

## COMPARISON OF ECOSYSTEM RESTORATION PROGRAM AND MULTI-SPECIES CONSERVATION STRATEGY HABITAT ACREAGE TARGETS:

### INTRODUCTION

Habitat enhancement and restoration are essential elements of both the Ecosystem Restoration Program (ERP) and the Multi-Species Conservation Strategy (MSCS). The diversity and quality of habitats in the Bay-Delta watershed is critical to maintaining and recovering threatened and endangered species. These habitats are created and maintained by a variety of ecological processes including streamflow, channel migration and meander, and Delta hydraulics.

CALFED is addressing numerous public comments directed at the habitat acreages presented in both the ERP and MSCS. One of the difficulties reviewers have encountered is due to fact that the ERP and MSCS habitat designations differ in definition and the MSCS includes habitats not addressed in the ERP. The habitat recommendations, nonetheless, are intended to complement one another.

The primary purpose of this document is to clarify the recommended target acreages in the ERP and MSCS.

The following sections discuss the various habitats recommended for enhancement or restoration during the 30-year implementation phase of the ERP. Generally recommendations fall into one of two classes: enhance or restore.

- **Enhanced habitat indicates that existing habitat is improved without acquisition of additional acreages. Willing landowners may benefit by enhancing existing habitat through conservation easements. Existing land uses may be altered but do not change significantly under enhancement.**
- **Restored habitat indicates that additional land is acquired from willing sellers through direct purchase or conservation easement and converted to the appropriate habitat. Existing land uses change under restoration.**

Each habitat type is discussed including its linkage with the habitat recommendations from the MSCS. In some instances, the ERP and MSCS recommendations differ and an explanation of the difference is presented.

There is virtually no certainty that the ERP habitat recommendations will be fully implemented during the 30-year implementation phase. The adaptive management process and the degree to which initial restoration efforts succeed or fail to reach ecological targets for species recovery will drive the magnitude of implementation. The ERP fully acknowledges the scientific uncertainty related to habitat management and restoration and, therefore, must rely on the scientific method and adaptive management to refine the course of restoration beyond the first seven years of implementation.

### Habitat Discussions

**Tidal Perennial Aquatic Habitat:** Tidal perennial aquatic habitat consists of the estuary's edge waters, mudflats and other transitional areas between open-water habitats and wetlands. Similar habitats are defined by the San Francisco Bay Area Ecosystem Wetlands Goals Project (1999) as elements of tidal baylands that include mudflats, sandflats, and shellflats. It also includes marine and estuarine subtidal areas that are less

than 2 m deep at low water and shallow tidally influenced riverine areas.

The ERP recommends restoring 7,000 acres of tidal perennial aquatic habitat in the Sacramento-San Joaquin Delta Ecological Management Zone and 1,500 acres in the Suisun Marsh/North San Francisco Bay Ecological Management Zone.

The 8,500 acres of tidal perennial aquatic habitat in the ERP is consistent with acres reported in the MSCS.

**Nontidal Perennial Aquatic Habitat:** Nontidal perennial aquatic habitat used here includes permanent open water that is not subject to tidal influence. Nontidal perennial aquatic habitats include oxbow lakes, drainage divide ponds, agricultural drains, small farm ponds, industrial ponds, and ponds managed for waterfowl. This habitat is similar to the Goals Project description of diked marsh, salt pond, and storage/treatment pond.

The ERP recommends restoring 4,200 acres of nontidal perennial aquatic habitat: 2,600 acres of nontidal perennial aquatic habitat in the Sacramento-San Joaquin Delta Ecological Management Zone and 1,600 acres in the Suisun Marsh/North San Francisco Bay Ecological Management Zone.

The total of 4,200 acres reported in the ERP is greater than the 1,600 acres of lacustrine habitat reported in the MSCS. The MSCS reports the 2,600 acres of ERP nontidal perennial aquatic habitat in the Delta as a component of the MSCS nontidal freshwater permanent emergent habitat.

**Saline Emergent Wetland Habitat:** Saline emergent wetland habitat includes the portions of San Francisco, San Pablo, and Suisun bays and the Delta that support emergent wetland plant species that are tolerant of saline or brackish conditions.

The ERP recommend restoring 7,500 to 12,000 acres of additional habitat and enhancing of 6,200 acres of existing saline emergent wetland habitats in the Suisun Marsh/North San Francisco Bay Ecological Management Zone.

The 7,500 to 12,000 acres of saline emergent wetland habitat proposed for restoration and the 6,200 acres proposed for enhancement in the ERP are consistent with the acreages presented in the MSCS.

**Fresh Emergent Wetland Habitat (Tidal):** Fresh emergent wetlands include all tidally influenced freshwater areas in the intertidal zones of the Delta that support emergent wetland plant species that are not tolerant of brackish water conditions. Areas that support fresh emergent wetland habitat include portions of Delta sloughs, midchannel islands and other vegetated shallow water areas.

The ERP recommends restoring 30,000 to 45,000 acres of fresh emergent wetland habitat in the Sacramento-San Joaquin Delta Ecological Management Zone.

The MSCS reports 30,200 to 45,800 acres of tidal fresh emergent habitat. The MSCS calculation includes the ERP midchannel island habitat (200 to 800 acres) under the MSCS tidal fresh emergent category.

**Fresh Emergent Wetland Habitat (Nontidal):** Nontidal fresh emergent wetland habitat includes permanent natural and managed freshwater marshes and wetlands. The ERP recommends restoring 17,000 acres of nontidal fresh emergent wetland habitat in the Sacramento-San Joaquin Delta Ecological Management Zone.

The MSCS recommends restoring 19,600 acres of nontidal freshwater permanent emergent habitat. The difference is that the MSCS includes the 2,600 acres of ERP nontidal perennial aquatic habitat in the MSCS

category of nontidal freshwater permanent emergent habitat.

**Midchannel Islands and Shoals:** Midchannel islands and shoals are unique types of remnant tidal perennial aquatic and fresh emergent habitat present in the Sacramento-San Joaquin Delta.

The ERP recommends restoring 200 to 800 acres of midchannel islands and 500 acres of shoal habitat throughout the Delta.

The acreage reported for midchannel islands in the ERP is consistent with the acreage reported in the MSCS which is reported under the MSCS tidal fresh emergent habitat category.

- **The MSCS has been revised to include 500 acres of MSCS lacustrine (ERP shoal) habitat throughout the Delta.**

**Seasonal Wetlands:** Seasonal wetlands include natural and managed wetland areas. Seasonal wetlands are comprised of vernal pools, wet meadows or pastures, lands intentionally flooded on a seasonal basis, state and federal refuges, privately owned waterfowl hunting clubs, private environmental refuge lands, and seasonally flooded areas within a stream course or its floodplain. (Vernal pools are a special type of seasonal wetland discussed following this section on seasonal wetlands.)

The ERP recommends enhancing 308,125 acres of existing seasonal wetlands and restoring 29,000 to 29,500 acres (This is a correction of the acreage reported in the June 1999 version of the ERP). These acreages include the following:

<b>Ecological Management Zone</b>	<b>Acres for Enhancement</b>	<b>Acres for Restoration</b>
Sacramento-San Joaquin Delta	4,000	28,000
Suisun Marsh/North S.F. Bay	58,000	1,000-1,500
Butte Basin	36,150	None
American River Basin	5,150	None
San Joaquin River	172,800	None
Feather River/Sutter Basin	3,590	None
Colusa Basin	28,435	None
<b>Seasonal Wetland Total</b>	<b>308,125</b>	<b>29,000 to 29,500</b>

- **The corrected acreage reported in the ERP for seasonal wetland restoration is the same as the 29,000 to 29,500 acres of managed seasonal wetlands reported in the MSCS.**
- **The 308,125 acres of enhanced seasonal wetlands reported in the ERP is the same as acreage reported in the MSCS.**

**Vernal Pools:** Vernal pools are natural seasonal wetlands with natural hydrologic conditions that are dominated by herbaceous vegetation and annual pond surface water or maintain saturated soils at the ground surface for a portion of the year of sufficient duration to support facultative or obligate plant species.

The ERP provides only one recommendation for vernal pool restoration: 100 acres in the Suisun Bay and Marsh Ecological Management Unit of the Suisun Marsh/North San Francisco Bay Ecological Management Zone.

The proposed action is to acquire and manage 100 acres of existing vernal pools and 500 to 1,000 acres of

adjacent buffer area. The buffer area could include perennial or annual grassland, riparian areas, or other types of transitional habitat associated with vernal pool complexes. The riparian and riverine aquatic habitat and perennial grassland habitat recommendations for the Suisun Marsh/North San Francisco Bay Ecological Management Zone are inclusive of the 500 to 1,000 acres of buffer area for vernal pool management. The 500 to 1,000 acres of buffer area are not additive to other acreages.

The ERP and MSCS are consistent in identifying 100 acres of vernal pools for acquisition and management.

**Agricultural Lands:** The ERP encourages "wildlife friendly" agricultural practices to support existing agricultural productivity while contributing to overall improvements for species dependent on pastures, harvested grain fields, and crops. Agricultural lands include farmed lands that are not seasonally flooded, however, seasonally flooding grain fields is a wildlife friendly agricultural practice. The MSCS uses the terms "upland cropland" and "seasonally flooded agricultural lands" interchangeably for what is termed in the ERP as agricultural lands providing "wildlife friendly" agricultural practices. The MSCS acreages for these categories therefore should not be added together with the ERP acreages. The acreages are the same.

The ERP recommends developing and implementing "wildlife friendly" agricultural practices throughout much of the ERP focus area. The general recommendations were developed to be consistent with the North American Waterfowl Management Plan and the Central Valley Habitat Joint Venture. The underlying premise for these recommendations was to implement a program that would have minimal effects on existing agricultural land uses. Participating landowners would be reimbursed for potential direct loss of income to implement wildlife friendly agricultural practices.

<b>Ecological Management Zone</b>	<b>Acres for Enhancement</b>	<b>Acres for Restoration</b>
Sacramento-San Joaquin Delta	40,000-75,000	None
Colusa Basin	111,285	None
Butte Basin	108,832	None
American River Basin	20,948	None
San Joaquin River	15,290	None
Feather River/Sutter Basin	57,578	None
<b>Wildlife Friendly Acres Total</b>	<b>353,933-388,933</b>	<b>None</b>

The ERP and MSCS are consistent in the identification of 353,933 to 388,933 acres of lands to be enhanced for "wildlife friendly" agricultural practices. There are no **restore** type measures proposed for wildlife friendly practices on agricultural lands.

**Perennial Grassland:** Perennial grasslands include upland vegetation communities dominated by native and introduced perennial grasses and forbs including non-irrigated and irrigated pasturelands.

The ERP recommendations for perennial grassland include restoring 4,000 to 6,000 acres in the Sacramento-San Joaquin Delta Ecological Management Zone and 5,000 acres in the Suisun Marsh/North San Francisco Bay Ecological Management Zone.

The ERP and MSCS are consistent in reporting a range of 9,000 to 11,000 acres of perennial grasslands proposed for restoration.

**Inland Dune Scrub:** Inland dune scrub includes vegetated stabilized sand dunes associated with river and estuarine systems.

The ERP recommends enhancing 50 to 100 acres of low-to-moderate quality Antioch inland dune scrub habitat in the Sacramento-San Joaquin Delta Ecological Management Zone.

The ERP and MSCS are consistent in reporting 50 to 100 acres of inland dune scrub habitat for enhancement.

**Riparian and Riverine Aquatic Habitat:** This broad type of habitat includes riparian and shaded riverine aquatic habitat. Riparian vegetation is comprised of scrub, woodland, and forest habitats that support wildlife species. Riparian aquatic habitat is shaded by riparian vegetation. The MSCS includes additional designations: valley riverine aquatic, montane riverine aquatic, valley/foothill riparian, montane riparian, valley/foothill woodland and forest, and montane woodland and forest.

Generally, the June 1999 version of the ERP reported a mix of acres and miles of riparian and riverine aquatic habitats. In this analysis, miles of riparian are converted to acres using the following assumption: unless otherwise noted in the ERP, riparian stream corridors are assumed to be 100 feet wide. This equates to 12.12 acres of riparian habitat per mile of corridor for one side of a stream, or 24.24 acres per mile including a riparian corridor on each side of the stream. Miles of riparian corridor in the Delta and Suisun Marsh reported in the ERP have been converted to acres using 12.12 acres per mile. All other riparian acreages are based on 24.24 acres per mile. This is deemed sufficient for impact analysis purposes as some riparian habitat will be present only on one side of a stream channel and actual width of the corridor will vary greatly from a screen of riparian vegetation in some areas to dense riparian stands that may be 200 feet wide. Riparian acres for the Delta and Suisun Marsh were calculated from the prescriptions in the riparian and riverine aquatic habitat targets presented in Volume II of the ERPP.

The ERP recommends restoring 10,551-11,789 acres of riparian corridors as follows: 1,284-1,195 in the Sacramento-San Joaquin Delta Ecological Management Zone; 200-300 acres in the Suisun Marsh/North San Francisco Bay Ecological Management Zone; 3,151 acres in the Cottonwood Creek Ecological Management Zone; 484 acres in the Butte Basin Ecological Management Zone; 3,720 acres in the Eastside Delta Tributaries Ecological Management Zone; 1,212 acres in the San Joaquin River Ecological Management Zone; and 500 to 1,000 acres in the West San Joaquin Ecological Management Zone.

- **The MSCS has been corrected to reflect these acreages for restoration.**

Please note: the total acreage for riparian and riverine aquatic habitat has not previously been calculated or reported.

**Stream Channel Meander: Please note:** stream channel meander is not an ERP habitat type. It is described in the ERP as an ecological process. Acreages identified for stream meander are include for impact analysis purposes as a separate category to present the area identified for protection in the Sacramento River Conservation Area between Red Bluff and Colusa. Stream channel meander supports the natural regeneration of riparian and riverine aquatic habitat and other types of habitat essential to the recovery of threatened and endangered species, but is not a type of habitat.

The long-term restoration and enhancement target for preserving and improving the stream meander corridor along the Sacramento River Conservation Area is to purchase in fee or through conservation easement 16,000 to 24,000 acres; acquire 1,000 acres in the Feather River/Sutter Basin Ecological Management Zone; and acquire 1,000 acres in the East San Joaquin Ecological Management Zone.

- **The MSCS accounts for stream meander acreages by including them in the acres of riparian**

**habitat to be enhanced.**

**Tidal and Delta Sloughs:** Sloughs are natural tidal channels that connect fresh and saline emergent wetlands, other shallow water habitats and rivers within the Delta or Bay. Sloughs vary in depth and width and have gently sloped and vegetated sides.

The ERP recommends restoring 65 to 160 miles of sloughs in the Sacramento-San Joaquin Delta Ecological Management Zone (395-970 acres), 50-100 miles in the Yolo Bypass (303-606 acres), and 35-70 miles of sloughs in the Suisun Marsh/North San Francisco Bay Ecological Management Zone (213-423 acres).

- **The ERP has been changed from the 100 to 150 miles reported in the June 1999 version to correct figures of 65-160 miles.**

In the MSCS tidal and delta sloughs are accounted for in tidal emergent, tidal perennial aquatic and riparian. These are not additive.

Please note: the total acreage of tidal, Delta, and Yolo Basin sloughs has not been previously calculated or reported in the ERP. The ERP reports tidal and Delta sloughs as miles of sloughs to be restored. To improve evaluation of restoration of slough habitats, slough miles have been converted to acres. The single assumption for the calculation was that average slough width was 50 feet (6.06 surface acres per mile). This width reasonably describes the range of widths present in natural or restored sloughs, with upper branches being considerably less than 50 feet wide and lower sections exceeding 50 feet.

**Table. Summary of Total ERP Acreages by Type of Habitat.**

ERPP Habitat Type	Total Enhance	Total Restore	MSCS Habitat Type
Tidal Perennial Aquatic	None	8,500	8,500 acres of Tidal perennial aquatic
Nontidal Perennial Aquatic	None	4,200	2,600 acres of Nontidal freshwater permanent emergent and 1,600 acres of MSCS lacustrine habitat
Saline Emergent Wetland	6,200	7,500 to 12,000	7,500 to 12,000 acres of Saline emergent plus tidal slough acreages and enhance 6,500 acres
Fresh Emergent Wetland	None	30,000 to 45,000	30,200 to 45,800 acres of tidal freshwater emergent plus ERP midchannel island acreages
Fresh Emergent Wetland (Nontidal)	None	17,000	19,600 acres of nontidal freshwater permanent emergent (includes 17,000 acres of ERP nontidal freshwater emergent wetlands and 2,600 acres of ERP nontidal perennial aquatic
Midchannel Island	None	200 to 800	200-800 acres reported as MSCS tidal freshwater emergent
Shoal	None	500	500 acres added to MSCS lacustrine habitat
Seasonal Wetland	308,125	29,000-29,500	29,000-29,500 acres of MSCS managed seasonal wetlands
Vernal Pool	None	100	100 acres of MSCS natural seasonal wetland
Agricultural Land (wildlife friendly practices)	353,933 to 388,933	None	353,933-388,933 acres of MSCS seasonally flooded agriculture and upland cropland
Perennial Grassland	None	9,000 to 11,000	9,000-11,000 acres of MSCS grassland
Inland Dune Scrub	None	50 to 100	50-100 acres of MSCS inland dune scrub
Riparian and Riverine Aquatic	None	10,551 to 11,789	10,551 to 11,789 acres of MSCS valley/foothill riparian and montane riparian
Stream Channel Meander	None	18,000 to 26,000	MSCS includes these as acres of riparian habitat to be enhanced, not restored.
Tidal and Delta Slough	None	911 to 1,999	Included in MSCS tidal perennial aquatic (150 to 330 miles of tidal or Delta slough).

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