation strategy outlined in the BRCP and the federal government's goal of no overall net loss of wetland acreage and function. Mitigation projects would focus specifically on establishment (creation), restoration (reestablishment or rehabilitation), enhancement, and preservation of aquatic resources. Acting as the ILF Program Sponsor and BRCP Implementing Entity, BCAG would establish a dedicated financial account held in an FDIC-insured banking institution, to accept in-lieu fees from project proponents whose BRCP-covered activities directly or indirectly have impacts on waters of the United States. The fees would then be used to fund mitigation projects that create, restore, enhance, and preserve waters of the United States. Mitigation projects would be prioritized within the same HUC-8 watershed where impacts occur, with second priority to adjacent watersheds within the same ecoregion (Conservation Acquisition Zone [CAZ]<sup>2</sup>) where similar ecological functions and services may be created, restored, enhanced, and preserved.

The installation of an ILF Program would ensure no net loss of waters of the United States within the Service Area. Additionally, by establishing a financial account to record and pool the funds collected

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<sup>1</sup> Per 33 CFR 332.3 (j), the ILF Program may also support mitigation required by the Central Valley Regional Water Quality Control Board (Water Board) for impacts on non-federally regulated waters of the State and riparian areas in accordance with state wetland mitigation policies, U.S. Fish and Wildlife Service (USFWS), and California Department of Fish and Wildlife (CDFW).

<sup>2</sup> Conservation Acquisition Zones are ecoregions used by the BRCP and described later in this document under Section 5.0.

for compensatory mitigation, BCAG would be able to acquire larger and more strategic properties than would be possible if mitigation were completed in smaller units on a project-by-project basis. Mitigation projects on acquired properties would be prioritized under a compensation planning framework guided by BCAG, the USACE, and the IRT, and with consideration of the needs of the watershed where the mitigation project is proposed. Furthermore, approved mitigation projects funded under the proposed ILF Program would be able to offer advance credits according to a release schedule provided in the in-lieu fee program instrument once the credit fee is collected, thus minimizing the delay between permit issuance and mitigation implementation. Providing advance credits expedites agency permitting by eliminating the responsibility of individual project proponents to identify, execute, monitor, and manage compensatory mitigation projects that meet the strict requirements of the Mitigation Rule. Up-front planning of mitigation also reduces a substantial amount of work for the regulatory agencies by eliminating the detailed project-by-project analysis required of project managers and legal staff to review and approve individual mitigation projects proposed by applicants.

## 2 ILF Service Area

The ILF Service Area covers the same 564,203 acres of land within Butte County as the BRCP Plan Area (Figure 1). The ILF Service area includes the western lowlands and foothills of Butte County bounded on the west by the county's borders with Tehama, Glenn, and Colusa Counties; bounded on the south by the borders with Sutter and Yuba Counties; bounded on the north by the border with Tehama County; and primarily bounded on the east by the upper extent of landscape dominated by oak woodland natural communities. The upper elevation range of the oak zone varies from about 800 to 1,500 feet above mean sea level.

The ILF Service Area lies within the drainage basin of the Feather and Sacramento Rivers and includes portions of six HUC-8 watersheds.

- The Butte Creek watershed (HUC 18020158) constitutes 52.2% of the Service Area.
- The Honcut Headwaters—Lower Feather watershed (HUC 18020159) constitutes 28.0% of the Service Area.
- The Big Chico Creek—Sacramento River watershed (HUC 18020157) constitutes 17.8% of the Service Area.
- The three remaining watersheds, Sacramento—Stone Corral (HUC 18020104), North Fork Feather (HUC 18020121), and Middle Fork Feather (HUC 18020123), constitute the remaining 2.0% of the Service Area.

The Service Area contains approximately 74,924 acres and approximately 2,506 linear miles of potential waters of the United States and riparian habitats (Table 1). Jurisdictional waters of the United States are defined as “potential” because the available data for this area consist of land cover mapping conducted using aerial photography interpretation and limited ground-truthing. Site-specific wetland delineations would be required to verify in the field whether land cover mapped as a wetland type is in fact a jurisdictional wetland. Figure 2 displays the HUC-8 watersheds and CAZ boundaries.

**Table 1. Potential Waters of the United States in the Service Area**

Aquatic Resource Type (see Section 10 for definitions)	Amount Mapped (acres)	Percent of Potential Waters in the Service Area
<b>Potential Wetlands—Vernal Pools and Other Seasonal Wetlands</b>		<b>5.3</b>
Vernal Pools and Other Seasonal Wetlands in Grasslands with Swale Complexes <sup>a</sup>	1,549	
Vernal Pools and Other Seasonal Wetlands in Grasslands <sup>b</sup>	525	
Vernal Pools and Other Seasonal Wetlands associated with Streams <sup>c</sup>	1,925	
<b>Potential Wetlands—Riparian <sup>d</sup></b>		<b>29.6</b>
Cottonwood-Willow Riparian Forest	7,509	
Valley Oak Riparian Forest	4,331	
Willow Scrub	2,995	
Herbaceous Riparian and River Bar	1,658	
Dredger Tailings with Riparian Forest and Scrub	5,656	
<b>Potential Wetlands—Perennial Emergent</b>		<b>5.9</b>
Emergent Wetlands	4,440	
<b>Potential Wetlands—Artificial Types</b>		<b>45.1</b>
Managed Wetland	25,486	
Managed Seasonal Wetland	2,097	
Rice Land—Potential Jurisdictional Portion <sup>e</sup>	6,016	
Irrigated Pasture, Cropland—Potential Jurisdictional Portion <sup>f</sup>	216	
<i>Subtotal—Wetlands</i>	<i>64,403</i>	<i>86.0</i>
<b>Potential Non-Wetland Waters</b>		<b>14.0</b>
Ponds <sup>g</sup>	223	
Open Water	8,401	
Major Canal	1,897	
<i>Subtotal—Non-Wetland Waters</i>	<i>10,521</i>	<i>14.0</i>
<b>Grand Total</b>	<b>74,924</b>	

Source: Butte County Association of Governments 2015.

<sup>a</sup> Based on BRCP's assumption of a 4.54% density of vernal pools and seasonal wetland.

<sup>b</sup> Based on BRCP's assumption of a 0.88% density of vernal pools and other seasonal wetlands.

<sup>c</sup> Based on BRCP's assumption of a 22.88% density of seasonal and perennial wetlands.

<sup>d</sup> Only portions of riparian habitats listed meet jurisdictional criteria under Clean Water Act Section 404, but all areas meet jurisdictional criteria under CA Fish and Game Code Section 1602.

<sup>e</sup> Based on BRCP's assumption that 5% of rice land would support jurisdictional wetlands after removal of artificial irrigation practices.

<sup>f</sup> Based on BRCP's assumption that 1% of irrigated pasture and cropland would support jurisdictional wetlands after removal of artificial irrigation practices.

<sup>g</sup> Based on estimate of 0.48 acre/pond, a mean size calculated from a sample of 30 ponds.

The BRCP ILF Program would provide compensatory mitigation in the Service Area for unavoidable temporary and permanent impacts on waters of the United States resulting from implementation of covered activities in Service Area as set forth in Sections 2.2 through 2.5 of the BRCP and includes certain non-exempt (per Section 404(f) of the CWA) construction and maintenance activities associated with:

- Residential, commercial, public, and industrial facilities;
- Recreation facilities;
- Transportation facilities;
- Pipeline facilities;
- Utility service facilities;
- Waste management facilities;
- Flood control and stormwater management facilities; and
- Aquatic habitat restoration, establishment, and enhancement activities.

The ILF Program Service Area was selected by BCAG, in consultation with USACE, the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), and National Marine Fisheries Service (NMFS), to match the BRCP Plan Area. The ILF Program was also defined to ensure that all mitigation benefiting aquatic habitats, endangered and threatened species, biodiversity, and ecological functions would be addressed under a single, long-term, well-coordinated, ecosystem- and watershed-based program of conservation.

### 3 Terminology

The terms used in this document are defined by the South Pacific Division USACE in the Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines and are provided below for ease of reference.

*Advance credits:* Any credits for an approved in-lieu fee program that are available for sale prior to being fulfilled in accordance with an approved Mitigation Plan.

*Buffer:* An upland, wetland, and/or riparian area that protects and/or enhances aquatic resource functions associated with wetlands, rivers, streams, lakes, marine and estuarine systems from disturbances associated with adjacent land uses.

*Compensatory mitigation:* The restoration (re-establishment or rehabilitation), establishment (creation), enhancement and/or in certain circumstances the preservation of aquatic resources for the purposes of offsetting unavoidable authorized adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

*Compensatory mitigation project:* Compensatory mitigation implemented by the permittee as a requirement of a Department of the Army permit (i.e., permittee-responsible mitigation), or by a mitigation bank or an in-lieu fee program.

*Condition:* The relative ability of an aquatic resource to support and maintain a community of organisms having a species composition, diversity, and functional organization comparable to reference aquatic resources in the region.

*Credit:* A unit of measure (e.g., a functional or areal measure or other suitable metric) representing the accrual or attainment of aquatic functions at a compensatory mitigation site. The measure of aquatic functions is based on the resources restored, established, enhanced, or preserved.

*Credit release:* A determination made by the Corps to make specified mitigation bank or in-lieu fee program credits available for purchase, pursuant to an approved mitigation bank or in-lieu fee program instrument.

*Cumulative impact:* Per 40 CFR 1508.7, a cumulative impact is the impact on the environment which results from the incremental impact of the [authorized] action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

*Direct effects:* Per 40 CFR 1508.8, direct effects are caused by the [authorized] action and occur at the same time and place.

*Ecoregion:* Regions with similar soils, geology, vegetation, land use, physiography, and climate. An ecoregion represents a spatial framework for ecosystem assessment, research, inventory, monitoring, and management. Ecoregions delimit large areas within which local ecosystems reoccur more or less throughout the region in a predictable pattern. Ecoregions should be thought of as multi-purpose regions designed to show areas within which the aggregate of all terrestrial and aquatic ecosystem components is different from or less variant than that in other areas.

*Enhancement:* Manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

*Establishment (creation):* Manipulation of the physical, chemical, or biological characteristics present at an upland site to develop an aquatic resource that did not previously exist. Establishment results in a gain in aquatic resource area and functions.

*Functions:* The physical, chemical, and biological processes that occur in ecosystems.

*Functional/condition assessment method:* Any approved, scientifically based method to evaluate current functions or condition of an aquatic resource. The aquatic resource is compared to similar aquatic resources (reference resources) that are relatively unaltered. The approach is based on combining variables that are typically structural measures or indicators that are associated with one or more ecosystem functions. Functions normally fall into one of three major categories: (1) hydrologic (e.g., storage of surface water), (2) biogeochemical (e.g., removal or transformation of elements and compounds), and (3) habitat (e.g., maintenance of characteristic plant or animal communities). Condition assessments typically combine functions and specific functions are not assessed, whereas most functional assessments allow users to score each function.

*Impact:* An adverse effect from dredge or fill activities or structures and work regulated under the authority of Section 404 of the Clean Water Act of 1972 and/or Sections 9 or 10 of the Rivers and Harbors Act of 1899.

*In-kind:* A resource of a similar structural and functional type to the impacted resource.

*In-lieu fee program:* A program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements for Department of the Army permits. Similar to a mitigation bank, an in-lieu fee program sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the in-lieu program sponsor. However, the rules governing the operation and use of in-lieu fee programs are somewhat different from the rules governing operation and use of mitigation banks. The operation and use of an in-lieu fee program are governed by an in-lieu fee program instrument.

*In-lieu fee project:* Compensatory mitigation project implemented by a program sponsor under an approved in-lieu fee program. An in-lieu fee project produces released credits that fulfill the obligations incurred by the sponsor through the sale or transfer of advance credits.

*Indirect effects:* Per 40 CFR 1508.8, indirect effects are caused by the [authorized] action and are later in time or farther removed in distance, but are still reasonably foreseeable.

*Instrument:* The legal document for the establishment, operation, and use of a mitigation bank or an in-lieu fee program.

*Landscape:* Comprises the visible features of an area of land, including the physical elements of landforms such as (ice-capped) mountains, hills, water bodies such as rivers, lakes, ponds and the sea, living elements of land cover including indigenous vegetation, human elements including different forms of land use, buildings and structures, and transitory elements such as lighting and weather conditions.

*Mitigation bank:* Compensatory mitigation project implemented by a bank sponsor under an approved mitigation bank instrument. A mitigation bank project produces released credits that fulfill the obligations incurred by the sponsor through the sale or transfer of credits.

*Mitigation plan:* A plan describing in detail the necessary steps and requirements to construct, maintain, monitor, and bring a compensatory mitigation project to completion (i.e. meet performance standards).

*Nationwide permit:* Per 33 C.F.R. §325.5(c)(2), Nationwide Permits (NWP) are a type of general permit and represent Department of the Army authorizations issued by the regulation (33 CFR part 330) for certain specified activities nationwide (typically for projects with smaller impacts to waters of the U.S.). If certain conditions are met, the specified activities can take place without the need for an individual or regional permit. Every five years, general and NWP undergo a public process for reissuance or revocation and the addition of NWP authorizations for new specified activities where it has been determined that the authorizations will not result in more than minimal impacts.

*Non-aquatic mitigation:* Refers to areas sometimes included in mitigation plans as a result of state or federal wildlife protection requirements (e.g., Endangered Species Act). In some cases, non-aquatic mitigation is considered compensatory mitigation for purposes of Department of the Army permits, generally when providing buffering capacity to adjacent aquatic resources. In other cases, non-aquatic mitigation is included within a mitigation plan to address the needs of a separate resource agency, but is not considered compensatory mitigation for purposes of Department of the Army permits (for example, upland mitigation for impacts to federally-listed threatened or endangered species).

*Out-of-kind:* A resource of a different structural and functional type from the impacted resource.

*Performance standards:* Observable or measurable physical (including hydrological), chemical and/or biological attributes, that are used to determine if a compensatory mitigation project meets its objectives.

*Permittee-responsible mitigation:* An aquatic resource restoration, establishment, enhancement, and/or preservation activity undertaken by the permittee (or an authorized agent or contractor) to provide compensatory mitigation for which the permittee retains full responsibility.

*Preservation:* Removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

*Program account:* An account established by an in-lieu fee program sponsor at an institution that is a member of the Federal Deposit Insurance Corporation and that is used by the program sponsor to retain funds for the purpose of providing compensatory mitigation for Department of the Army permits.

*Re-establishment:* Manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

*Reference site:* An aquatic resource site within the same watershed (or alternatively: ecoregion, physiographic province, or other geographic area of interest), a site upstream or downstream along the same river or stream reach or within the same wetland complex, or multiple, within-watershed reference sites, possibly as part of a network of reference aquatic resources.

*Reference standard:* The highest level (least-disturbed) of aquatic resource functioning/condition observed within a watershed area, ecoregion, or service area.

*Regional General Permit:* Regional General Permits (RGPs) are type of general permit issued by a USACE division or district engineer on a regional basis and may require case-by-case reporting. RGPs may only be issued following the publishing of a public notice, and preparation of a decision document to ensure that the RGP authorized activities cause only minimal individual and cumulative environmental impacts. In the majority of cases, RGPs contain conditions to further ensure that environmental impacts are minimal, including conditions for the submittal of a permit application prior to activities occurring within waters of the U.S.

*Rehabilitation:* Manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing the natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

*Restoration:* Manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

*RIBITS (Regulatory In-lieu Fee and Bank Information Tracking System):* RIBITS was developed by the U.S. Army Corps of Engineers with support from the Environmental Protection Agency and the U.S. Fish and Wildlife Service to provide better information on mitigation and conservation banking and in-lieu fee programs across the country. RIBITS allows users to access information on the types and numbers of mitigation and conservation bank and in-lieu fee program sites, associated documents, mitigation credit availability, service areas, as well information on national and local policies and procedures that affect mitigation and conservation bank and in-lieu fee program development and operation.

*Service Area:* The geographic area(s) within which permitted impacts to waters of the United States may be compensated through the purchase of credits from an approved mitigation bank or in-lieu fee program, as designated by the instrument for the specific bank or in-lieu fee program.

*Services:* The benefits that human populations receive from functions that occur in ecosystems.

*Special aquatic site:* Those sites identified in subpart E of the 404(b)(1) Guidelines (40 CFR Part 230). Special aquatic sites include sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes. When proposed for impact under the Clean Water Act, special aquatic sites trigger another level of alternatives analysis under the 404(b)(1) Guidelines.

*Standard [individual] permit:* A standard, individual permit issued under the authority of Section 404 of the Clean Water Act of 1972 and/or Sections 9 or 10 of the Rivers and Harbors Act of 1899 and/or Section 103 of the Marine Protection Research and Sanctuaries Act of 1972, as amended (typically for projects with larger impacts to waters of the U.S.). Per 33 C.F.R. §325.5(b)(1), a standard [individual] permit is one which has been processed through the public interest review procedures, including public notice and receipt of comments.

*Temporal loss:* The time lag between the loss of aquatic resource functions caused by the permitted impacts and the replacement of aquatic resource functions at the compensatory mitigation site. Higher compensation ratios may be required to compensate for temporal loss. When the compensatory mitigation project is initiated prior to, or concurrent with, the permitted impacts, the district engineer may determine that compensation for temporal loss is not necessary, unless the resource has a long development time.

*Temporary impacts:* Minor impacts to aquatic resources that occur for a short duration during authorized activities wherein, following completion of the permitted work, the affected aquatic resources are completely restored to preconstruction elevations and contours, conditions and functionality.

*Umbrella mitigation banking instrument:* A single mitigation banking instrument may provide for future authorization of additional mitigation bank sites. As additional sites are selected, they must be included in the mitigation banking instrument as modifications, using the procedures in §332.8(g)(1). Credit withdrawal from the additional bank sites shall be consistent with §332.8(m).

*Watershed:* A land area that drains to a common waterway, such as a stream, lake, estuary, wetland, or ultimately the ocean.

*Watershed plan:* A plan developed by federal, tribal, state, and/or local government agencies or appropriate non-governmental organizations, in consultation with relevant stakeholders, for the specific goal of aquatic resource restoration, establishment, enhancement, and preservation. A watershed plan addresses aquatic resource conditions in the watershed, multiple stakeholder interests, and land uses. Watershed plans may also identify priority sites for aquatic resource restoration and protection. Examples of watershed plans include, but are not limited to, special area management plans, advanced identification programs, and wetland management plans. Habitat conservation plans and, in California, natural community conservation plans, may provide additional sources of watershed planning information.

## 4 Objectives

The objectives of the proposed BRCP ILF Program are the following.

- Provide an effective regional, watershed-based compensatory mitigation program whereby applicants may purchase mitigation credits for USACE-permitted impacts to aquatic resources in the ILF Service Area.
- Replace the loss of wetland, stream, and other aquatic resource functions and values, including permanent and temporary impacts to waters of the United States in the ILF Service Area caused by USACE-permitted activities.
- Improve the quality, quantity, distribution, and stability of aquatic resources and riparian habitat within and surrounding the ILF Service Area.
- Provide a means to establish and track mitigation values that are required for mitigation associated with unavoidable losses of waters of the United States.
- Pursuant to the Mitigation Rule, provide an environmentally preferable alternative to permittee-responsible compensatory mitigation by developing and implementing biologically superior mitigation projects of sufficient quality and quantity to meet current and anticipated demand for credits in the ILF Service Area.
- Minimize the temporal loss of aquatic resources by identifying, designing, and obtaining approval for compensatory mitigation projects in advance of compensatory mitigation needs.
- Establish and maintain a level of accountability commensurate with that of mitigation banks, such that the compensatory mitigation obligations assumed by BCAG through the sale of credits are satisfied in a timely, effective manner pursuant to the Mitigation Rule.
- Consolidate funding for compensatory mitigation projects in the Service Area to reduce the prohibitive costs of undertaking isolated and/or small-scale mitigation projects by implementing larger, more comprehensive, and more coordinated mitigation projects.

- Provide the IRT—a team of federal, state, and/or local agency representatives with a substantive interest in the ILF Program’s establishment and management—with compensatory mitigation projects that specifically target the needs of watersheds within the Service Area.

## 5 Establishment

BCAG has been preparing the BRCP with the goal of providing an effective framework to protect, enhance, and restore natural resources in specific areas of western Butte County. Concurrently, USACE has been preparing a Clean Water Act Section 404 Regional General Permit (RGP) for BRCP activities that meet the conditions of the RGP. Once the BRCP is approved, BCAG will seek approval from the IRT to integrate the ILF Program with the BRCP’s proposed fee-based mitigation program for impacts on covered species. This integration would provide a single comprehensive program covering terrestrial natural communities, endangered species, and aquatic resources.

As described in Section 8, a tracking system and ledger would be in place to ensure that collected fees are used to meet specific permit requirements, whether those requirements are specific to aquatic species (BRCP), aquatic resources (ILF Program), or both. In such dual-purpose cases, fees would be tracked separately to ensure proper expenditure for specific habitat types, which may include upland buffers associated with waters of the United States and/or aquatic habitats as applicable to specific project mitigation requirements. In addition, funding from other sources, such as grants or donations, would be tracked separately but can be used to augment the overall ILF Program by funding additional, non-mitigation restoration or preservation projects. A checklist approved by the IRT would be developed and used to prioritize projects and outline the Compensation Planning Framework, as summarized in Section 10.

BCAG, with input from the IRT, would prioritize and locate compensatory mitigation projects based on the watershed conditions and needs that are described in the watershed plan. Mitigation plans would document how the aquatic resource functions to be provided would support the needs of the watershed where permitted activities resulted in losses to waters of the United States. Mitigation projects would be located in the appropriate part of the watershed and in the landscape position for the desired aquatic resource type, and where the likelihood of success is highest. If appropriate sites within the same watershed cannot be found to mitigate impacts on a specific aquatic resource type, but good candidate sites are available in adjacent watersheds, BCAG would propose the mitigation project in the adjacent watershed but within the same ecoregion where the impact on the aquatic resource occurred.

Under the BRCP, ecoregions have been termed Conservation Acquisition Zones (CAZs). CAZs are large sections of the Service Area, each dominated by different large-scale ecological, geomorphic and land use conditions. Each CAZ supports its own predominant ecological, topographical, landscape, and other natural community conditions that differentiate it from other CAZs. Assembly of conservation lands in the CAZs paid for with ILF Program and BRCP monies would be based on the watershed approach and scientifically accepted principles of conservation biology, and informed by the best available biological data, including information on species (e.g., distribution, habitat relationships, and life history characteristics) and habitats (e.g., distribution, species composition, ecological function). Fees collected for non-aquatic mitigation would be used to fund mitigation projects in the same CAZ in which the impact occurs. The ILF Program combined with the BRCP will merge the watershed approach with the CAZs. The result will be large areas of conservation land with aquatic resources, maximized habitat connectivity, and greater likelihood of site success,

including in areas within and between stream corridors that maximize ecosystem and aquatic resource functions, services, and benefits to species. Figure 3 displays the boundaries of the CAZs and the land cover types within the ILF Service Area.

As the ILF Program Sponsor, BCAG would coordinate with USACE and the IRT to develop the implementation process for compensatory mitigation projects, including mitigation site selection, project prioritization, and project execution, while drawing upon extensive conservation data collected during the development of the BRCP and respective watershed plans. The use of existing regional and watershed-based data would ensure that BCAG establishes a cohesive approach to aquatic resource management and that mitigation sites maximize ecosystem benefits. The ILF Program would be coordinated with existing conservation efforts within (and outside, when practicable) of the Service Area to enhance regional connectivity and maximize the watershed approach.

The ILF Program would be structured around the following strategies.

- Provide an incentive for proposed public and private projects to maximize avoidance and minimization of aquatic resources and design for the USACE Least Environmentally Damaging Practicable Alternative (LEDPA) early in project development.
- Provide advanced compensatory mitigation credits required by USACE General and Individual Permits pursuant to Section 404 of the Clean Water Act (CWA).
- Facilitate future mitigation for Central Valley Regional Water Quality Control Board (Central Valley Water Board) Water Quality Certifications pursuant to Section 401 of the CWA, Central Valley Water Board Waste Discharge Requirements pursuant to the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), and CDFW Streambed Alteration Agreements pursuant to Section 1602 of the State Fish and Game Code.
- Support accounting of mitigation credits required by BCAG's CEQA process or by state and federal wildlife agencies (e.g., mitigation associated with Endangered Species Act [ESA] requirements).
- Plan and execute compensatory mitigation projects using the watershed plan and current projected aquatic resource needs to maximize ecological benefits with consideration of aquatic habitat diversity, habitat connectivity, physical processes including hydrologic sources (including the availability of water rights), soils and geologic conditions, trends in land use, and compatibility with adjacent land uses.
- Draw upon existing regional planning efforts and data developed in concert with resource and regulatory agencies to prioritize compensatory mitigation projects for efficient IRT approval and providing the project with clear and site-specific objectives, comprehensive site plans, and ecological performance standards that meet the strict requirements of the Mitigation Rule.

The structure of the proposed ILF Program as presented in this prospectus will be detailed in the BRCP ILF Program Instrument upon the direction of the IRT. The ILF Program will be established and implemented through the IRT, BRCP, and conditionally by the USACE Section 404 RGP. These documents serve as the "umbrella" under which ILF Program mitigation projects will be funded and implemented within the Plan Area. The IRT in conjunction with BCAG will administer the ILF Program.

## 6 Background, Need, and Technical Feasibility

### 6.1 Background

Activities that result in the discharge of dredged or fill materials into waters of the United States require a permit from USACE. Such activities are regulated by USACE and EPA under Section 404 of the CWA. In addition, USACE regulates activities in navigable waters under Section 10 of the Rivers and Harbors Act. The Central Valley Water Board certifies federal actions that affect water quality under Section 401 of the CWA and activities that would impact waters of the State under the California Porter-Cologne Act. CDFW regulates the bed and bank of streams and lakes and associated riparian habitat under California Fish and Game Code (CFG) Sections 1600–1616. In addition to measures to avoid and minimize impacts on aquatic resources, these federal and state regulatory agencies require unavoidable impacts on aquatic resources and their functions to be replaced through compensatory mitigation. The BRCP ILF Program would ensure funding to implement mitigation projects designed to offset these unavoidable impacts.

The ILF Program would be implemented in conjunction with and as an integral part of the BRCP.

#### 6.1.1 Butte Regional Conservation Plan

The BRCP is a comprehensive biological resources conservation plan that addresses both upland and aquatic resources in lowland and foothill areas of Butte County, California. The BRCP will be executed and managed by BCAG. The BRCP is designed to preserve, restore, and enhance natural resources in the BRCP Plan Area (the BRCP Plan Area is the same as the ILF Program Service Area) while improving and streamlining the environmental permitting process for impacts on endangered and threatened species and natural communities, including wetlands and streams, that result from implementation of BRCP covered activities.<sup>3</sup> The BRCP serves as a joint habitat conservation plan (HCP) and natural community conservation plan (NCCP) that offers incidental take coverage for species listed under the ESA and California Endangered Species Act (CESA). The BRCP conservation strategy provides for the mitigation of impacts on covered species and their habitat and on natural communities including all wetlands and riparian habitats. The BRCP includes additional conservation actions that contribute to the recovery of listed species and provide additional conservation of wetlands, streams, riparian, and other natural communities through preservation, restoration, and enhancement. The BRCP Conservation Strategy includes measures to avoid, minimize, and compensate for the loss of waters of the United States and of the state and to protect the landscape elements that support these waters including wetlands and riparian habitats.

The BRCP includes a mitigation fee program that provides for the mitigation of all biological resources impacts including impacts on aquatic resources. Hence the BRCP mitigation fee program includes the acquisition of all funding under the ILF Program.

#### 6.1.2 Section 401 Clean Water Act Compliance

BCAG will be applying for Programmatic CWA Section 401 Water Quality Certification of the BRCP activities covered by the USACE's CWA Section 404 RGP. The BRCP provides information to support

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<sup>3</sup> As described in Chapter 2, *Covered Activities*, of the BRCP.

the Central Valley Water Board’s evaluation of the Programmatic CWA Section 401 Water Quality Certification Application.

### **6.1.3 Section 1600 et seq. California Fish and Game Code Compliance**

The BRCP provides for avoidance, minimization, and compensatory mitigation for streams, wetlands, and riparian habitat necessary to meet the requirements of CDFW as part of lake and streambed alteration agreements with project applicants under CFGC Section 1602. Mitigation projects funded through the ILF Program may be proposed as compensatory mitigation for impacts on riparian and other stream zone habitats that are regulated by CDFW.

### **6.1.4 Porter-Cologne Water Quality Control Act**

The Porter-Cologne Act outlines the State’s interest in the “conservation, control, and utilization of the water resources of the state” and the protection of the quality of all the waters of the state “for use and enjoyment by the people of the state” (California Water Code Section 13000). The Central Valley Water Board is required under the Porter-Cologne Act to prepare and adopt a water quality control plan known as “basin plan” that includes water quality objectives and an implementation program. The Central Valley Water Board Basin Plan for the Sacramento River and San Joaquin River Basins was last revised in 2011 (California Regional Water Quality Control Board 2011).<sup>4</sup> The BRCP provides measures to avoid and minimize impacts on water quality and are consistent with the Central Valley Water Board Basin Plan for surface waters of the state in the Service Area.

## **6.2 Need**

Butte County anticipates 50% population growth from 2010 to 2035 (221,768 to 332,459) (Butte County Association of Governments 2011), and over the next 50 years, urban and rural development, in-stream projects, capital projects, and operation and maintenance projects will result in significant unavoidable impacts on aquatic resources. Most of the impacts are expected to be within the Urban Permit Areas (UPAs) shown in Figure 4. The ILF Program is needed to provide substantial, high-quality compensatory mitigation to respond to the projected growth. The ILF Program would ensure that compensatory mitigation credits are available prior to project approval and would be consistent with the Mitigation Rule, limiting the temporal loss of functions and services between impacts and successful compensatory mitigation. Further, the Mitigation Rule includes a preference hierarchy that gives priority to ILF programs over permittee-responsible mitigation options because ILF programs provide a greater watershed-level planning effort, making them generally more environmentally preferable.

In the absence of the proposed ILF Program, project proponents would need to purchase appropriate credits on an ad hoc basis from mitigation banks if available within the area of their project, from other ILF programs (such as the National Fish and Wildlife Foundation [NFWF] ILF Program), or they would need to propose a permittee-responsible mitigation project. These mitigation efforts may not support the watershed approach and ongoing regional conservation efforts set forth in the BRCP. The NFWF ILF Program has a large service area covering the USACE Sacramento District; this program will not ensure the fees collected from projects in Butte County

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<sup>4</sup> Fourth Edition of the Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins. California Regional Water Quality Control Board Central Valley Region, 15 September 1998, as revised October 2011.

are mitigated within the County and will satisfy the regional conservation goals in the BRCP. The proposed ILF Program aims to maintain the regional watershed functions and services within the Service Area more broadly than other ILF programs are likely to be able to do.

Due to their low success rate, permittee-responsible mitigation projects have been documented nationally as being less environmentally preferable. These sites are typically small onsite wetlands, and the placement and design lack application of the watershed approach as well as a third party manager and long-term protection and management (National Research Council 2001). The BRCP ILF Program would overcome these challenges and increase the success rate of mitigation sites for aquatic resources because the mitigation sites would be larger, designed to match the restoration needs of the watershed, positioned where the greatest aquatic resource functional lift can be achieved, and located within larger landscapes of protected upland and aquatic natural communities where they would be less vulnerable to the effects of human development and other management issues like invasive species.

## **6.3 Technical Feasibility**

Important to note is that the technical feasibility of the ILF Program is substantiated by numerous existing programs throughout the Great Central Valley of California to preserve, re-establish, establish, and enhance vernal pools and swales, other seasonal wetlands, riparian forests and scrub, emergent wetlands (marsh), ponds, and streams. Such programs include the implementation of regional HCPs and NCCPs in San Joaquin County, Eastern Contra Costa County, Santa Clara County and the Natomas Basin; the private and public mitigation banks; and individual project compensatory mitigation actions.

### **6.3.1 Approach Feasibility**

As described above, the ILF Program is based on a watershed approach intended to conserve upland and aquatic resources and species as envisioned in the BRCP. By definition, watershed planning focuses on a watershed, a geographic area that is defined by a drainage basin. A watershed-based mitigation strategy should address a geographic area large enough to ensure that implementing the strategy will successfully mitigate causes of impairments and threats to the waterbody impacted. Although there is no rigorous definition or delineation of this concept, the general intent is to avoid a focus on single waterbody segments or other narrowly defined areas that do not provide an opportunity for addressing watershed impacts in a rational, efficient, and economical manner. However, the scale should not be so large that it hampers the ability of the resource to recover and negatively affects biodiversity.

BCAG's watershed approach prioritizes compensatory mitigation projects for avoidable impacts on waters of the United States within the same HUC-8 watershed where the impact occurred. If impacts from a covered activity cannot be mitigated in the same watershed, mitigation could occur in an adjacent watershed as long as it is in the same CAZ where the impact occurred.

The BRCP's robust monitoring and adaptive management program and endowment funding will be applied to the ILF Program to ensure the long-term success of compensatory mitigation projects.

### **6.3.2 Administrative and Organizational Viability**

BCAG is a long-term and stable public entity with authority derived from the County and cities that control most of the development and, accordingly, most of the funds that would be generated by the

ILF Program. As sponsor of the ILF Program and Implementing Entity of the BRCP, BCAG provides a single point of responsibility and expertise to manage, learn, and improve these programs over time and provides a single point of contact and information for USACE, EPA, USFWS, CDFW, Central Valley Water Board, and the National Marine Fisheries Service.

BCAG has successfully completed mitigation projects on behalf of Caltrans District 3, such as creation and establishment of vernal pools and freshwater marsh habitat and riparian establishment and restoration along stream corridors. BCAG has owned these mitigation lands in fee title and been responsible for conducting management and monitoring of these lands in perpetuity.

BCAG is governed by a 10-member board of directors that includes all five members of the Butte County Board of Supervisors and one city council representative from each of the five incorporated cities in Butte County. The BCAG Board of Directors meetings occur monthly in the Chico City Council Chambers, are open to the general public, are subject to Brown Act requirements, and will ensure an open and transparent forum for making future decisions related to the implementation of the BRCP, RGP, and ILF Program.

The ILF Program includes the ability for BCAG to adjust fees to address changes in costs for implementation of compensatory mitigation and other elements of the BRCP implementation to ensure sufficient funding for a successful program (see BRCP Chapter 10. *Implementation Costs and Funding Sources*).

## 7 Operation

The BCAG ILF Program Instrument will be developed upon IRT approval of this prospectus and will provide the information required in 33 CFR 332.8(d)(6), including the following elements.

- Service Area
- Accounting Procedures
- Legal Responsibility
- Default and Closure Provisions
- Reporting Protocols
- Compensation Planning Framework (33 CFR 332.8[c])
- Advance Credits Mechanism (33 CFR 332.8[n])
- Method for determining future Project-Specific Credits and Fees
- Program Accounting (33 CFR 332.8[i])

The ILF Program would be operated in conjunction with the BRCP fee program. Fees collected for impacts on aquatic resources would be deposited in an ILF Program account and used to fund the design and implementation of the portion of mitigation projects to be used for compensation for unavoidable impacts on waters of the United States. The number of USACE-approved ILF Program credits generated by each mitigation project would be based on the projects' net accrual or attainment of aquatic functions. BCAG would utilize the California Rapid Assessment Method (CRAM) or other USACE-approved functional or conditional assessment method to document baseline conditions at each potential mitigation site. The results of each baseline site assessment

would be used to estimate a mitigation projects potential for generating ILF Program credits, and guide the development of interim performance criteria, and site success criteria.

ILF Program credits would be used to compensate for impacts to waters of the United States within the Service Area. Each mitigation project proposal under the ILF Program would be consistent with the goals and objectives outlined in Section 10, *Compensation Planning Framework*.

## 8 Program Components

The major ILF Program components are described below.

### 8.1 Conservation Land System

BCAG will establish a conservation lands system that encompasses all lands protected and restored under the BRCP. The conservation lands system would provide a means for protecting and managing the mitigation projects funded by the ILF Program. Land may be acquired through the following mechanisms:

- Purchase in fee title by Implementing Entity or a Permittee and put under a permanent conservation easement.
- Acquisition by conservation organizations (e.g., land conservancies and land trusts) that protect and manage lands in conformance with BRCP requirements.
- Protection of lands by state agencies that provide designations for those lands that meet BRCP protection and management requirements (would not apply to mitigation requirements, only conservation component).
- Purchase of mitigation credits from private mitigation or conservation banks approved by USFWS and CDFW or USACE and meeting the protection and management requirements of the BRCP.
- Enhance land owned by BCAG (i.e., the anticipated BRCP Permittees) and include in a conservation easement.
- Purchase conservation easements or land in fee title from willing sellers.
- With prior approval from BCAG and the IRT, accept land or easement dedication in lieu of fee payment if the easement contributes to the goals and objectives of the ILF Program.
- Accept land or easement dedication as a gift or charitable donation.

The primary land acquisition methods would likely be purchase of conservation easements and fee titles. When possible, land adjacent to existing protected areas would be acquired first to ensure that the Conservation Lands System is composed of contiguous units rather than isolated parcels.

The BRCP conservation lands system benefits from and builds on the existing protected lands within and adjacent to the Plan Area. BCAG would work with the owners of public and easement habitat lands (PEHL) to develop and implement management methods that would benefit covered species and support ILF mitigation projects. BCAG will seek to develop and complete Memoranda of Understanding (MOUs), Memoranda of Agreement (MOAs) and cooperative agreements with all federal and state agencies that own and manage existing protected lands (PEHL Category1) and augment existing easements on private lands within the Service Area to meet BRCP and/or ILF

Program protection criteria (PEHL Category 2). PEHL lands within the Service Area are shown on Figure 5.

It is anticipated that lands acquired for mitigation projects, including ILF funded mitigation projects, would primarily be those that are currently in public ownership and those that are acquired in fee title because habitat restoration and enhancement actions would preclude other land uses, such as agriculture. Lands acquired for the conservation of existing habitat functions may be acquired through conservation easements that specify the range of permitted land uses and practices that will maintain the intended habitat functions of the acquired lands.

Land acquired by BCAG through the BRCP conservation lands system and ILF Program would be assembled according to the BRCP *Framework for the Conservation Strategy*, described in Chapter 5 of the BRCP. Table 2 provides land acquisition targets required to meet mitigation targets and conservation/preservation targets of the BRCP and ILF Program. To meet the mitigation and conservation targets, approximately 90,417 acres would be acquired and make up the conservation lands system.

**Table 2. Land Acquisition Targets**

Land Cover Types	Total Existing in the Service Area	Acquisition for Mitigation	Acquisition for Conservation	Total Acquisition	% of Existing Land Cover Protected
<b>Oak Woodland and Savanna</b>					
Blue oak savanna	10,581			2,862	27.0%
Blue oak woodland	34,735			5,873	16.9%
Live oak and mixed oak woodland	47,274			11,756	24.9%
<i>Subtotal</i>	<i>92,591</i>	<i>11,325</i>	<i>9,166</i>	<i>20,491</i>	<i>22.1%</i>
<b>Grassland</b>					
Grassland	68,124	7,694	5,747	13,441	19.7%
Grassland with swale complex	34,110	4,172	17,229	21,400	62.7%
<i>Subtotal</i>	<i>102,234</i>	<i>11,866</i>	<i>22,976</i>	<i>34,841</i>	<i>34.1%</i>
<b>Riparian</b>					
Cottonwood-willow and Valley oak riparian forest	11,840	492	5,158	5,650	47.7%
Willow scrub	2,995	23	697	720	24.0%
<i>Subtotal</i>	<i>14,835</i>	<i>515</i>	<i>5,855</i>	<i>6,370</i>	<i>42.9%</i>
<b>Wetland</b>					
Emergent wetland	4,440	35	660	695	15.7%
Managed wetland	25,486			0	0.0%
<i>Subtotal</i>	<i>29,927</i>	<i>35</i>	<i>660</i>	<i>695</i>	<i>2.3%</i>

Land Cover Types	Total Existing in the Service Area	Acquisition for Mitigation	Acquisition for Conservation	Total Acquisition	% of Existing Land Cover Protected
<b>Non-wetland waters</b>					
Pond (number)	465	0	0	80	17.2%
Open water (linear miles)	1,436	0	242	32	2.2%
Subtotal	<i>Not applicable</i>	0	242	<i>Not applicable</i>	
<b>Agriculture</b>					
Rice	120,316	3,182	20,500	23,682	19.7%
Irrigated cropland	21,572	3,780	0	3,780	17.5%
Subtotal	141,889	6,962	20,500	27,462	19.4%
<b>Total All Land Cover Types</b>	<b>381,474</b>	<b>31,018</b>	<b>59,399</b>	<b>90,417</b>	<b>23.7%</b>

Source: Butte County Association of Governments 2015: Table 5-5 and Table F-11.

The ILF Program would implement compensatory mitigation projects on the lands acquired by BCAG and protect them with new conservation easements. BCAG would be responsible for protection and management of the Conservation Lands in perpetuity to ensure the protection of aquatic resource functions and services at the regional and watershed scales. If the BRCP is approved, BCAG would also be responsible for the implementation of the conservation strategy of that plan to provide for the conservation and management of its covered species, including endangered aquatic species.

## 8.2 Mitigation Projects

BCAG would propose and implement mitigation projects that would generate compensatory mitigation credits for impacts on waters of the United States within the Service Area. The Mitigation Rule (33 CFR 332.2) recognizes four mitigation approaches for which credits can be generated. The Service Area covers a large geographic area and would include mitigation activities that meet each of these definitions. The type of credits will be defined in each site-specific mitigation plan and will adhere to the definitions of restoration (re-establishment and rehabilitation), establishment (creation), enhancement, and preservation defined in Section 3 and the Mitigation Rule.

For preservation to be used as compensatory mitigation, five criteria must be met: (1) the resources to be preserved provide important physical, chemical, or biological functions for the watershed; (2) the resources to be preserved contribute significantly to the ecological sustainability of the watershed; (3) preservation is determined by the District Engineer to be appropriate and practicable; (4) the resources are under threat of destruction or adverse modifications; and (5) the preserved site will be permanently protected through an appropriate real estate or other legal instrument.

Mitigation projects funded through the ILF Program account would generally fall under one of the following five categories.

- **Vernal Pool and Seasonal Wetland Mitigation Projects.** The ILF Program would implement vernal pool and seasonal wetland preservation, establishment, and restoration projects.

- **Wetland Mitigation Projects.** The ILF Program would implement various preservation, establishment, and restoration projects that address the suite of wetland communities including emergent wetlands, springs, and seeps.
- **Riparian Mitigation Projects.** The ILF Program would implement projects along stream and river systems to establish riparian and stream credits and improve habitat connectivity within and between the CAZs.
- **Non-Wetland Waters Mitigation Projects.** The ILF Program would implement various preservation, establishment, and restoration projects that address riverine habitat that does not have riparian vegetation but otherwise contains perennial, intermittent, ephemeral or open water habitat.
- **Other Mitigation Projects.** BCAG would track other preservation, restoration, and enhancement projects to ensure the Conservation Land System is developed appropriately and that BRCP goals and objectives are achieved. These projects would be considered non-USACE approved mitigation projects.

## 8.3 Credit Types

The BRCP has identified initial opportunities and priorities within the Service Area to address the anticipated growth and associated unavoidable impacts on waters. The ILF Program utilizes these same opportunities and priorities and establishes four general categories of credit types based on aquatic resource habitat type.

- Vernal Pool and Seasonal Wetlands;
- Wetlands;
- Riparian; and
- Non-Wetland Waters Credits.

Within each category, credits are proposed to be defined as one acre equals one credit. This includes credits for preservation, restoration, establishment or enhancement of wetlands. Credits within these categories will be further refined in site-specific mitigation plans and provide the hydrogeomorphic (HGM) class, Cowardin wetland class, and vegetation classification.

### 8.3.1 Vernal Pool/Seasonal Wetland Credits

Funds generated from the sale of vernal pool and seasonal wetland credits will be applied to address critical vernal pool needs within the Service Area consistent with the Compensation Planning Framework described below. Vernal pools are addressed as a distinct component because of the substantial historic loss of vernal pools in the Service Area, the ongoing high threat level, and the ecological correlation between vernal pools and a high number of state- and federally listed threatened and endangered species. These credits address the uniquely critical need for this wetland type, and will be applied to restore vernal pools consistent with the goals and objectives of the USFWS Vernal Pool Recovery Plan.

### **8.3.2 Wetland/Non-Wetland Waters Credits**

Wetland/Non-Wetland Waters credits will be made available for impacts to all wetlands and non-wetland waters that are not vernal pools/seasonal wetlands or riparian/riparian wetlands. These aquatic features include emergent wetlands, springs, and seeps, and artificial wetlands; and all perennial, intermittent, ephemeral, and open water non-wetland features. BCAG will track wetland and non-wetland impacts by type, and credits by type, consistent with the USACE wetland habitat designations. BCAG will also ensure these reports are integrated into the USACE mitigation accounting system, as described in Section 8.8, *Credit Tracking*. Funds generated from the sale of wetlands/non-wetland waters credits will be applied to fulfill similar aquatic resource preservation, restoration or enhancement needs within the Compensation Planning Framework for the ILF Program.

### **8.3.3 Riparian Credits**

Riparian credits would be made available for impacts on riverine and lacustrine riparian wetland habitats. Upland riparian habitats associated with mitigation projects would be made available for non-aquatic riparian impacts.

### **8.3.4 Other Credits**

BGAG will create and track non-aquatic mitigation credits and values resulting from conservation actions implemented by BGAG as part of its conservation and mitigation program for the BRCP. These credits and values will include vernal pool grasslands, annual grasslands, and pasture lands, among other sensitive natural land-cover types. These non-aquatic credits and values are not intended to be used to fulfill compensatory mitigation requirements in Section 404 permits for impacts to waters of the U.S., and BCAG is not asking USACE to approve these credits, except to the extent that such credits are incorporated into the terms of 404 permits that may be issued by USACE. However, they are an important part of the overall conservation and mitigation program for projects and activities covered by the ILF Program.

## **8.4 Credit Targets**

Table 3 summarizes the ILF Program credit targets.

**Table 3. Estimated Losses and Compensation for Waters of the U.S. under the 50-Year BRCP (acres), Including ILF Credit Targets**

Type of Waters of the U.S.	Estimated Permanent Loss of Waters of the U.S.	Preservation Ratio Required by BRCP <sup>a</sup>	Estimated Total Preservation Requirement	Minimum Establishment/ Re-establishment Ratios (in addition to preservation requirements) <sup>b</sup>	Estimated Restoration/Creation Requirement	Restoration/Creation Required to Contribute to Recovery (acres) <sup>c</sup>	Estimated Total Restoration/Creation
Vernal pools & seasonal wetlands	302.5	3:1	907.5	1:1	302.5	190	492.5
Estimated ILF Vernal Pool/Seasonal Wetland Credit Target					302.5		
Cottonwood-willow riparian forest	26.7	2:1	53.4	1:1	26.7	13	39.7
Valley oak riparian forest	46.4	2:1	92.8	1:1	46.4	22	68.4
Willow scrub	11.4	2:1	22.8	1:1	11.4	3	14.4
Herbaceous riparian and river bar	20.0	0	0	1:1	20	0	20
Dredge tailings w/riparian forest & scrub – stream	105.3	2:1	210.6	1:1	105.3	0	105.3
Dredge tailings w/riparian forest & scrub – non-stream	136.5	1:1	136.5	1:1	136.5	0	136.5
Estimated ILF Riparian/Riparian Wetland Credit Target					346.3		
Emergent wetland	35.4	1:1	35.4	1:1	35.4	11	46.4
Managed wetland	4.8	0	0	1:1	4.8	0	4.8
Managed seasonal wetland	7.4	0	0	1:1	7.4	0	7.4
Rice – jurisdictional portion	78.7	2:1	157.4	1:1	78.7	8	86.7
Irrigated pasture, cropland – jurisdictional portion	21.9	1:1	21.9	1:1	21.9	2	23.9
Pond	25	1:1	25	1:1	25	0	25
Open water	0	0	0	1:1	0	0	0
Major canal	0	0	0	1:1	0	0	0
Estimated ILF Wetland/Non-Wetland Waters Credit Target					173.2		
GGs habitat <sup>d</sup>						500	500
<b>Total</b>	<b>822</b>		<b>1,663.3</b>		<b>822</b>	<b>749</b>	<b>1571</b>

- <sup>a</sup> These ratios are taken from the BRCP Chapter 5, Conservation Strategy, and Table 5-10. The rationale for these ratios are described in CM1, Protect Natural Communities, and CM5, Restore Wetland and Riparian Habitats.
- <sup>b</sup> These are the minimum ratios required to satisfy USACE.
- <sup>c</sup> These acreages are derived from BRCP Table 5-3, Natural Community Protection Targets. Percentages of existing land cover type acreages protected by the targets were multiplied against the estimated restoration/creation requirement acreage to create an additional amount of acreage of aquatic habitat that would aid in species recovery.
- <sup>d</sup> Giant garter snake habitat restoration is comprised of a mosaic of restored emergent wetland, open water, and upland land cover types that collectively support all of its life history requirements. It is put into the category of “other waters” here to capture the open water category since restoration acreage of emergent wetland has already been calculated as a separate wetland category above, with its own restoration acreage target previously entered.

## 8.5 Credit Pricing

The price of ILF Program credits is tied to the estimated total cost of implementing the mitigation component of the BRCP within the Service Area and the estimated cost of riparian, vernal pool, and emergent wetland compensatory mitigation projects. The total price of an ILF Credit is the sum of the Base Fee, which is applied to the total acreage of land disturbed by the project plus a habitat restoration mitigation fee applied as a Riparian Fee, Vernal Pool Fee, and/or Emergent Wetland Fee to the acreage of waters of the United States impacted by the project. Each of these fees is described below.

The total cost of mitigation under the BRCP, which includes compensatory mitigation for unavoidable impacts to waters of the United States, is estimated to be \$138.9 million in 2011 dollar terms. The cost is based on estimated impacts to 24,624 acres of natural communities and land cover types within the Service Area over the 50-year BRCP (Table 4).

**Table 4. Maximum Extent of Permanent Direct Impacts on Natural Communities and Land Cover Types within the Service Area**

Natural Community/Land Cover Type <sup>1</sup>	Existing in Plan Area	Maximum Acreage Removed by Covered Activities	Percent Remaining in Plan Area with Implementation of Covered Activities
<b>Oak Woodland and Savanna</b>			
Blue Oak Savanna	10,581	1,478	86.0
Blue Oak Woodland	34,735	3,817	89.0
Interior Live Oak Woodland	2,382	513	78.5
Mixed Oak Woodland	44,893	5,517	87.7
<i>Subtotal</i>	<i>92,590</i>	<i>11,324</i>	<i>87.8</i>
<b>Grassland</b>			
Grassland	68,124	7,694	88.7
Grassland with Vernal Swale Complex	34,110	1,391	95.9
<i>Subtotal</i>	<i>102,234</i>	<i>9,084</i>	<i>91.1</i>
<b>Riparian</b>			
Cottonwood Willow Riparian Forest	7,509	27	99.6
Valley Oak Riparian Forest	4,331	46	98.9
Willow Scrub	2,995	11	99.6
Herbaceous Riparian River Bar	1,658	20	98.8
Dredger Tailings with Riparian - Stream	5,490	105	98.1
Dredger Tailings with Riparian - Non-stream	166	136	17.8
<i>Subtotal</i>	<i>22,148</i>	<i>346</i>	<i>98.4</i>
<b>Wetland</b>			
Emergent Wetland	4,440	35	99.2
Managed Seasonal Wetland	2,097	7	99.6
Managed Wetland	25,486	5	100.0
<i>Subtotal</i>	<i>32,024</i>	<i>48</i>	<i>99.9</i>
<b>Non-Wetland Waters</b>			
Open Water	8,401	0	100.0
Major Canal	1,897	0	100.0
<i>Subtotal</i>	<i>10,298</i>	<i>0</i>	<i>100.0</i>
Pond (no. of ponds)	465	52	88.8
<b>Agriculture<sup>3</sup></b>			
Rice <sup>4</sup>	120,316	1,615	98.7
Irrigated Cropland <sup>5</sup>	20,413	2,102	89.7
Irrigated Pasture	1,160	105	90.9
<i>Subtotal</i>	<i>141,889</i>	<i>3,822</i>	<i>97.3</i>
<b>Total</b>	<b>401,183</b>	<b>24,624</b>	<b>93.9</b>
Source: BRCP Table 4-3			

A detailed mitigation cost estimate analysis is provided in BRCP Chapter 10, *Implementation Costs and Funding Sources*, and in Appendix F, *Implementation Cost Supporting Materials*. Table 5 provides a cost summary of each cost category analyzed in Chapter 10 of the BRCP. Figure 6 shows the same information graphically.

**Table 5. Summary of BRCP Mitigation Implementation Costs by Cost Category**

Cost Category	Estimated Cost
Conservation Measures: 1- Acquire Lands; 2-Invasive Spp. Control Program; 3- Develop and implement Wetland and Riparian Restoration Plans; 4-Enhance Protected Natural Communities; 5-Conserve Butte Co. Meadowfoam	\$108,656,000
Environmental compliance	\$1,785,000
Monitoring and other surveys	\$3,516,000
Administration and Management	\$11,295,000
Changed circumstances	\$3,143,000
Endowment Costs for Post-BRCP implementation	\$10,522,000
Total	\$138,917,000

The funding of mitigation, including wetland and riparian mitigation projects, relies on development-based mitigation fees and the funds collected from fee must offset the cost to implement the mitigation projects.

The mitigation cost based on per acre restoration cost estimates, and the restoration/creation target (from Table 2) is provided in Table 6.

**Table 6. Mitigation Fee Calculations**

Mitigation Fee	Mitigation Cost	Basis Acres	Fee Per Impact Acre
Base Fee	\$108,716,886	24,624	\$4,415
Riparian/Riparian Wetland Fee	\$10,522,575- \$19,263,550	346	\$55,675
Vernal Pool/Seasonal Wetland Fee	\$12,997,350	306	\$42,475
Wetland/Non-Wetland Waters Fee	\$5,906,250- 16,218,750	173	\$93,750
Butte County Meadowfoam Habitat Fee <sup>4</sup>	\$705,000	282	\$2,500
Water/Irrigation District Fee	\$68,958		
Total	\$138,917,020- \$157,970,494		

### 8.5.1 Base Fees

The Base Fee of \$4,415 per acre is applied to all natural community and species habitat acres removed by proposed projects. The collected Base Fee funds generated from all land acres removed within the Service Area would be used to pay for land acquisition costs, administrative costs, monitoring costs, costs for implementation of responses to changed circumstances, and endowment-building costs necessary to satisfy the mitigation requirements of the BRCP and the Mitigation Rule.

The per acre Base Fee is calculated by dividing the total estimated non-habitat restoration-related mitigation costs by the allowable total number of acres of habitat removed as a result of implementation of all the covered activities.

The initial amount for the BRCP Base Fee per acre of impact is provided in Table 6. The process for adjusting this fee is described in BRCP Section 8.2.1.1.6 *Mitigation Fee Adjustment Process*. The process and assumptions used to develop the Base Fee mitigation cost estimate by cost category is described in BRCP Appendix F.

## **8.5.2 Habitat Restoration Fees**

### **8.5.2.1 Vernal Pool and Seasonal Wetland Fee**

The Vernal Pool Fee must be paid based on the acreage of all unavoidable impacts on jurisdictional vernal pools and seasonal wetlands. Impacts requiring compensatory mitigation may be permanent, temporary, direct or indirect and based on the USACE compensatory mitigation guidelines.

### **8.5.2.2 Wetland and Waters Fee**

The Wetland Fee must be paid for the total acreage of all unavoidable impacts on all wetland and non-wetland waters not covered by the Vernal Pool or Riparian Fee.

### **8.5.2.3 Riparian Fee**

The Riparian Fee must be paid for the total acreage of all cottonwood willow riparian forest, valley oak riparian forest, and willow scrub, and stream-associated dredger tailings riparian forest and scrub land cover types that are directly and permanently affected by the proposed activity. The percent of riparian fees associated with riparian wetlands will go into the ILF Program account and separate from the BRCP account.

Additional fees would be paid for impacts on upland habitats as required under the BRCP. These fees may fund the creation, restoration, or enhancement of uplands that provide buffers for waters of the United States.

In general, the Base Fee pays for the preservation component of compensatory mitigation, administration of the ILF Program, long-term monitoring and management, remedial actions, and building of the endowment. The other fees pay for the restoration (re-establishment and rehabilitation), establishment (creation), and enhancement components of compensatory mitigation for the specific aquatic resource to which the fee is directed.

The amount of mitigation credit for each compensatory mitigation project will be based on a functional or conditional assessment or similar method (e.g. California Rapid Assessment Method [CRAM]) for areas that are found to be waters of the United States and of streams and riparian habitat under the jurisdiction of CDFW for each proposed activity. BCAG is responsible for determining the price of each ILF Credit. The fees paid for ILF Credits to compensate for impacts on waters of the United States will fund the ILF Program account. BCAG is responsible for designing and implementing the compensatory mitigation projects for impacts on waters of the United States within the BRCP Conservation Land System and ensuring the performance standards are achieved.

## 8.6 Advance Credits and Released Credits

### 8.6.1 Advance Credits Mechanism

As discussed in the 2008 Mitigation Rule and to provide BCAG time to establish as the BRCP Implementing Entity and ILF Sponsor, BCAG may request that the USACE and IRT make a limited number of *advance credits* available to applicants for use in compensatory mitigation for aquatic resources under the ILF Program, as authorized by USACE (33 CFR 332.8[n]). The number of advance credits released per mitigation project will be determined by USACE in consultation with the IRT. Advance credits are a subset of the total approved credits for each site-specific mitigation plan, and are approved for sale prior to being fulfilled in accordance with an approved mitigation project plan. Additionally, advance credit sales would be used to generate funds to pay for mitigation development and implementation. Once the successful implementation of a mitigation project occurs, *released credits* will be generated and replace the mitigation requirements associated with the advance credits. Any released credits generated by a project in excess of the amount necessary to fulfill the advance credit obligations may be used for other projects. The ILF instrument will contain a schedule for fulfillment of advance credit sales. The number of advance credits will be determined in coordination with the IRT through review of the Compensation Planning Framework (described in Section 10 below) and approval of site-specific mitigation plans.

## 8.7 Credit Releases

In order for the ILF Program to be available as an option for meeting compensatory mitigation requirements for permit authorizations within the Service Area, a mitigation project will have to be identified and described in a mitigation plan that has been approved by the IRT. Given the volume of projects, BCAG proposes such approval to occur on a programmatic basis (e.g., annually, property by property, or some other logical grouping of mitigation projects). The number of credits available at any given time will be determined by the credit release schedule outlined in the mitigation plan, and may include advance credits (33 CFR Part 332).

The ILF program would be issued the full amount of advance credits upon execution of the ILF instrument. The number of available advance credits will decrease as they are sold and retired through the creation of released credits. As released credits are created they will be applied against the number of advance credits previously sold to retire the advance credits and a new number of advance credits would be available for sale.

Credits generated through ILF Program mitigation projects may be sold to any private or public sector individual, organization, or agency that is seeking mitigation credits to comply with a Section 404 permit, Section 401 Water Quality Certification, or other environmental permit issued within the Service Area that allows ILF Program credits for compensatory mitigation. Use, as well as the number and type, of credits for activities authorized by USACE permits will be at the discretion of the USACE District Engineer. Similarly, use of credits authorized by other agencies will be at the discretion of that agency. Upon sale of the credits, BCAG becomes responsible for the compensatory mitigation requirements of the permit. The cost of the credit will be determined by BCAG in coordination with the IRT.

## 8.8 Credit Tracking

BCAG will establish and maintain an annual report ledger that tracks the production of advance and released credits for the ILF Program and for individual mitigation sites within the ILF Program. Reporting requirements for the annual report will be provided in the ILF Instrument. The annual report ledger will be designed to integrate with the Regulatory In-lieu fee and Bank Information Tracking System (RIBITs).

BCAG will track the ILF Program fees and all other income received, the source of the income, and any interest earned by the ILF Program account separately from similar credit tracking done for the BRCP account. The ledgers will include a list of all the permits for which ILF Program funds were accepted, including the file number, the specific watershed in which the authorized impacts are located, the amount (acreage/linear feet) of authorized impacts, the aquatic resource type impacted, the amount of compensatory mitigation required, the amount paid to the ILF Program, and the date the funds were received. In addition, BCAG will create and maintain a report ledger for the ILF Program that will track all disbursements/expenditures and the nature of disbursement. BCAG will also track funds obligated or committed, but not yet disbursed.

The ledger will also include, for each mitigation project, the specific watersheds (e.g., HUC-8) in which the project is located, the amount of compensation being provided by each type of mitigation approach (restoration, establishment, enhancement, or preservation), the aquatic or other resource type represented, the amount of compensatory mitigation being provided (acres/linear feet), and the number of credits certified by the IRT. The annual report ledger will also include a balance of advance credits and released credits at the end of the report period for the Service Area.

## 8.9 Processes for Mitigation Project Development

In addition to using the watershed approach, BCAG will identify and propose to USACE wetland and riparian restoration sites based on the following criteria:

- Historical presence of the natural community;
- Sufficiency of site soils and hydrology to support the restored natural community functions for covered species over the long term;
- Degree to which restoration at the site will improve connectivity among existing patches of the same and other natural community types;
- Proximity to habitat areas occupied by covered species associated with each of the restored land cover types;
- Degree to which restoration adjacent to existing patches of the natural community will increase the overall habitat functions of existing patches (e.g., increase interior and reduce edge; improve habitat mosaic of serial stages; habitat patch size relative to covered species habitat patch size requirements); and
- Ability to conduct the restoration with no or minimal impacts on existing natural communities and covered species habitat.

## 8.10 Mitigation Plans

After a mitigation project site has been selected, a mitigation plan will be prepared and submitted to USACE for approval. Mitigation plans will provide (at a minimum) the following information (33 CFR 332.4[c]):

- Objectives
- Site selection
- Site protection instrument
- Baseline information
- Determination of credits
- Mitigation work plan
- Maintenance plan
- Performance standards
- Monitoring requirements
- Long-term management plan
- Adaptive management plan
- Financial assurances
- Credit release schedule

The mitigation plans will utilize the Sacramento District's mitigation banking templates, as applicable, to address all site specific planning, implementation, monitoring, and protection aspects of the Project. The ILF Instrument will establish timelines for mitigation plan delivery and IRT review to facilitate timely review with the objective of enabling mitigation projects to be implemented within the three year window specified in the 2008 Mitigation Rule.

## 9 Ownership Arrangements and Long-Term Management Strategy

BCAG would provide for the long-term preservation of the compensatory mitigation sites acquired under the ILF Program through direct acquisition of land in fee title and permanent conservation easements with private and public landowners. BCAG would sustain long-term management of the mitigation sites through land and habitat management planning, a comprehensive monitoring program, and an adaptive management program required under the BRCP. The fees collected under the ILF Program and BRCP would include funding for near-term and long-term management, including endowment building to create a funding source that would support in-perpetuity management of the mitigation sites.

As discussed in the BRCP, BCAG may work with partners (e.g., private mitigation banks, nonprofit land trusts) who would own and manage the land in cooperation with BCAG, under certain conditions prescribed in the BRCP. Each mitigation project under the ILF Program would meet the relevant ownership and stewardship requirements to ensure its long-term preservation.

## 10 Compensation Planning Framework

The Compensation Planning Framework (defined in 33 CFR 332.8[c]) will be used to select, secure, and implement aquatic resource restoration, establishment, enhancement, and/or preservation activities. The Compensation Planning Framework for the ILF Program will support the watershed approach to compensatory mitigation and address the following 10 elements required by the Mitigation Rule.

1. The geographic service area(s), including a watershed-based rationale for the delineation of each service area.
2. A description of the threats to aquatic resources in the service area(s), including how the ILF program will help offset impacts resulting from those threats.
3. An analysis of historic aquatic resource loss in the service area(s).
4. An analysis of current aquatic resource conditions in the service area(s), supported by field documentation.
5. A statement of aquatic resource goals and objectives for each service area, including a description of the general amounts, types and locations of aquatic resources the program will seek to provide.
6. A prioritization strategy for selecting and implementing compensatory mitigation activities.
7. An explanation of how any preservation objectives identified above satisfy the five criteria in the Mitigation Rule (33 CFR 332.3[h]) for use of preservation.
8. A description of any public and private stakeholder involvement in plan development and implementation, including coordination with federal, state, tribal, and local aquatic resource management and regulatory authorities.
9. A description of the long-term protection and management strategies for activities conducted by the ILF program Sponsor.
10. A strategy for periodic evaluation and reporting on the progress of the program in achieving the goals and objectives above, including a process for revising the planning framework as necessary.

### 10.1 Geographic Service Area

As described in Section 2, the ILF Program Service Area is the same geographic area as the BRCP Plan Area, covering lowland and foothill areas of Butte County (Figure 1). By aligning these two areas, BCAG is ensuring that the larger regional conversation approach of the BRCP incorporates the watershed-based planning approach of the ILF Program and results in a single, well-coordinated conservation effort.

### 10.2 Threats to Aquatic Resources

Aquatic resources in the Service Area are threatened by various land use practices and by the growth and development of the resident, commercial, industrial, transportation, and other activities associated with planned growth of the cities of Chico, Oroville, Gridley, and Biggs and in unincorporated areas of the County. Although it is assumed that future impacts in the Service Area

would mainly result from those activities covered under the BRCP (see BRCP Chapter 2, *Covered Activities*), impacts on watersheds are expected to result from activities and threats not associated with the BRCP, including the following.

- Timber harvest (California State University–Chico 1998; Big Chico Creek Watershed Alliance 1999).
- Mining (Foothill Associates 2010).
- Fire (Butte County Resource Conservation District 2011).
- Flooding (Butte County Resource Conservation District 2011).
- Water quality/pollution, urban run-off, and sediment transport (Foothill Associates 2010; Butte County Resource Conservation District 2011).
- Water diversions (Big Chico Creek Watershed Alliance 1999).
- Levees and flood/floodplain management (California State University–Chico 1998; Foothill Associates 2010; Butte County Resource Conservation District 2011).
- High water temperatures (Big Chico Creek Watershed Alliance 1999).
- Livestock grazing and farming practices (California State University–Chico 1998; Big Chico Creek Watershed Alliance 1999), including pesticide and rodenticide use (California State University–Chico 1998).
- Loss of riparian vegetation (Big Chico Creek Watershed Alliance 1999; California State University–Chico 1998).
- Special-status species decline (Foothill Associates 2010).
- Invasive species (Butte County Resource Conservation District 2011).
- Recurring maintenance activities (ICF International 2014).
- Permanent development (ICF International 2014) and road construction (California State University–Chico 1998).
- Population growth (Foothill Associates 2010).
- Recreational use (California State University–Chico 1998).
- Habitat loss and degradation through implementation of the Chico and Butte County general plans and related infrastructure construction.

### **10.2.1 Vernal Pools and Other Seasonal Wetlands**

Threats to vernal pools include development and fragmentation, modification to inundation and hydro-period due to changes in the hydrology of surface flows and perched groundwater flows, nonnative vegetation (including annual grasses and noxious weeds), impacts from recreational use, impacts on water quality, nonnative predators, and decreased pollination and dispersal of vernal pool species due to impacts on adjacent uplands.

### **10.2.2 Non-Seasonal and Managed Wetlands**

Threats to wetland ecosystems include changes in the timing and volume of stream flows (e.g., effects of reservoir operations, surface water diversions, groundwater pumping, urban and

agricultural runoff), dams that impede movement of fish and natural sediment transport, changes in water quality, reduction in riparian and stream channel structural complexity (e.g., loss of riparian trees, stream down-cutting and widening, and stream channelization), siltation, and invasions of nonnative species (Meehan 1991, as cited in Jones & Stokes 2004). Additional threats include conversion to land uses such as agriculture or urban development, pollution, grazing, changes in hydrologic regime, and natural processes such as fire or flood.

### **10.2.3 Riparian and Riparian Wetlands**

Threats to riparian vegetation include nonnative invasive species, particularly giant reed and salt cedar, both of which can cause channel changes and increases in fire danger (Butte County Association of Governments 2015). Loss of riparian vegetation results in decreased shading, increased water temperatures, reduced cover, and decreased input of nutrients. Trash and other pollutants, such as oil, fertilizers, and herbicides that are washed into streams may degrade water quality to the point that aquatic life cannot persist. Aquatic invertebrates, often sensitive to water quality, may die off, thus disrupting the food chain. Water operations and land alterations that result in reduced stream base flows and/or increased depth to the water table threaten growth in valley foothill riparian systems.

### **10.2.4 Non-Wetland Waters**

Historically the non-wetland waters have and continues to be greatly modified from natural conditions. River and creek flows are controlled by the management of dams, reservoirs and diversions, which control the volume and timing of flow of water through aquatic habitats and so affect the organisms associated with them. Stream and river have been diked, channelized, and stabilized, which has drastically changed the natural erosional and flood processes that many organisms and natural communities depend on. Diversions reduce the volume of water carried in rivers and creeks, while drainage channels transport pesticides and other contaminants from agricultural and urban areas into rivers and creeks. Nonnative invasive species are present in lacustrine and riverine ecosystems, and can adversely affect native species through predation and competition. Introduced bass, sunfish, and bullfrogs are particularly voracious predators that strongly influence the successful use of ponds by native amphibian species and the use of creeks and rivers by native fish species.

## **10.3 Historic Aquatic Resource Loss**

Prior to agricultural development in the late 1800s and early 1900s, the natural communities of the western low elevation basin of Butte County were greatly influenced by the periodic overflow of the Sacramento and Feather Rivers and Rock, Butte, Big Chico, Little Chico, Little Dry, and Dry Creeks. These areas would have supported a mosaic of riparian forest and scrub, perennial and seasonal emergent wetlands, and uplands. The majority of this area has been converted to agricultural uses or managed wetlands for waterfowl. The mouths of the major creeks have been modified where they cross the agricultural landscape.

Prior to placer mining operations, construction of Oroville Dam and associated facilities, and urban development of Chico and Oroville, the Sierra Nevada and Cascade Foothills in the Service Area supported the natural channel and floodplain of the Feather River and associated riparian forest and scrub and the natural channels and floodplains of the major creeks and associated riparian forest and scrub. Rock, Butte, Little Dry, and Dry Creeks still support natural channels and some of their

natural riparian habitat. Between drainages the grassland areas of the foothills historically supported patterned ground with a mosaic of upland grassland and seasonal wetlands and swales including vernal pools on Modesto, Riverbank, Red Bluff, Turlock Lake, and Lovejoy Basalt formations. The majority of these “grasslands with vernal swale complex” remain, although much has been removed for agricultural and urban development and many areas have been functionally degraded by land use practices such as disking.

### **10.3.1 Vernal Pools and Other Seasonal Wetlands**

Approximately 1,030,000 acres of vernal pool habitat were documented in the Central Valley during initial mapping efforts based on aerial photographs from 1976 to 1995. Today, about 893,000 acres of habitat remain, a reduction of about 137,000 acres, or 214 square miles. Various forms of agricultural land conversion have far exceeded urbanization as a cause of vernal pool habitat loss. Eighty-one percent (110,000 acres) of the total habitat loss between the initial mapping period and 2005 was lost due to agricultural land conversions. Orchards and vineyards represent the largest cause of vernal pool habitat loss, totaling approximately 40,000 acres. Vernal pool habitat was also lost to agricultural residential development (“ranchettes” or “hobby farms”), fallow agricultural land, irrigated pasture, and other agricultural activities. Urban development has accounted for the minority of Central Valley habitat loss—26,000 acres or 19 percent (AECOM, Vollmar Consulting, and Robert F. Holland, Ph.D. 2009).

Vernal pools have been degraded in Butte County and throughout their range by direct disturbance, invasion of nonnative species, and by alteration of hydrological patterns. Vernal pool complexes have also been degraded by the lack of grazing, which allows nonnative grasses in the surrounding uplands to invade swales and the margins of vernal pools, altering microhabitat and the abundance and distribution of native species, including covered plants. For many complexes, habitat restoration may be necessary to regain proper functioning of a vernal pool ecosystem (USFWS 2005).

### **10.3.2 Non-Seasonal and Managed Wetlands**

In the last century, the amount of wetland natural community type classified as emergent wetland, managed wetland, and managed seasonal wetland has increased across all major watersheds in the Service Area. However, historical floodplain habitat (including wetland habitat) has drastically decreased within the Plan Area. As shown in Figure 7, a minimal amount of wetland habitat historically overlapped with the Plan Area, and floodplain habitat covered approximately 37% of the Plan Area. No historic floodplain habitat remains within the Plan Area watersheds but various wetland types still persist. In the Big Chico Creek—Sacramento River watershed, emergent wetlands have more than doubled in area but they still only make up a small portion (0.5%) of that watershed acreage. In the Butte Creek watershed, emergent and managed wetlands have drastically increased and consist of 9% of the total watershed acreage. Managed wetlands within multiple wildlife areas in the Butte Creek watershed have primarily contributed to the increase. In the Honcut Headwaters—Lower Feather watershed, emergent wetland, managed wetland, and managed seasonal wetland have all increased and make up approximately 2% of the total watershed acreage (ICF International 2015).

### 10.3.3 Riparian and Riparian Wetlands

Existing riparian land cover represents a small proportion of the historical distribution in the Service Area. State-wide, losses of riparian vegetation are estimated to be 85–98% and attributable to agriculture, mining, and urban development (RHJV 2004).

### 10.3.4 Non-Wetland Waters

The acreage of aquatic land cover types present in the Big Chico Creek—Sacramento River watershed has decreased from historical conditions by approximately 41%, primarily due to the increase in constructed levees and diversions on Big Chico Creek and the Sacramento River. The Sacramento River historically had a natural meander bordered by wide riparian corridors along the northwestern edge of the Plan Area. Due to the replacement of riparian land cover with agricultural land cover, the natural river channel does not exist in many areas within the watershed. Multiple levees now occur within all Plan Area watersheds.

In contrast, the amount of aquatic land cover has drastically increased in the Butte Creek watershed from historical conditions by 390% and Honcut Headwaters—Lower Feather watershed by 1,334%. In the Butte Creek watershed, multiple diversions and dams are now present. This includes large irrigation canals such as the Cherokee Canal on Dry Creek, which was originally constructed to protect agricultural lands from mining debris (Butte County 2006). The majority of this watershed was historically floodplain habitat but has been converted to agricultural lands with multiple diversions and dams along waterways to regulate flows. In the Honcut Headwaters—Lower Feather watershed, the presence of the Thermalito Forebay and Afterbay has created a significant increase in aquatic land cover compared to historical conditions. The afterbay is used for operating the Thermalito Power Plant, recreational use, pump-back operations for Oroville Reservoir, flow regulation, and irrigation district water supply (Foothill Associates 2010).

## 10.4 Current Aquatic Resource Condition

Aquatic resources present in the Service Area are described in the Watershed Analysis for the BRCP (ICF International 2015) and BRCP Chapter 3, *Ecological Baseline Conditions*, as of the baseline year 2011. Table 1 above provides the current extent in acres of aquatic resources in the Service Area, presented as potential waters of the United States. Specific aquatic resources are described below.

### 10.4.1 Vernal Pools and Other Seasonal Wetlands

Calculated from an assumed density of 4.54%, vernal pools and other seasonal wetlands total an estimated 3,999 acres in the Service Area (Table 1). These aquatic resources occur primarily in the Butte Creek watershed (1,884 acres) and Big Chico Creek—Sacramento River watershed (983 acres) (ICF International 2015).

Vernal pools and vernal swales are found in grassland areas with shallow soils on relatively flat areas that are underlain by bedrock, hardpan, and claypan. Three types of vernal pools in the Service Area are identified the California Natural Diversity Database as rare natural communities (Butte County Association of Governments 2015).

- Northern Basalt Flow Vernal Pools.
- Northern Hardpan Vernal Pools.

- Northern Volcanic Mudflow Vernal Pools.

Found at a slightly higher elevation (approximately 1,000 feet) than other vernal pools and vernal swales in the Service Area, Northern Basalt Flow Vernal Pools occur in the Table Mountain region on flat mesas formed by the Lovejoy Basalt (California Department of Conservation 1992). The thin, low-fertility soils of these pools are underlain by impervious volcanic basalt rock, creating a perched water table and typically small, hydrologically “flashy” vernal pools. Because these soils are shallow and low in nutrients (especially nitrogen), conditions are less suitable to nonnative grasses and better suited to native grasses and wildflowers. These vernal pools are geographically restricted and generally small, measuring less than 100 square meters in area. They may fill with water and dry several times throughout the rainy season (Keeler-Wolf et al. 1998). Because they are underlain by bedrock and found on more uneven terrain, these pools have been less impacted by agricultural conversion than have other types of vernal pool and vernal swale grasslands (Butte County Association of Governments 2015).

Northern Hardpan Vernal Pools, the most common type in the Service Area, are found on the Modesto, Riverbank, Red Bluff, and Laguna Formations in the Service Area (California Department of Conservation 1992). They occur on Pleistocene and older valley alluvial plains and terraces with an underlying cemented layer in the soil that restricts percolation. These vernal pools and vernal swales can be larger than the other two types in the region (1 acre or more) and generally remain inundated longer in late spring and summer. Many of these pools occur on privately owned land and may be subject to more intensive land use and agriculture (Keeler-Wolf et al. 1998; Butte County Association of Governments 2015).

Found on the Tuscan Formation in the Service Area, Northern Volcanic Mudflow Vernal Pools occur on volcano clastic-derived substrates such as lahars (volcanic mudflows), volcanic conglomerate, and pumiceous tuff of the Cascadian foothills in the Service Area (California Department of Conservation 1992). Much like Northern Basalt Flow Vernal Pools, these small, irregularly spaced pools tend to have flashy hydrology. They are characterized by very shallow, low-nutrient soils (less than 30 centimeters deep) and are underlain by impervious mudflow welded tuff (Keeler-Wolf et al. 1998; Butte County Association of Governments 2015).

## 10.4.2 Non-Seasonal and Managed Wetlands

Non-seasonal and managed wetlands consist of perennial emergent and artificial types of wetlands, comprising the following land cover types: emergent wetlands, managed wetlands, managed seasonal wetland, and jurisdictional portions of rice lands and irrigated pastures and croplands. In the Service Area, these land cover types total 38,255 acres (Table 1); the majority of this acreage—well over 26,000 acres—is found in the Butte Creek watershed (ICF International 2015).

Emergent wetlands, which constitute 4,440 acres of the Service Area (Table 1), are scattered throughout the Service Area, typically near creeks, rivers, or areas that receive agricultural runoff. They can occur in woodlands, grasslands, urban areas, or agriculture, and large complexes of wetlands occur in the southwestern and western section of the Service Area. They are associated with wetland hydrologic and hydric soil features and are supported where soils are ponded or saturated for a significant portion of the growing season, creating an anoxic or very low oxygen rooting environment suitable for hydrophytes (Butte County Association of Governments 2015).

Managed (non-seasonal) wetlands, which total 25,486 acres of the Service Area (Table 1), are located primarily in the western part of the Service Area and are associated with the historical

natural flood basin of the Sacramento Valley, which dominates the southwestern portion of the Plan Area. Portions of the basin historically flooded repeatedly for long durations and supported extensive tule and cattail marshes. Today, this region is dominated by and managed wetlands and rice farming. Managed wetlands are supported by water delivery and drainage systems that allow for water-level regulation to support a mixture of open water aquatic, marsh, and riparian scrub and forest habitats. Some areas are perennially flooded to support habitat for resident waterfowl and other water birds, and both perennially and seasonally flooded wetlands are associated with wildlife refuges, nongovernmental organization lands, or private hunting clubs (Butte County Association of Governments 2015).

Managed seasonal wetlands, which total 2,097 acres of the Service Area (Table 1), are created wetlands in which parts of existing seasonal wetlands and grasslands are scraped, sculpted, and impounded to establish an area that temporarily ponds during the wet season from natural runoff. These managed seasonal wetlands are interspersed within the upland grassland and agricultural landscape, and most have been created primarily in private lands in the southeastern part of the Service Area. Moist-soil management of these wetlands is used in order to benefit migratory waterfowl and wading birds (Butte County Association of Governments 2015).

Estimated jurisdictional portions of rice lands and irrigated pastures and croplands total 6,232 acres in the Service Area (Table 1).

### **10.4.3 Riparian and Riparian Wetlands**

The riparian natural community composed of the following land cover types: cottonwood-willow riparian forest, valley oak riparian forest, willow scrub, herbaceous riparian and river bar, and dredger tailings with riparian forest/scrub. Within the Service Area, riparian land cover types total 22,149 acres (Table 1). A subset of the total riparian land cover types are wetlands and jurisdictional under CWA Section 404. Riparian habitats are found along streams and rivers throughout the Service Area. The largest areas of the riparian natural community in the Service Area are associated with the Sacramento and Feather River systems. Trending north-south and northeast-southwest, this natural community occurs in long linear patches bisecting other natural communities (oak woodland and savanna, grassland, agriculture, managed wetlands) and urban land within the Service Area (Butte County Association of Governments 2015).

Major creeks—Rock, Pine, Big Chico, Butte, Dry, Cottonwood, and Honcut Creeks—support cottonwood-willow riparian forest or valley oak riparian forest. The largest stands of cottonwood-willow riparian forest are supported by the Sacramento and Feather Rivers, with tributaries and terraces adjacent to the Sacramento River supporting valley oak riparian forest. Willow scrub occurs in smaller creeks or disturbed areas in creeks and rivers that have not developed a more substantial forest overstory. Herbaceous riparian and river bar occurs within or adjacent to the active channels of the Sacramento and Feather Rivers (Butte County Association of Governments 2015).

### **10.4.4 Non-Wetland Waters**

Ponds, open water, and major canals in the Service Area total 10,521 acres.

## 10.5 Reserve and Aquatic Resource Goals and Objectives

This section lists BRCP goals and objectives related to the preservation, re-establishment, and enhancement of aquatic resources in the Service Area as set forth in Chapter 5 of the BRCP. These goals and objectives are also the goals and objectives of the ILF Program. BRCP goals and objectives are firm requirements and must be achieved before the end of the 50-year permit term

- Establish a conservation lands system of 90,417 acres of protected and restored lands in the Service Area comprised of the quantities of each natural community and land cover type indicated in Table 2 within 45 years (BRCP Objective LAND1.1).
- Control invasive species in the conservation lands system (BRCP Objective LAND1.2).
- Establish a north, central south, giant garter snake and Sacramento River ecological corridor comprised of protected natural communities (BRCP Goal LAND3; Figure 8).
- Preserve 34,841 acres of grassland, consisting of 13,441 acres of grassland without vernal swale complex and 21,400 acres of grassland with vernal swale complex (BRCP Objective NAC02.1).
- Restore 306 acres of vernal pools and swales within the 21,400 acres of protected grassland (BRCP Objective NAC02.2).
- Protect 6,370 acres of riparian, consisting of 5,650 acres of existing cottonwood-willow /valley oak riparian forest and 720 acres willow scrub (BRCP Objective NAC03.1).
- Restore 179 acres of riparian, distributed within the Service Area (BRCP Objective NAC03.2).
- Restore 11 acres of willow scrub distributed within the Service Area (BRCP Objective NAC03.3)
- Protect 695 acres of emergent wetland that is spatially distributed within the Service Area (BRCP Objective NAC04.1)
- Restore 126 acres of emergent wetland, distributed within the Service Area (BRCP Objective NAC04.2).
- Protect 242 acres of free-flowing perennial stream (equivalent to 20 miles of stream channel and both channel banks with a buffer except where one bank is located outside of the Service Area) (BRCP Objective NAC05.1).
- Protect 73 acres of intermittent stream (equivalent to 12 miles of stream channel and both channel banks except where one bank is located outside of the Service Area) (BRCP Objective NAC05.2).
- Protect and maintain 23,182 acres of land in rice production (BRCP Objective NAC06.1).
- Protect and maintain 3,780 acres of irrigated pasture and irrigated cropland (BRCP Objective NAC06.2).
- Maintain and enhance habitat conditions for covered species on protected agricultural lands by maintaining field borders that support habitat for native wildlife (e.g., rodents, songbirds) and trees for raptor nesting and perching (BRCP Objective NAC06.3).

### 10.5.1 Outcomes for Aquatic Resources

The overall outcomes for each type of aquatic resource in the Service Area with full 50-year implementation of the BRCP is provided in Table 3 including impacts of activities, compensatory

mitigation in the form of preservation and re-establishment, and conservation in the form of preservation and re-establishment over and above the compensatory mitigation acreages. BCAG recognizes that the RGP authorization will be for only 5 years and anticipates on-going renewals by the USACE over the 50-year term of the BRCP permits under the ESA and the Natural Community Conservation Planning Act (NCCPA) permits.

## 10.5.2 Conservation Lands

Approximately 90,417 acres of conservation lands will be acquired within the Service Area under the ILF Program and BRCP to meet the conservation and mitigation targets. The acreage of each natural community to be acquired for impact mitigation and conservation is provided in Table 2.

## 10.6 Prioritization Strategy

The IRT will be responsible for prioritization and selection of compensatory mitigation actions following the requirements of the USACE RGP, ILF Program, and, when applicable, the BRCP and recommendations by BCAG. The prioritization includes spatial criteria for conservation lands and conservation land assembly principles (first, second, and third priority).

The amount and special requirements for compensation of unavoidable loss of the various types of aquatic resources is provided in the goals and objectives and summarized in Table 2. For activities that come under the RGP, BCAG will first review information prior to USACE review, to evaluate each proposed activity and determine, based on the resources affected by that activity, the appropriate compensatory mitigation following the requirements of the BRCP as summarized in Table 3. BCAG under the direction of the IRT will calculate the fees required to be paid by each project proponent based on the BRCP Fee Program and the Butte Regional ILF Program (note that all ILF Program funds will be collected within the funds collected under the BRCP Fee Program) and these fees will be used by BCAG to implement compensatory mitigation along with other aspects of the BRCP programs (e.g., maintenance, monitoring, habitat management, adaptive management, remedial actions, administration, endowment for long-term management). For proposed activities that require an Individual Permit under CWA Section 404 (including Standard and Sacramento USACE District's Letter of Permission), BCAG may provide the same fee collection and mitigation implementation services under the ILF Program with the approval of USACE.

As preserve lands are acquired by BCAG, sites suitable for re-establishment of the various types of aquatic resources will be identified and design plans developed. This advanced planning of re-establishment projects with high probability of success will accelerate the implementation of such projects as funding becomes available and the generation of credits. Additionally, BCAG in conjunction with the USACE and IRT will utilize the USACE South Pacific Division's Uniform Performance Standards and will establish approved reference wetland areas for comparisons to improve success criteria in the re-establishment areas.

All mitigation plans will include the 13 components required by the Mitigation Rule and listed in Section 8.10, including clearly defined objectives, enforceable ecologically-based success criteria, monitoring plan, adaptive management plan, and long-term management plan. Objectives and success criteria will be modified and improved as new information becomes available through development and implementation of the monitoring and adaptive management programs.

A methodology for assessing the success of mitigation projects will be developed to provide a quantitative method for monitoring the health and functionality of established and restored aquatic

resources, and may be used by the ILF Program to guide the development of success criteria and a program to monitor the status of future mitigation projects.

For each mitigation plan, BCAG will coordinate with the IRT to develop a list of site-specific aspects of each watershed that needs to be restored. BCAG will also coordinate with the IRT to ensure that scientifically-based and site-specific restoration methods are implemented while restoring the hydrological and ecological processes and upland buffer habitats of each site.

### **10.6.1 Vernal Pools and other Seasonal Wetlands**

Impacts on vernal pools and other seasonal wetlands within Service Area Grasslands (Figure 9) will be compensated through the acquisition and protection by conservation easement of three times the acreage of wetlands permanently removed (3:1 ratio) and restoration of an equal amount of acres of vernal pool and swale habitat for each acre of vernal pool and other seasonal wetland permanently removed (1:1). Restoration of vernal pool and swale complex as mitigation for other seasonal wetlands will result in higher ecological functions for covered species and biodiversity. For future projects in which new development causes the isolation of existing vernal pools and other seasonal wetlands the same mitigation requirements apply. Protected and restored vernal pools and swales must be of equal or greater function for covered species habitat and biodiversity than those removed by covered activities. Mitigation will be in the same watershed if practicable, otherwise in the same ecoregion (CAZ) as impacts with the following exceptions: impact in the Northern Orchards CAZ may also be mitigated in the Cascade Foothills CAZ, impacts in the Sacramento River CAZ may be mitigated in any CAZ, and impacts in the Basin CAZ may also be mitigated in Cascade Foothills CAZ.

Overall, the ILF Program and BRCP will result in landscape-level conservation of large and interconnected areas of complexes of vernal pools and swales and other seasonal wetlands with a grassland matrix across 34,110 acres of land distributed on various geomorphic surfaces in the foothills of both the Cascades and Sierra Nevada. At completion of the BRCP conservation lands system, in combination with existing protected lands, 84.3 percent of the existing 34,110 acres of grasslands with vernal swale complex will be protected and managed for the highest level of ecological function of vernal pools and other seasonal wetlands (BRCP Table 5-20a).

### **10.6.2 Riparian and Riparian Wetlands**

Impacts on cottonwood-willow riparian forest, valley oak riparian forest, willow scrub, and stream associated dredger tailings with riparian forest and scrub (Figure 10) will be compensated through the acquisition and protection by conservation easement of two acres of these riparian habitats for every acre of riparian forest and scrub permanently removed (2:1 ratio) and restoration of one acre of riparian forest and scrub for every acre of riparian forest and scrub permanently removed (1:1 ratio). Protected and restored riparian forest and scrub must be of equal or greater function for covered species habitat and biodiversity than those removed by covered activities. Mitigation will be in the same watershed if practicable, otherwise in the same ecoregion (CAZ) as impacts. Impacts on non-stream associated dredger tailings with riparian forest and scrub will be compensated through the acquisition and protection by conservation easement of one acre of riparian forest and scrub habitat<sup>5</sup> for every acre that is permanently removed (1:1 ratio).

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<sup>5</sup> Protected riparian must be stream-associated dredger tailings with riparian, cottonwood willow riparian forest, or valley oak riparian forest land cover type.

In addition to the mitigation of impacts on riparian forest and scrub, BCAG is responsible for bringing under protection non-aquatic cottonwood-willow, valley oak riparian forest, and willow scrub land cover type to contribute to the conservation of covered species and the riparian natural communities in the Service Area.

Overall, the BRCP and ILF Program will result in landscape-level conservation of large areas of riparian wetlands, forest, and scrub distributed among the CAZs along streams and in the large dredger tailings associated with the Feather River. At completion of the BRCP conservation lands system, in combination with existing protected lands, about 70 percent of the cottonwood-willow and valley oak riparian wetlands and forests and about 50 percent of willow scrub in the Service Area will be protected and managed for the highest level of ecological function (BRCP Table 5-20a).

The USACE and IRT with BCAG will identify riparian wetland restoration sites based on the site selection guidelines described below. The ILF Program will utilize existing management and restoration plans in each watershed to assist in identifying potential stream and riparian wetland and forest acquisition, enhancement, and restoration opportunities. Additional opportunities for riparian restoration would be identified through site assessments.

Riparian wetland restoration and enhancement sites will be selected according to criteria that include but are not limited to:

- Moderate to high potential for success of restoration activities, based on the geographic setting (location in the watershed relative to other aquatic resources, quality and management of the upstream watershed); physical setting (quality of soils and geology); and hydrology (availability of water and secure water rights); and the level of effort needed to restore the site for the increase in functions and services.
- Moderate to high potential to support covered species after restoration, including fish passage through proper stream hydrology and hydraulics, in-stream morphology, and floodplain connectivity.
- The target land-cover type is representative of the historic condition.
- The restoration area is proximate to intact riparian corridors that support, or are likely to support, covered species.
- The extent and quality of existing habitats (e.g., percent of native vegetation).
- The use of existing habitat by wildlife and the potential for adverse effects of the restoration project.
- The potential for a net increase in the extent and condition of habitat.
- The restoration project will have a net positive effect on existing native biota.
- The restoration project will have a net positive effect on the quality of the riverine and riparian community.
- The ability of the restoration project to contribute to the conservation goals of regional and watershed-based habitat connectivity as described in the BRCP and appropriate watershed resource management plans.

### 10.6.3 Non-Seasonal and Managed Wetlands

Impacts on non-seasonal wetlands (Figure 11) will be compensated through the acquisition and protection by conservation easement of one acre of emergent wetland for every acre of non-seasonal wetlands permanently removed (1:1 ratio) and restoration of two acres of emergent wetland for every acre of emergent wetland permanently removed (2:1). Protected and restored emergent wetlands must be of equal or greater function for covered species habitat and biodiversity than those removed by covered activities. Mitigation will be in the same watershed if practicable, otherwise in the same ecoregion (CAZ) as impacts. Additional acreage of emergent wetlands will be restored as mitigation for loss of agricultural wetlands where irrigated croplands, pasture, and rice are removed for development (see Section 5.7.5, *Agricultural Wetlands*). Mitigation requirements for emergent wetlands are summarized in Table 3. In addition to the mitigation of emergent wetlands impacts, channels within rice land agriculture that support emergent wetlands that provide giant garter snake habitat will be protected at a 2:1 ratio as mitigation for impacts on giant garter snake habitat, amounting to 3,182 acres of rice land.

In addition to the mitigation of impacts on emergent wetlands, BCAG is responsible for bringing under protection 660 acres of emergent wetlands and to conduct the restoration of 500 acres of giant garter snake habitat, which would support roughly 150 acres of emergent wetland. This restoration of emergent wetlands for giant garter snake habitat would increase the total extent of emergent wetlands within the Plan Area. Additional conservation of emergent wetlands will come from the protection of 20,000 acres of rice land and the emergent wetlands supporting channels associated with rice agricultural to contribute to the recovery of giant garter snake.

Overall, the BRCP will result in landscape-level conservation of large areas of emergent wetlands distributed among the CAZ's but mainly within the Basin, Sacramento River, and Southern Orchard (associated with the Feather River) CAZs where emergent wetlands were historically most abundant. At completion of the BRCP conservation lands system, in combination with existing protected lands, about 57 percent of the emergent wetlands in the Plan Area will be protected and managed for the highest level of ecological function

For freshwater emergent marsh, non-seasonal, managed, and spring/seep wetlands, potential restoration and creation sites will be identified and selected based on their hydrologic, geomorphic, and soil conditions to ensure the success of restoration and to minimize the need for long-term management of geomorphic and hydrologic conditions. Suitable sources of water must be available to restore or create desired hydrologic conditions and to provide habitat for desired plants and animals.

Restoration sites will also be selected based on their ability to support covered species and to meet species-specific biological goals and objectives.

### 10.6.4 Non-Wetland Waters

No permanent direct impacts on the reservoirs (e.g., Oroville Reservoir, Thermalito Forebay, and Thermalito Afterbay) and major canals (e.g., Cherokee Canal) are anticipated.

Up to 52 ponds, of an estimated 465 ponds in the Service Area, may be permanently filled by covered activities (Figure 12). Mitigation of these impacts will be through the establishment of new ponds of equal or greater surface area. Mitigation will be in the same watershed if practicable, otherwise in any CAZ that supports modeled western pond turtle or western spadefoot toad habitat.

In addition to the mitigation of impacts on ponds, BCAG is responsible for restoration of 500 acres of giant garter snake habitat, which would support roughly 150 acres of ponds with fringing emergent wetlands. This restoration of ponds for giant garter snake habitat would increase the total acreage of ponds within the Plan Area, since the average size of the 52 ponds removed by covered activities is about 0.48 acres<sup>6</sup> for a total of 25 acres of impact, well under the estimated 150 acres of pond habitat restored as part of giant garter snake habitat.

An additional 28 ponds will be protected under the BRCP to contribute to the conservation of covered species and large, but indeterminate, number of ponds will be protected opportunistically in the implementation of BRCP conservation measures.

## 10.7 Use of Preservation

For impacts to aquatic resources within USACE jurisdiction, preservation may be utilized as a method of mitigation when the factors the 2008 Mitigation Rule are met. Preservation can be credited by discretion if it is associated with a larger complex of mitigation areas (restoration and/or enhancement projects). Additionally, landscapes that contain sensitive ecological features (vernal pools, endangered species, and mature riparian forests) with established natural processes should be protected (preserved) in perpetuity for the cumulative benefit to the ecosystem. Utilizing preservation credits for larger mitigation areas will strengthen the goals of the CWA by providing higher functions and values associated with restoration sites that contain both established preserves and restored wetland areas.

The 2008 Mitigation Rule allows for the preservation of aquatic resources to be used to provide compensatory mitigation if certain criteria are met (33 CFR 332.3[h]). These criteria are:

- The preservation is important to the physical, chemical, or biological functions of the watershed;
- The preservation contributes to the ecological sustainability of the watershed;
- The preservation is appropriate and practicable;
- The resources to be preserved are under threat of destruction or adverse modification
- The preservation sites will be permanently protected; and
- The preservation is done in conjunction with restoration, establishment, and/or enhancement activities.

## 10.8 Public and Private Stakeholder Involvement

The ILF Program is designed to involve partners such as government entities, private entities, and non-profit conservation organizations in its implementation. Such stakeholder involvement will be critical to the success of the ILF Program. The regulatory agencies including the Corps, EPA, USFWS, and CDFW as represented by the IRT are engaged in the development, review, and approval process of the ILF Program and also have jurisdiction over and significant knowledge of the geography, ecology, and aquatic resources the program addresses. If approved, the ILF Program will require the ongoing, active involvement of the IRT. In addition, BCAG invites other governmental entities that may not be represented in the IRT, including the NMFS, CVRWQCB, and State Water Resources

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<sup>6</sup> Average pond size was estimated at 0.48 acre per pond based on 30 random samples from aerial imagery.

Control Board (SWRCB), to review and offer input in the development of the ILF Program, and to consider participating in its implementation.

Beginning at the initial stage of the BRCP planning process, the public has been afforded a wide range of opportunities to learn about the various elements of the BRCP and provide input during the course of its development. In early 2007, a Steering Committee was formed of public agencies that were applicants for permits under ESA and NCCPA. The Steering Committee served in an administrative capacity and was responsible for the preparation of the BRCP. In addition, a Stakeholder Committee was established that was responsible for reviewing draft sections of the BRCP and providing comments and recommendations for BRCP development to BCAG and the Steering Committee. The role of the Stakeholder Committee's members included representing the interests of their organizations at meetings and reporting on development of the BRCP to other members of their organizations on a regular basis. The member organizations of the Stakeholder Committee are: Butte County Builders Association, Butte County Farm Bureau, Ducks Unlimited, Butte Environmental Council, Altacal Audubon Society, Sierra Club, California State University at Chico, Butte Glenn Community College District, Butte County Agricultural Commissioner's Office, The Nature Conservancy, California Native Plant Society, Butte County Resource Conservation District, Caltrans, Western Canal Water District, Biggs-West Gridley Water District, Butte Water District, and Richvale Irrigation District.

Between 2007 and March 2014, the Stakeholder Committee met 46 times to discuss the preparation of the BRCP. All such meetings were open to the public and provided for public participation in addition to input from Stakeholder Committee members. The Stakeholder Committee provided oral and written comments on multiple working drafts of all chapters of the BRCP prepared between 2008 and 2012 and on the full Preliminary Public Draft BRCP released in November 2012.

In addition to the public involvement associated with the Stakeholder Committee meetings discussed above, other public outreach and involvement has occurred throughout the development of the Plan. Two public workshops were held early in the BRCP development process on September 5, 2007 in Chico, and September 12, 2007 in Oroville. A series of public workshops were held following the release of the Preliminary Public Draft BRCP on January 15, 2013 in Oroville; January 15, 2013 in Gridley; and January 16, 2013 in Chico.

BRCP Newsletters were prepared and made available to the public regularly to keep interested parties up-to-date with the latest information on the development of the BRCP and later ARP. The following newsletters were released: Summer/Fall 2007, Winter 2008, Summer 2008, Spring 2009, Fall 2009, Spring 2010, Winter 2011, Winter 2012, and Winter 2013.

To further facilitate the dissemination of information, the BRCP maintained a project website ([www.buttehcp.com](http://www.buttehcp.com)) that provides access to administrative draft chapters of the BRCP and other documents, information about Stakeholder and Steering Committee meetings, background and benefits of the BRCP, information on public workshops, access to newsletters and detailed informational brochures, contact information and links to other important websites, and other relevant information associated with the BRCP. The full Preliminary Public Draft BRCP was posted on the website in December 2012.

Additionally, an "interested parties" email distribution list containing 50 to 75 individuals, including landowners, environmentalists, agriculturalists, developers, hunting advocates, members of academia, and others, was maintained to provide these individuals with the same information the Stakeholder Committee received.

As part of the CEQA/NEPA public process, BCAG and USFWS prepared and released a Notice of Preparation and Notice of Intent.<sup>7</sup> These documents underwent a required 45-day public review period between December 14, 2012 and January 30, 2013 to receive input from the general public. Public scoping meetings were held on January 9, 2013 in Oroville and Chico to disseminate information about the BRCP and BRCP EIR/EIS development process and to take public input. A public scoping report was prepared by BCAG and USFWS and included additional information pertinent to public scoping process that was undertaken.

## 10.9 Long-Term Protection and Management Strategies

BCAG will be responsible for the implementation of the BRCP and will ensure that all impacts on aquatic resources resulting from land development and other activities in the Service Area are fully mitigated for acreage and function. The BRCP also provides for additional measures beneficial to aquatic resources, and the watersheds that support them, that exceed the compensatory mitigation requirements. Over a 50 year period, BCAG will conduct the orderly development of a system of preserve lands based on the principles of conservation biology that will eventually total more than 90,000 acres supporting a mosaic of streams, wetlands, riparian, and upland habitats and a substantial portion of the watersheds in the Service Area. All lands within this preserve system will be protected by permanent conservation easements in perpetuity and held in fee title by BCAG and partner agencies. Management of aquatic and upland habitats will be conducted in-perpetuity by BCAG using funds gathered during the 50-year implementation period and thereafter by non-wasting funds generated by an endowment.

Each mitigation project covered by the ILF Program will meet the appropriate ownership and stewardship requirements to insure its long-term protection pursuant to the Mitigation Rule. Conservation easements or equivalent protection measures will be recorded on mitigation project sites before the final release of mitigation project credits.

## 10.10 Evaluation and Reporting

The BRCP Conservation Strategy (BRCP Chapter 5, *Conservation Strategy*) identifies the intended outcomes of BRCP implementation and describes the means by which these outcomes will be achieved. The BRCP Conservation Strategy includes specific and measurable biological goals and objectives (those BRCP goals and objectives related to aquatic resources are included in this Prospectus) and a comprehensive set of conservation measures designed to provide for the conservation of natural communities, including aquatic communities, and covered species (including threatened and endangered species). The BRCP Conservation Strategy includes measures to avoid, minimize, and compensate for the impacts of activities on these resources in the Service Area. The BRCP Conservation Strategy provides for the establishment of monitoring and adaptive management programs to ensure the BRCP goals and objectives are achieved and that conservation measures can evolve as new data and information become available.

### 10.10.1 Monitoring Program

The BRCP monitoring program will periodically assess the status of all natural communities, including aquatic communities, in the preserved lands as the basis for evaluating the success of

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<sup>7</sup> Notice of Intent was made available online in the Federal Register at <http://www.gpo.gov/fdsys/pkg/FR-2012-12-14/pdf/2012-30182.pdf>

preservation, enhancement, re-establishment, and establishment actions. By tracking the success of these actions, the monitoring program will provide the justification for adjusting implementation over time through the adaptive management process to improve mitigation and conservation effectiveness and to increase the precision and utility of the monitoring data. BCAG in conjunction with the IRT may also implement or collaborate in directed studies to address specific scientific questions regarding species, natural communities, and ecosystem processes to increase the base of knowledge about these resources such that conservation measures can be adaptively implemented to more effectively achieve the biological goals and objectives. The monitoring program, in concert with directed studies, will be designed to provide a means by which information necessary to implement the BRCP over time will be collected and compiled, and that the adaptive management process is informed by the best available science.

### **10.10.2 Adaptive Management Program**

The BRCP adaptive management program provides a learning-based decision process which ensures that progress is made toward achieving goals and objectives. It is anticipated that ongoing modifications to implementation of the BRCP Conservation Strategy, including aquatic resources mitigation measures, will be needed as new information is developed that addresses the uncertainties regarding the nature and magnitude of the response of aquatic resources to enhancement, re-establishment, and management techniques as well as the potential for substantially altered future conditions that may result from climate change (e.g., change in the hydrology of watersheds, temporal shifts in the wet season, change in wildfire risk). Consequently, the adaptive management process is a keystone element of the BRCP implementation, providing BCAG with the flexibility necessary to modify implementation to address uncertainties as the knowledge base regarding ecological processes, natural communities, and species is expanded. As such, the adaptive management process provides BCAG with the ability to modify conservation measures, implementation techniques, and monitoring elements (e.g., monitoring protocols, attributes and attribute criteria, and metrics) as indicated by new information.

### **10.10.3 Reporting Procedures**

BCAG proposes to meet with the IRT biannually to report on progress toward achieving the ILF Program's goals and objectives. A formal ILF Program monitoring report will be generated and submitted to the IRT annually. The Compensation Planning Framework is intended to be a living document that is evaluated periodically, and updated and refined as necessary to incorporate new information and stakeholder participation. Potential updates to the Compensation Planning Framework will be presented to the IRT at the biannual meetings.

BCAG will submit various documents and reports to USACE, EPA, CVRWQCB, USFWS, NMFS, and CDFW that do the following.

- Provide the data and information necessary to demonstrate that the BRCP are being properly implemented.
- Provide monitoring results and analyses demonstrating progress towards achieving the goals and objectives and progress in implementing conservation measures.
- Document the process and results of adaptive management (decisions, changes, and corrective actions).

- Disclose issues and challenges concerning plan implementation, and identify potential modifications to the mitigation and conservation measures that would increase the likelihood of success.
- Document magnitude of impacts on aquatic resources resulting from covered activities to ensure compliance with the RGP authorizations and other USACE Section 404 authorizations in the Service Area.

BCAG will prepare the following.

- Annual work plans and budgets.
- Annual progress reports.
- Five-year comprehensive review reports.

These documents will provide the information necessary to enable the federal and state regulatory agencies, other federal and state agencies, stakeholders, and the general public to assess on an ongoing basis the progress and performance of the BRCP toward meeting the goals and objectives, and to make informed recommendations to BCAG regarding implementation of these programs.

## 11 Program Account

As per the 2008 Mitigation Rule, BCAG will establish a program account after the ILF Program is approved by USACE (33 CFR 332.8[i]). BCAG will establish and maintain a system for tracking financial transactions between BCAG and permittees for activities covered under the ILF Program. The program account will track funds accepted from these permittees separately from those accepted from other entities and for other purposes (i.e., funds acquired to implement conservation actions not part of the BRCP mitigation requirements). The program account will be set up within the BCAG treasury, which in turn will be held at a financial institution that is a member of the Federal Deposit Insurance Corporation (FDIC). Any and all interest accruing from the program account will be used to provide compensatory mitigation, monitoring, or adaptive management for impacts on aquatic resources identified in the BRCP. The program account will be established before any ILF program fees are accepted by BCAG. Generally accepted accounting principles (GAAP) will be applied to all the financial accounts including the ILF Program account.

Funds paid into the program account will be used for the array of conservation related commitments required in the BRCP. Specifically, wetland mitigation fee funds will be used for selection, design, acquisition, implementation, entitlements/permitting, and initial management of the restoration projects. A portion of the fees paid into the program account will be used for administrative costs. Such costs include bank fees associated with the establishment and operation of the program, staff time for carrying out program responsibilities, expenses for day-to-day management of the program, and administrative duties associated with hiring of private contractors or consultants.

### 11.1 Program Account Reporting

BCAG will establish and maintain an annual report ledger that tracks the use of ILF program funds and credits within the service area... The annual ILF Program account report will include:

- All income received, disbursements, and interest earned;

- A list of permits for which ILF Program funds were accepted under individual USACE permits and for activities authorized under the RGP, including:
  - the watershed in which the authorized impacts are located;
  - the amount of authorized impacts;
  - the amount of required compensatory mitigation;
  - the amount paid to the in-lieu fee account; and
  - the date the funds were received; and
- A description of expenditures from the program account.

The annual ILF Program ledger report will include:

- The balance of advance credits and released credits at the end of the report period for the program and by watershed;
- The permitted impacts for each resource type;
- All additions and subtractions of credits;
- Other changes in credit availability

## 11.2 Regulatory In-Lieu Fee and Bank Information Tracking System

In addition to the program account described above, BCAG will also utilize the USACE RIBITS to disclose the ILF program's compensatory mitigation activities. BCAG's use of RIBITS will allow USACE to track the status of the ILF Program, monitor credits and debits incurred by permitted actions, view compliance reports, and automatically email requests for information and upcoming deadlines from a single Internet-based interface.

## 12 Sponsor Qualifications

BCAG will serve as the Sponsor for the Butte Regional ILF Program. BCAG is a joint powers authority formed by the County of Butte, the cities of Chico, Oroville, Gridley, and Biggs, and the Town of Paradise. The use of BCAG to serve as the sponsor takes advantage of an existing entity with regional expertise and experience in the Service Area. BCAG is currently responsible for development of federal and state transportation plans and programs and is also the administrative and policymaking agency for the region's public transit service. In these roles BCAG has served as lead agency for California Environmental Quality Act (CEQA) compliance, ESA compliance, and applicant for CWA Section 404 permits, including the planning and implementation of compensatory mitigation actions involving re-establishment, establishment, and preservation of wetlands and riparian habitats. BCAG has served as the lead agency in directing the development of the BRCP, the permit application process under ESA and NCCPA, and the environmental review of the BRCP under the CEQA and NEPA. In addition, BCAG has successfully completed mitigation projects on behalf of Caltrans District 3, such as creation and establishment of vernal pools and freshwater marsh habitat and riparian establishment and restoration along stream corridors. BCAG has owned these mitigation lands in fee title and been responsible for conducting management and monitoring of these lands in perpetuity.

With BCAG serving in the role of ILF Program Sponsor and BRCP Implementing Entity, the process for mitigating and conserving aquatic resources and terrestrial communities and species in the Service Area will be consolidated in one dedicated agency operating at the direction of the IRT that will staff the needed expertise to run all aspects of these programs in concert.

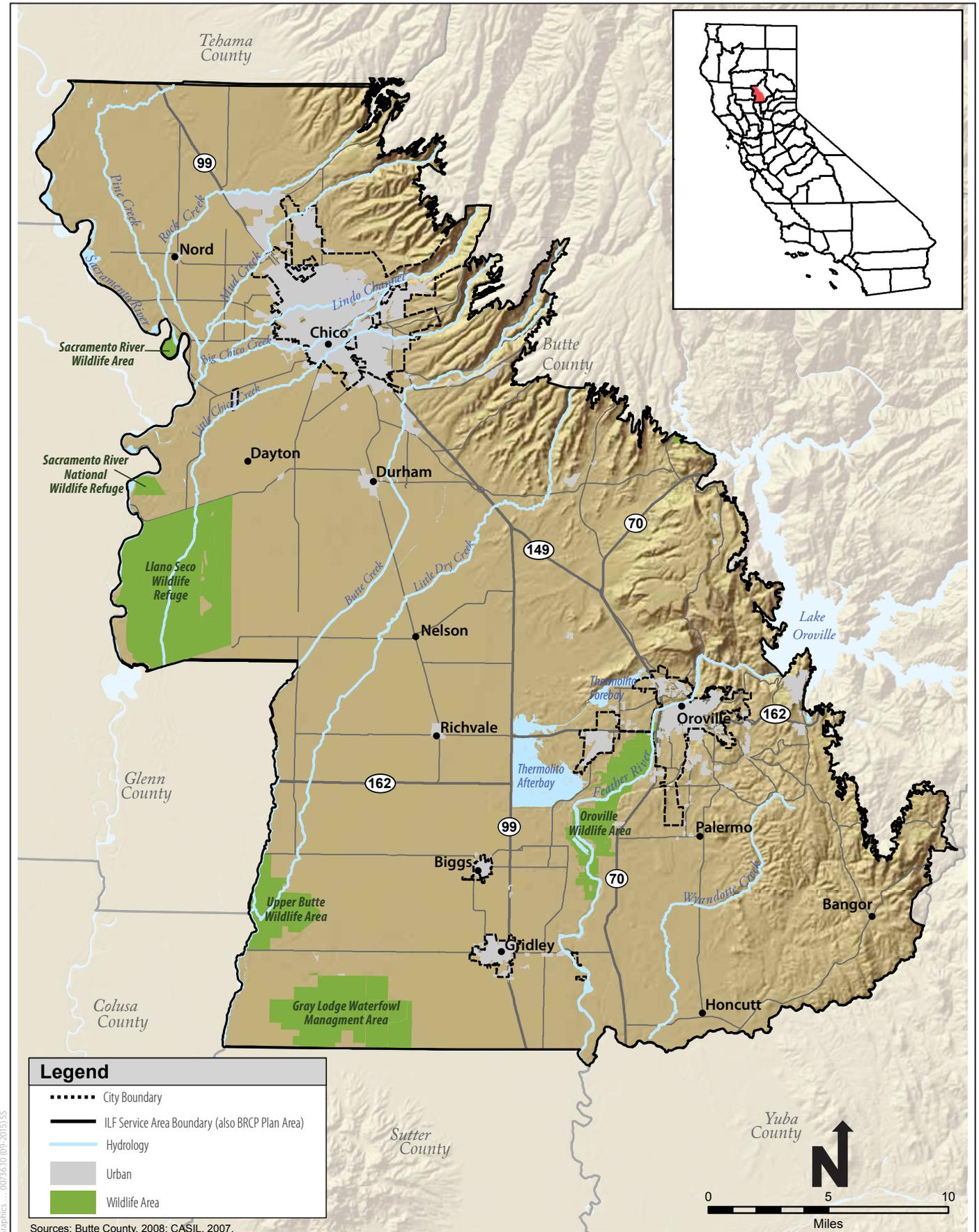
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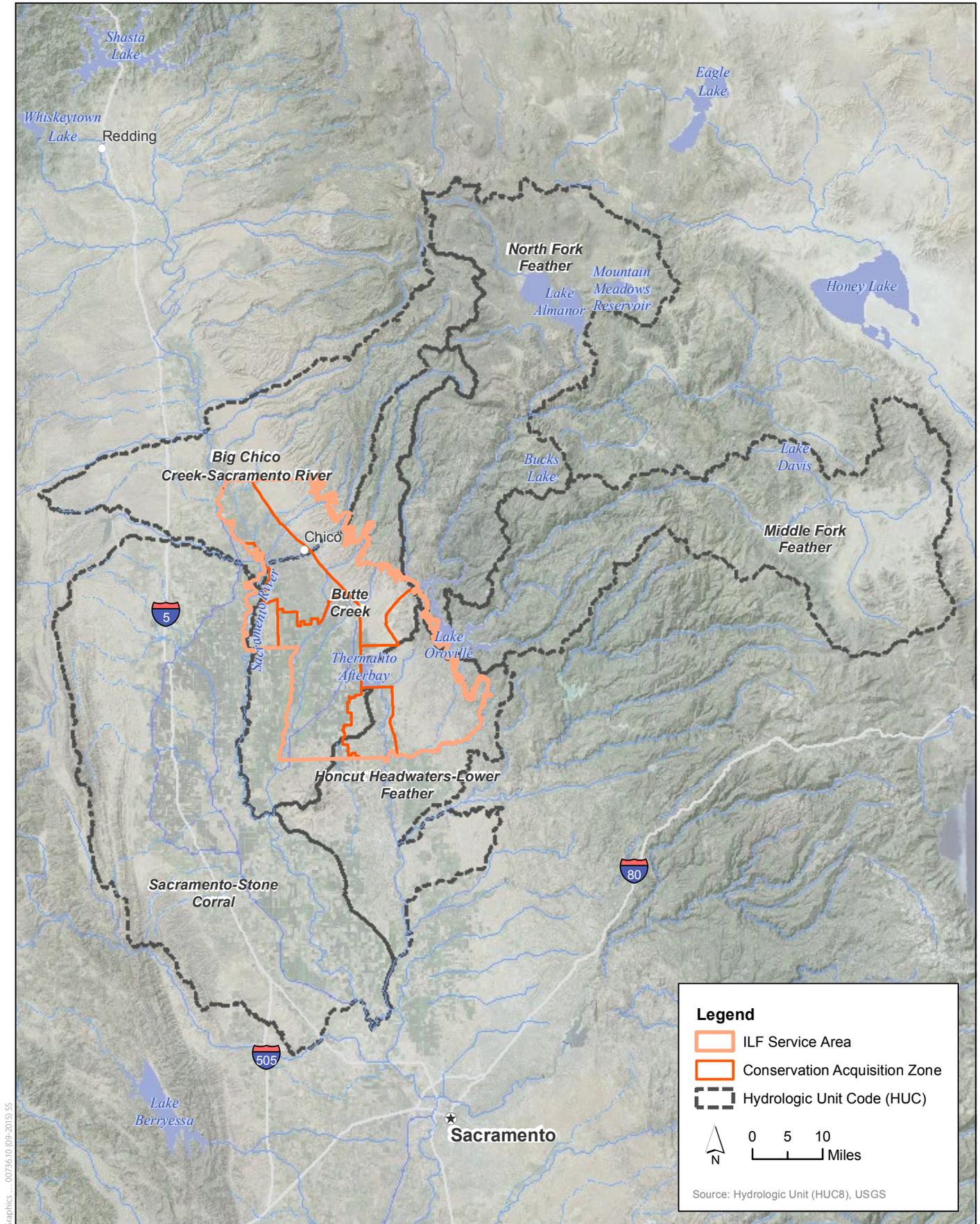
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## Figures

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**Figure 1**  
BRCP In-Lieu Fee Program Service Area



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**Legend**

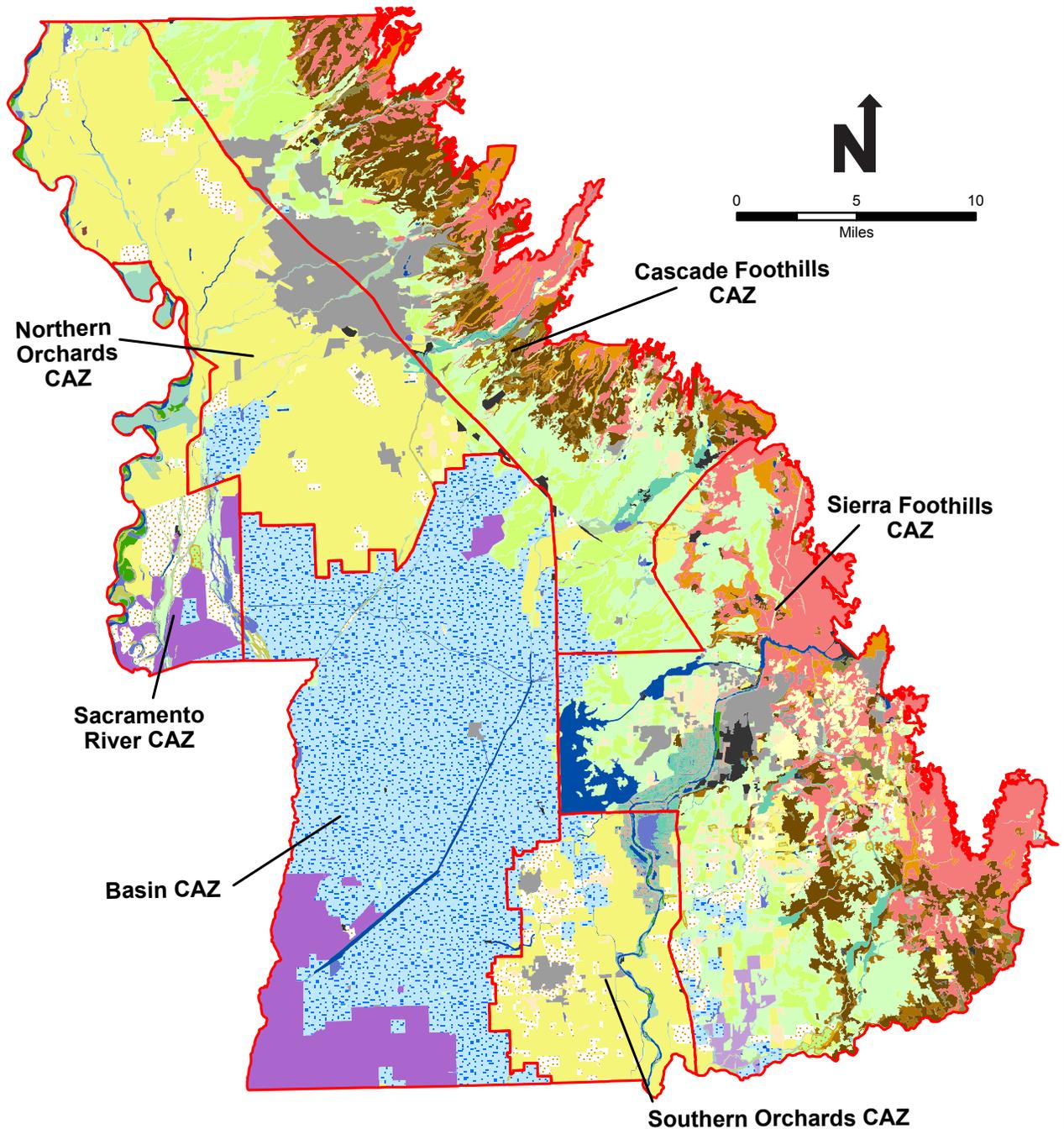
- ILF Service Area
- Conservation Acquisition Zone
- Hydrologic Unit Code (HUC)

0 5 10  
 Miles

Source: Hydrologic Unit (HUC8), USGS



**Figure 2**  
**HUC 8 Watersheds of the BRCP ILF Program Service Area**



**Legend**

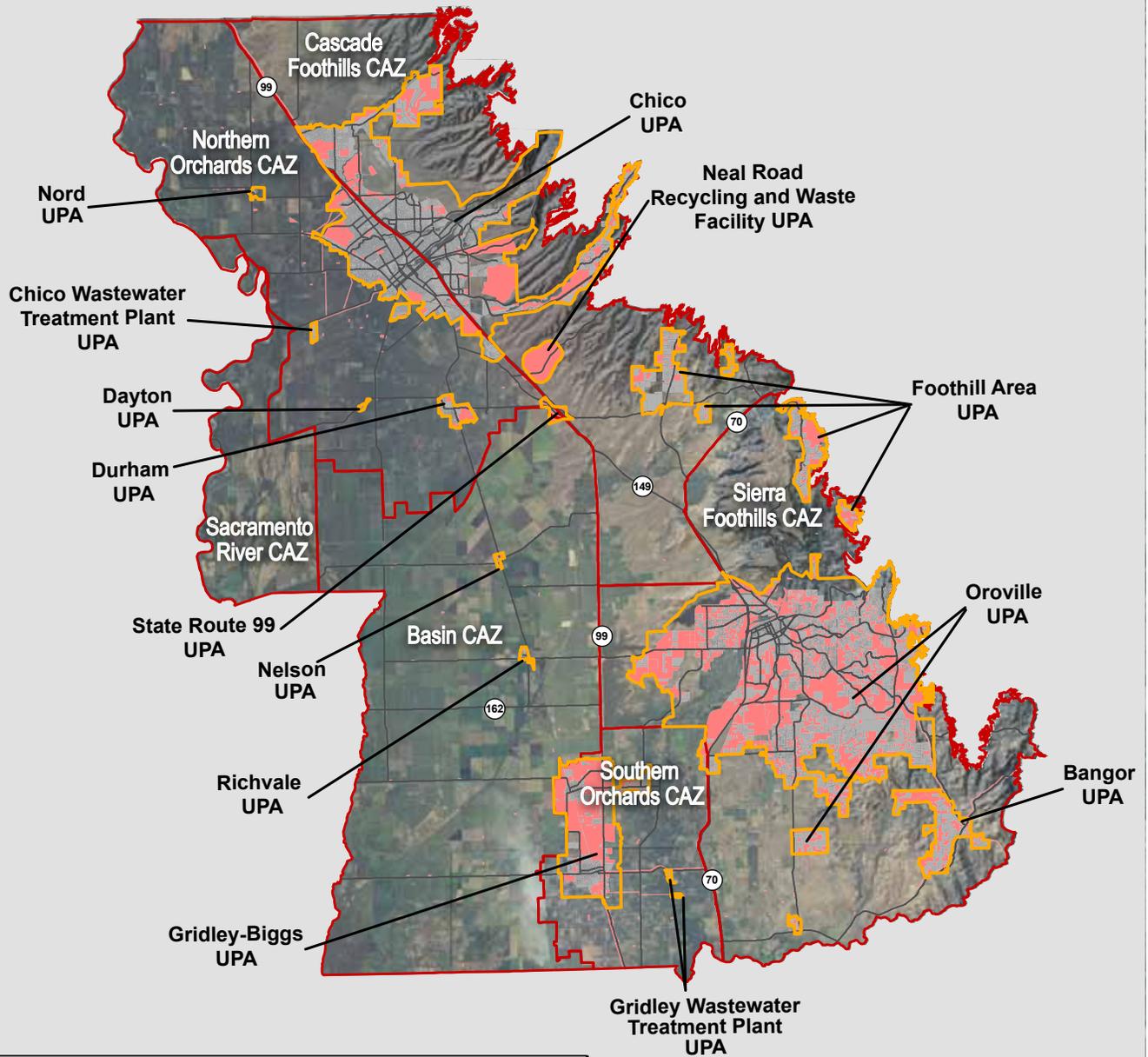
Conservation Acquisition Zone (CAZ)	Disturbed Ground	Grassland	Dredger Tailings with Sparse Herbageous Vegetation
Blue Oak Savanna	Irrigated Cropland	Grassland with Vernal Swale Complex	Open Water/Major Canal
Blue Oak Woodland	Irrigated Pasture	Cottonwood Willow Riparian Forest	Urban
Chaparral	Rice	Herbaceous Riparian River Bar	Dredger Tailings with Riparian Forest/Scrub
Conifer Dominated Forest	Orchard/Vineyard	Valley Oak Riparian Forest	
Interior Live Oak Woodland	Ranchettes Open	Managed Wetland	
Mixed Oak Woodland	Ranchettes Wooded	Managed Seasonal Wetland	
Non-Native Woodland	Willow Scrub	Emergent Wetland	

Source: Butte County, 2008; CASIL, 2007.

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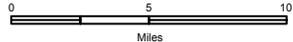


**Figure 3**  
**Conservation Acquisition Zones**  
**and Land Cover Types in the ILF Service Area**



**Legend**

- Planned Development Footprints
- Existing Development
- Conservation Acquisition Zone
- Urban Permit Area Boundary

Miles

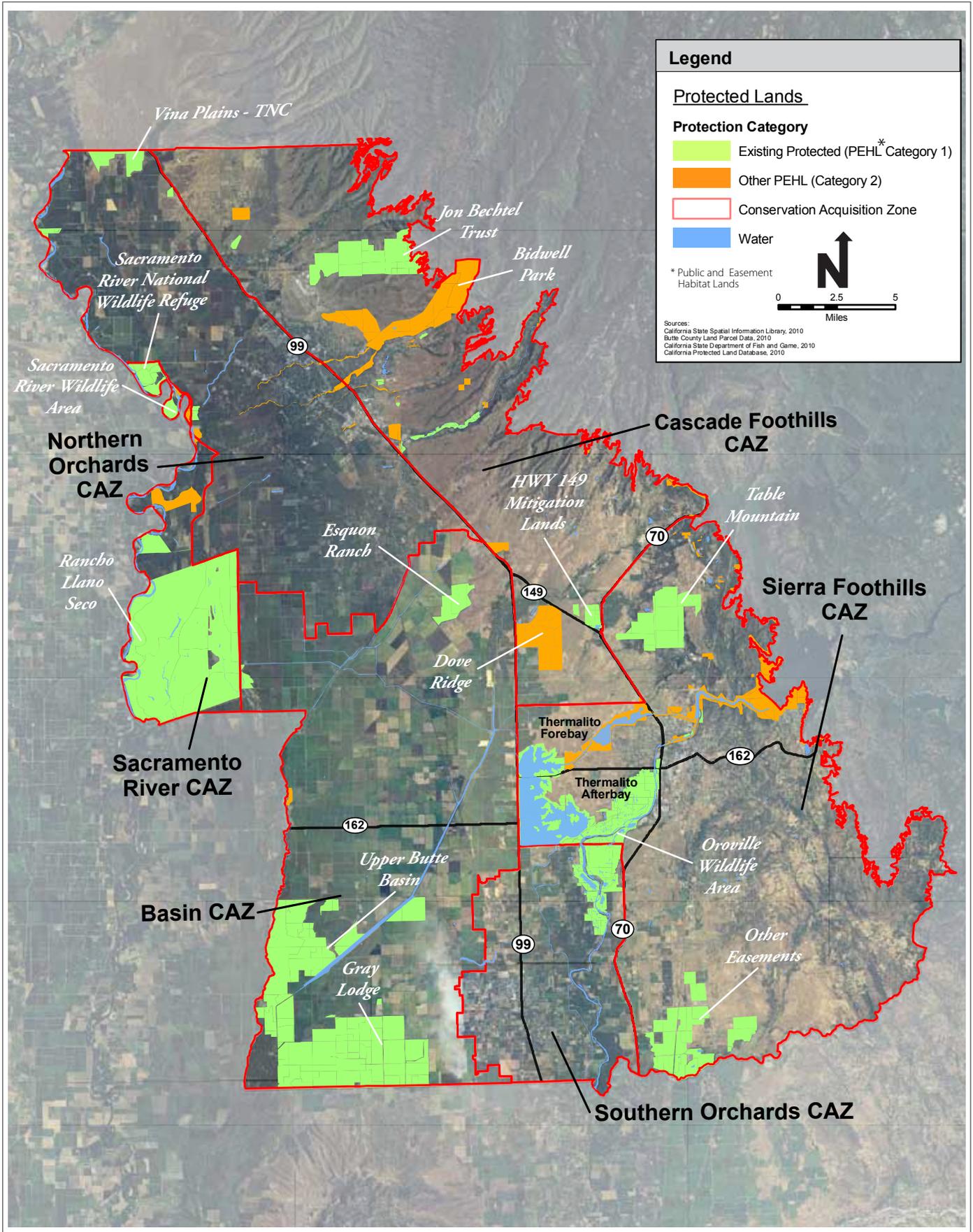
*Note: This figure reflects the maximum development identified in the combined city and County General Plans. Footprints shown are planned development footprints and covered activities are not limited to the footprints shown.*

SOURCE: Butte County. 2009. Butte County General Plan-Preferred Alternative 2030. City of Chico. 2009. City of Chico General Plan Update-Preferred Land Use Alternative 2030. City of Oroville. 2009. City of Oroville General Plan Update-Preferred Land Use Alternative 2030. City of Biggs. 2009. City of Biggs General Plan Update-Preferred Land Use Alternative 2030. City of Gridley. 2009. City of Gridley General Plan Update-Preferred Land Use Alternative 2030.

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**Figure 4**  
**ILF Service Area Showing the Planned and Existing Development within Urban Permit Areas (UPAs)**

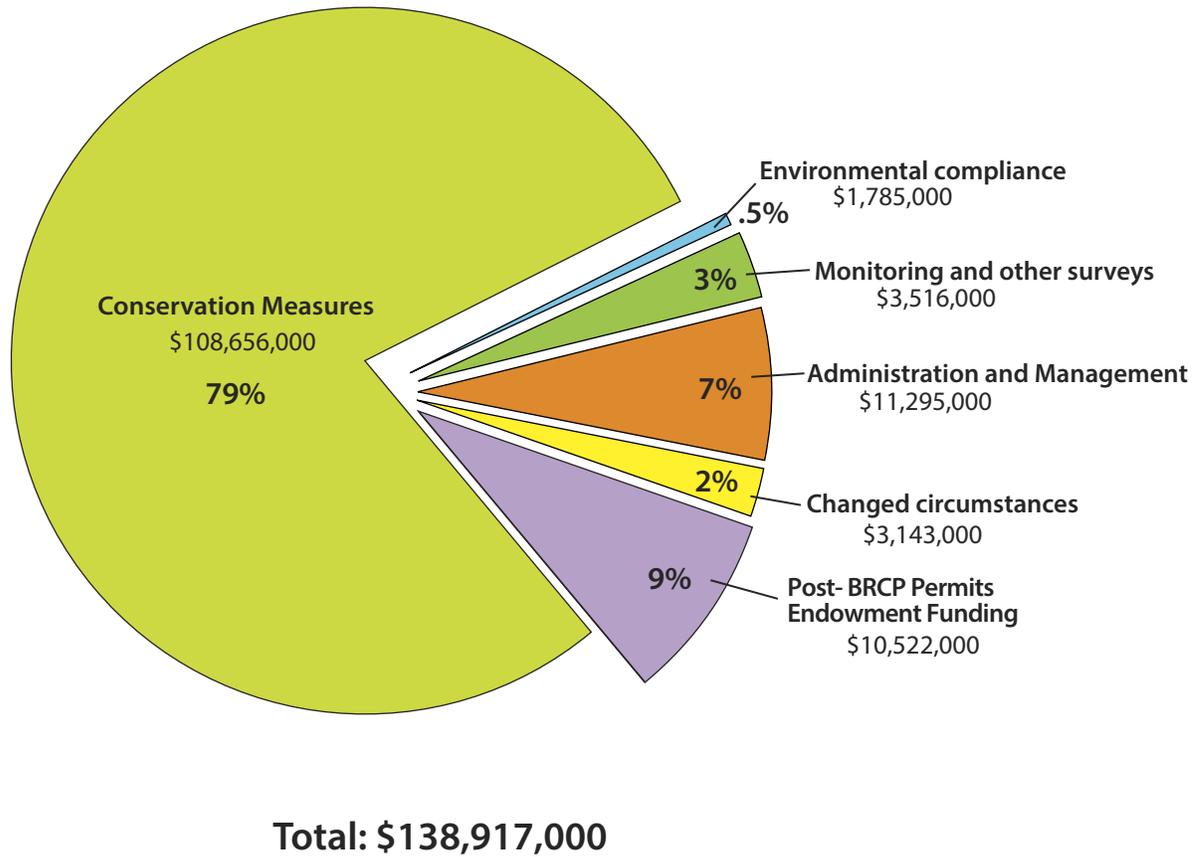


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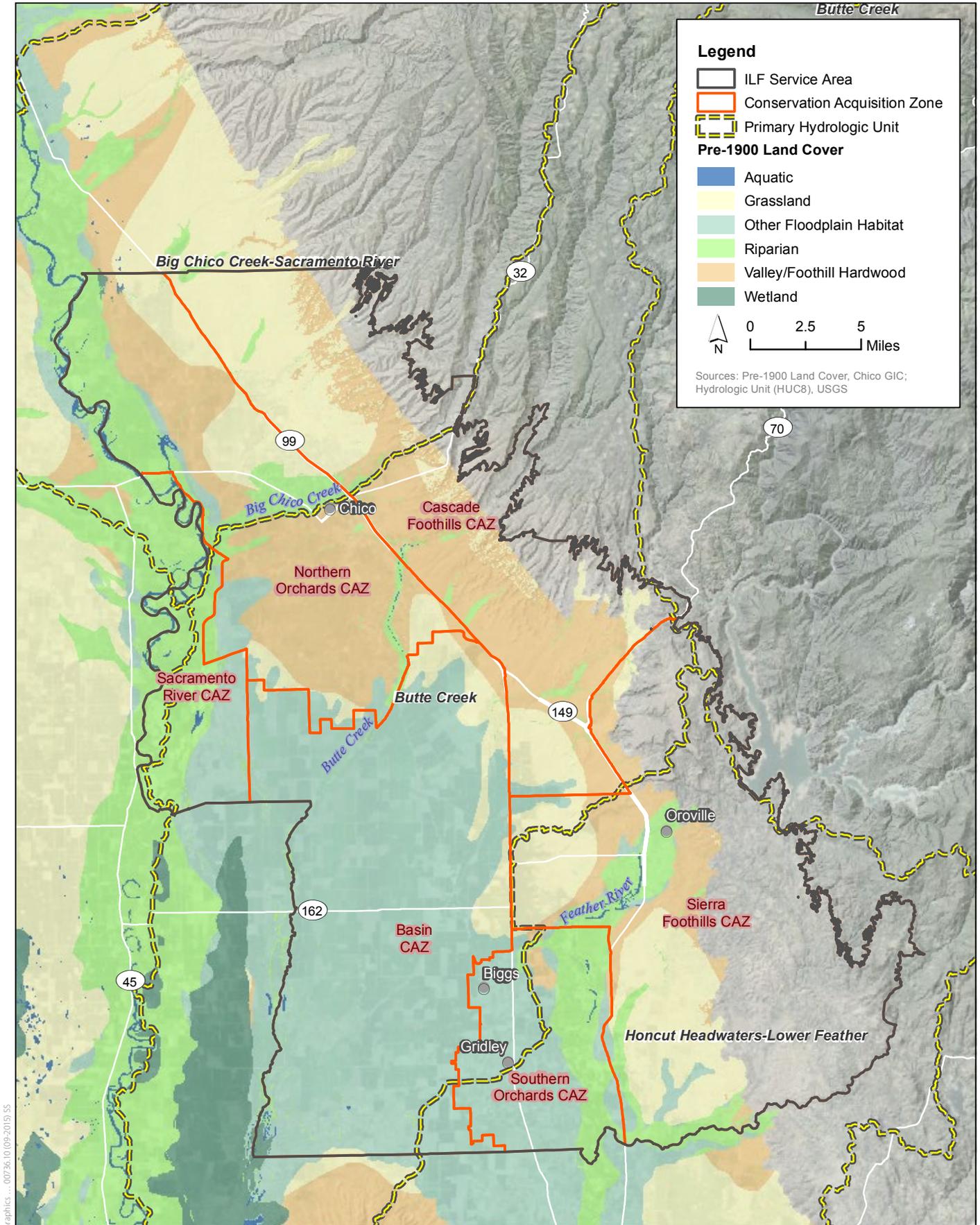
**Figure 5**  
**Existing Protected Lands and Public Easement Habitat Lands**  
**within the ILF Service Area**

### Mitigation Component Implementation Costs by Cost Category<sup>1</sup>



<sup>1</sup>From Table F-1, costs are rounded to the nearest \$1,000.

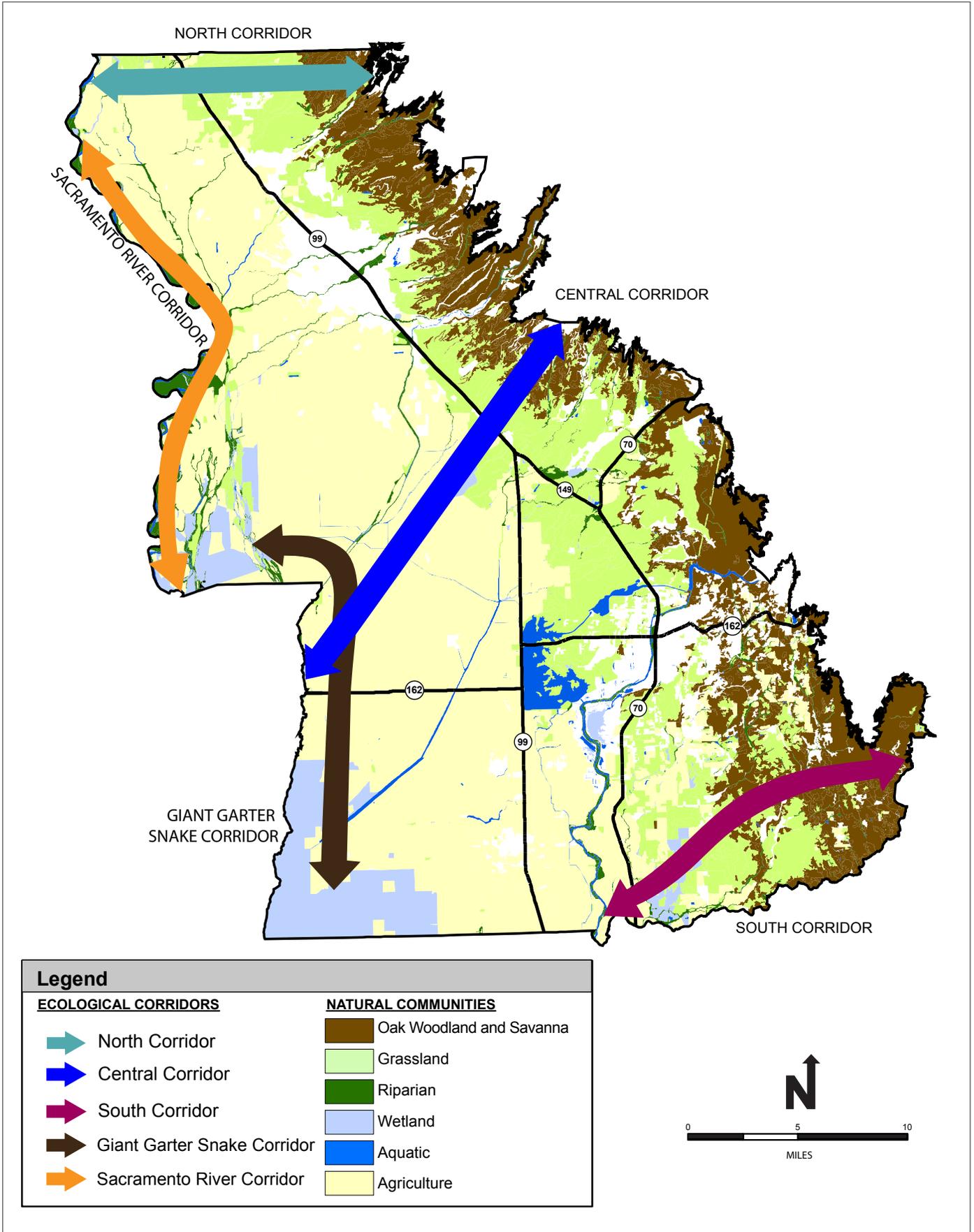
**Figure 6**  
**Summary of Mitigation Component Implementation Cost**  
**by Cost Category**



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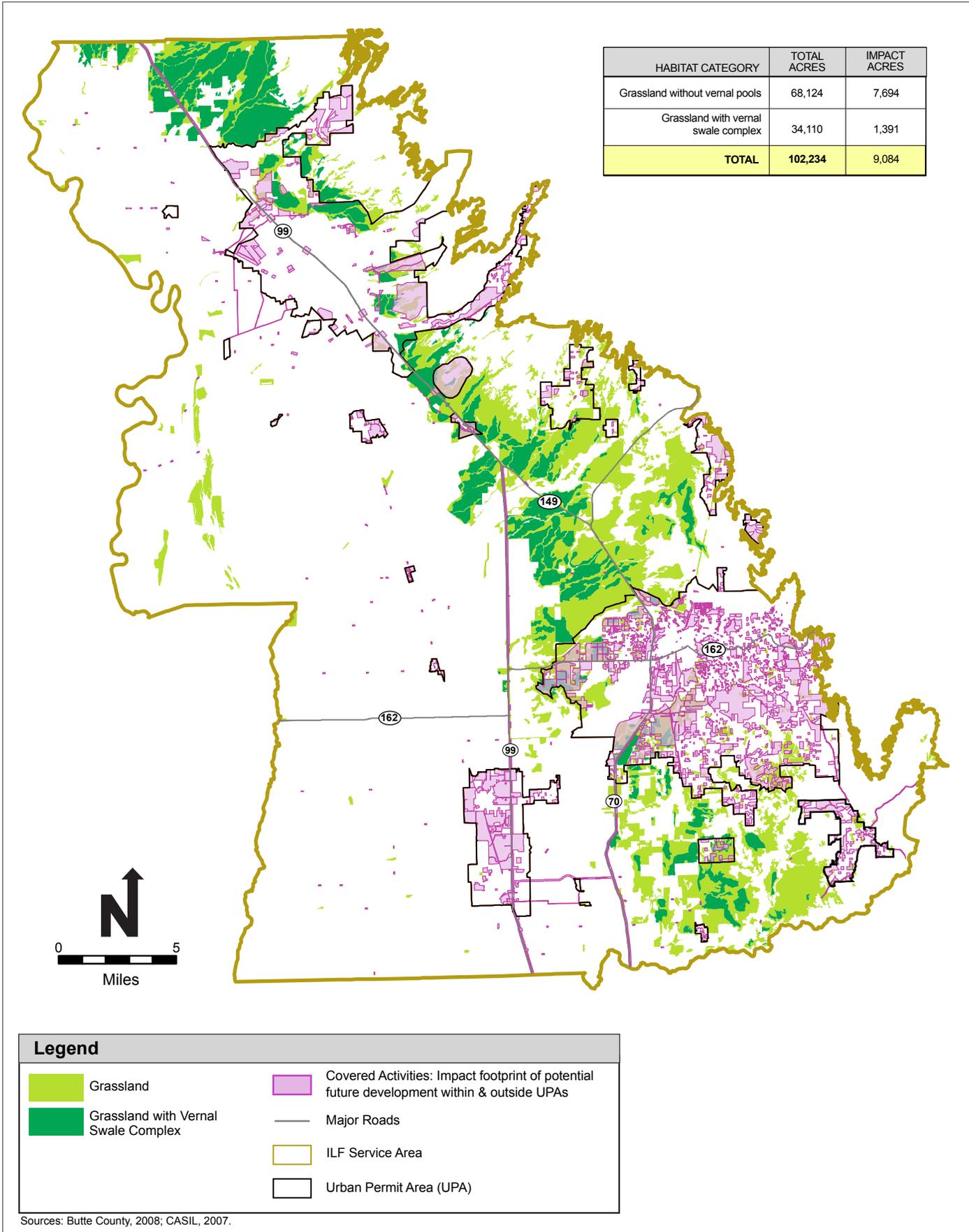
**Figure 7**  
**Historical Land Cover (pre-1900s)**  
**within the ILF Service Area**



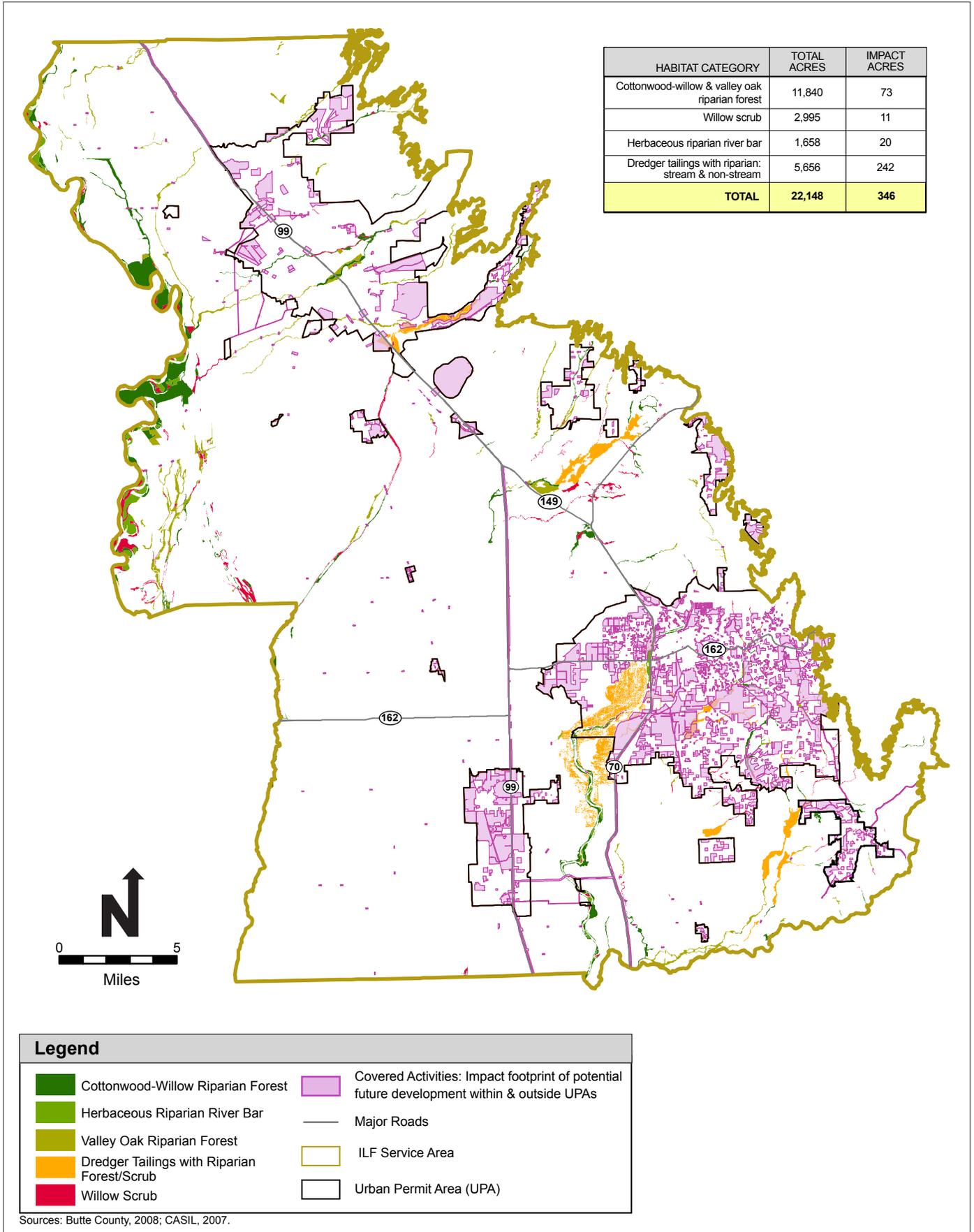
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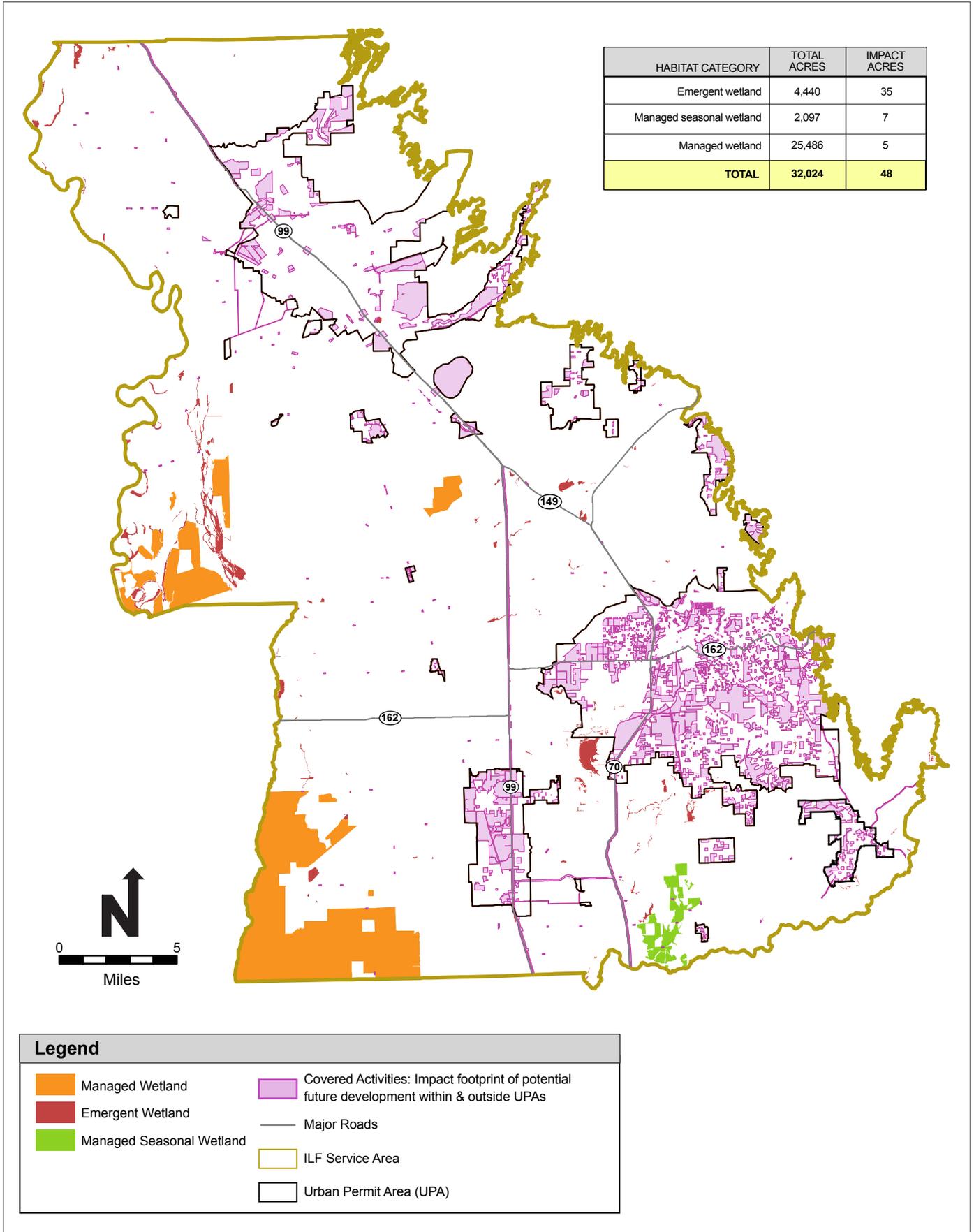
**Figure 8**  
**Ecological Corridors**  
**within the ILF Service Area**



**Figure 9**  
**Grassland: Direct Impact of Covered Activities**

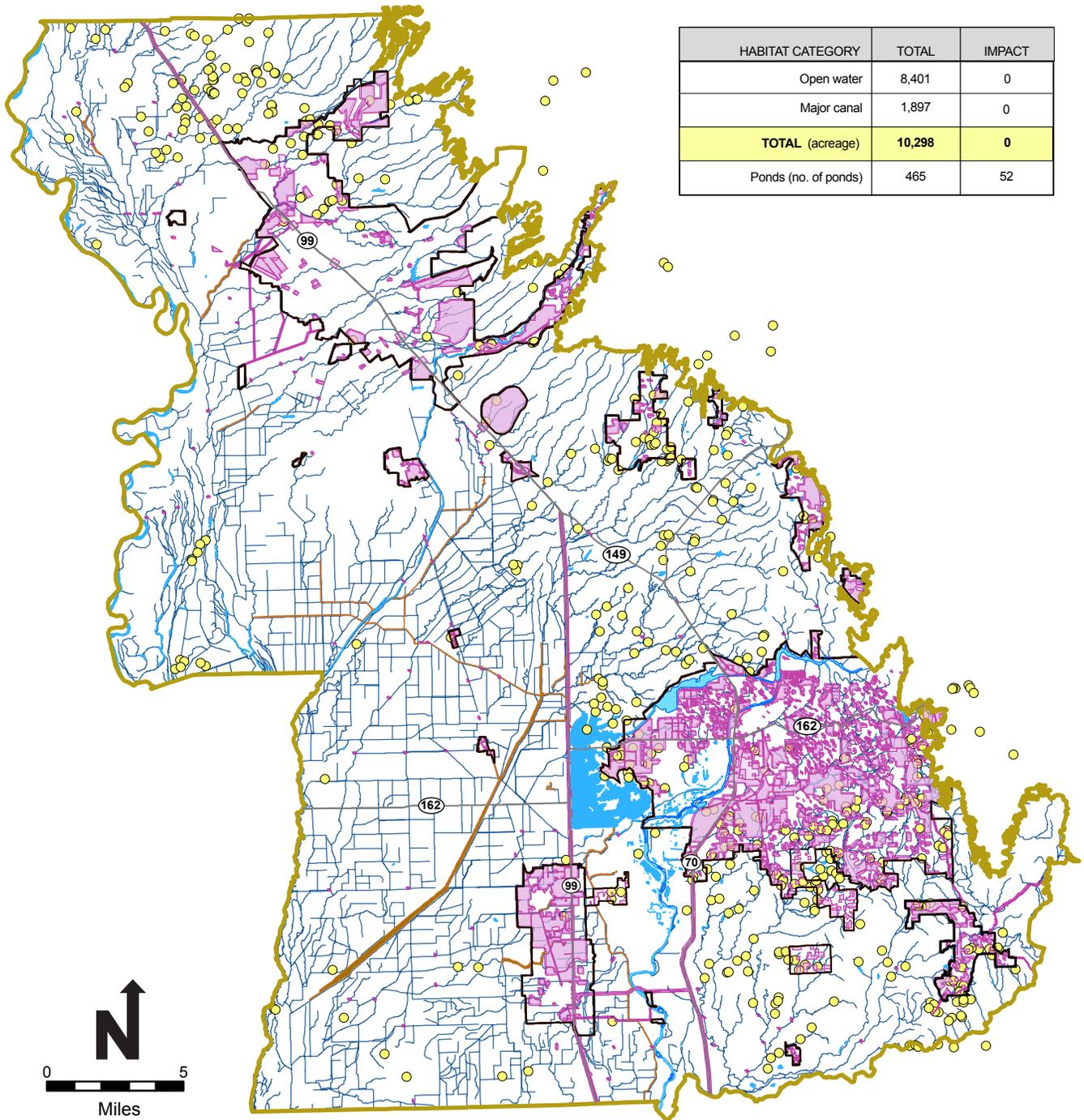


**Figure 10**  
**Riparian:Direct Impact of Covered Activities**



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**Figure 11**  
**Non-Seasonal and Managed Wetlands:**  
**Direct Impacts of Covered Activities**



HABITAT CATEGORY	TOTAL	IMPACT
Open water	8,401	0
Major canal	1,897	0
<b>TOTAL (acreage)</b>	<b>10,298</b>	<b>0</b>
Ponds (no. of ponds)	465	52

**Legend**

- Open Water
- Major Canal
- Ponds
- Rivers, Streams & Agricultural Channels
- Covered Activities: Impact footprint of potential future development within & outside UPAs
- Major Roads
- ILF Service Area
- Urban Permit Area (UPA)

Graphics: 00736.10 (09-2015).SS



**Figure 12**  
**Non-Wetland Waters:**  
**Direct Impacts of Covered Activities**