



**Pacific Coast Joint Venture
Coastal Northern California Component**

**STRATEGIC PLAN
UPDATE 2004**



Big River, Mendocino County

**Pacific Coast Joint Venture
Northern California Component**

**STRATEGIC PLAN
UPDATE 2004**

FINAL



DRAFT

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Executive Summary

This Strategic Plan Update 2002 revises the Strategic Plan for the Pacific Coast Joint Venture (PCJV) - Northern California Component prepared in 1992. The Northern California Component includes Del Norte, Humboldt, Trinity, and Mendocino counties, and the western part of Siskiyou County and is administered by the California PCJV.

The Pacific Coast Joint Venture is among 11 habitat joint ventures and 3 species joint ventures established since 1991 to implement the *North American Waterfowl Management Plan* adopted in 1986 to restore waterfowl populations in Canada, the United States, and Mexico to the levels recorded during the 1970s. The Plan set forth *A Strategy for Cooperation* in the conservation of waterfowl and emphasized the importance of a partnership approach to conserve habitats. In 1994, the Plan was updated in *Expanding the Commitment* and included Mexico as a signatory and increased the habitat objectives fourfold. The 1998 *Update, Expanding the Vision*, built on the legacy of the 1986 Plan and 1994 Update. The current direction of the PCJV includes expanding to support projects that benefit all bird habitat in addition to the earlier emphasis on waterfowl and wetland habitats.

The California PCJV facilitates and coordinates public and private partners in accomplishing activities that support the goals of the *North American Waterfowl Management Plan* through a wide array of conservation strategies primarily including securement, enhancement, restoration, management and private stewardship, monitoring, evaluation, and research, and communication and education.

The California PCJV is a partnership among willing and interested private and public parties to achieve common goals of restoration, conservation, and protection of wetland habitat values. Representative partners include federal and state agencies, local governments, non-government organizations, land trusts and others

Strategic Plan - Northern California Component

In order to meet the PCJV Strategic Plan objectives for the Northern California Component, the following measures are recommended:

- Acquire additional lands for addition to existing wildlife areas as those lands become available.
- Restore diked former tidelands where feasible and appropriate.
- Acquire conservation easements on agricultural lands from willing sellers where necessary to maintain habitat for waterfowl and other wetland species.
- Work cooperatively with private landowners to protect habitat values.
- Restore or enhance floodplain riparian forests.

- Support research to evaluate estuarine habitat needs of anadromous fish, and identify criteria and potential sites for habitat rehabilitation.
- Support long-term, management-related research on the interaction between agricultural practices (e.g., grazing and haying), forestry practices, and the use of the coastal lowland pastures by waterfowl and other wetland species.
- Initiate active seasonal management of water control structures to enhance existing wetland habitat where feasible and appropriate.
- Support creation of wetlands for water quality management where feasible and appropriate.
- Pursue cooperative management agreements with private landowners to protect, restore, or enhance wetland and wildlife values.
- Encourage maintenance of existing agricultural land uses and protect existing habitat values through zoning.
- Work with agencies to reduce the damaging effects that stream channelization could have on wetlands.
- Work with rural conservation districts, the Natural Resources Conservation Service and local groups to plant riparian vegetation along stream channels.
- Work with local conservation groups and agencies to reduce non-native vegetation.
- Evaluate privately owned lands for existing wetland values and the potential to restore or create wetlands.

This Update incorporates information presented in the 1998 *Update, Expanding the Vision* of the *North American Waterfowl Management Plan*, and *The Pacific Coast Joint Venture: The First Five Years (1991-1995)* published in June 1996; and the *Intermountain Joint Venture Implementation Plan, Draft Klamath Basin Plan*, (prepared by Gary L. Ivey for the Oregon Joint Venture), and the 2000 U.S. Census.



CHAPTER 1. INTRODUCTION

The North American Waterfowl Management Plan

The *North American Waterfowl Management Plan* was signed by Canada and the United States in 1986. The Plan set forth *A Strategy for Cooperation* in the conservation of waterfowl and emphasized the importance of a partnership approach to conserve habitats. In 1994, the Plan was updated in *Expanding the Commitment* and included Mexico as a signatory and increased the habitat objectives fourfold. The 1998 *Update, Expanding the Vision*, built on the legacy of the 1986 Plan and 1994 Update.

The original goal of the *North American Waterfowl Management Plan* was to restore waterfowl populations in Canada, the United States, and Mexico to the levels recorded during the 1970s. The 1998 *Update* documented the achievements in habitat conservation that contributed to a striking rebound in most populations of ducks, geese, and swans. However, the Update concluded that the continuing growth of global population, increasing demand for agricultural production, and the quest for an ever-increasing standard of living, combined with average or below-average hydrological conditions, will likely depress waterfowl populations in the future.

The 1998 *Update* presented three visions to advance the future of waterfowl conservation:

1. Enhance the capability of landscape to support waterfowl and other wetland-associated species by ensuring that implementation is guided by biologically based planning refined through ongoing evaluation;
2. Define the landscape conditions needed to sustain waterfowl and benefit other wetland-associated species, and participate in the development of conservation, economic, management, and social policies and programs that most affect the ecological health of these landscapes; and,
3. Collaborate with other conservation efforts, particularly migratory bird initiatives, and reach out to other sectors and communities to forge broader alliances in a collective search for sustainable uses of landscape.

Population Objectives

In addition to expanding the strategic direction of the Plan, the 1998 *Update* emphasized the need to address specific waterfowl concerns and problems to advance the Plan's population objectives. In 1998, available population data pointed to a decline in 15 species of North American sea ducks. Several other duck species, most notably the northern pintail have not responded to habitat improvements and seemingly excellent habitat conditions. Some goose populations remain well below Plan goals. Efforts are needed to better understand the factors that have limited the recovery of these species and populations, and to develop appropriate conservation actions to achieve population objectives.

On the other hand, some Arctic nesting goose populations have reached levels in excess of Plan goals, due in part to abundant crop forage on wintering grounds. This has created serious problems including crop and habitat degradation. Similarly, temperate zone nesting populations of Canada geese have also increased dramatically in some regions. Agricultural depredation, reduced water quality, and problems such as waste accumulation in public areas are concerns in many regions.

Disease has led to significant waterfowl mortality in certain regions of North America. Waterfowl conservationists should continue to improve understanding of the cause of waterfowl diseases, such as botulism and fowl cholera and develop actions to reduce and control the effect of diseases where the intensity and frequency of occurrence threatens species or populations.

International Administration

The North American Waterfowl Management Plan is administered by the North American Waterfowl Management Plan Committee, which consists of 18 members, 6 from each country, selected from agencies responsible for waterfowl management in Canada, the United States, and Mexico.

Regional Administration

Regional administration of the *North American Waterfowl Management Plan* is the responsibility of joint venture management boards, which provide strategic oversight, and guidance to ensure that Plan goals are being achieved. Management boards review feedback from evaluation programs and maintain an updated implementation strategy that reflects current understanding of the joint venture efforts needed to support Plan population objectives.

The current Habitat Joint Ventures and Species Joint Ventures are:

Habitat Joint Ventures

Atlantic Coast Joint Venture
Central Valley Habitat Joint Venture
Eastern Habitat Joint Venture
Gulf Coast Joint Venture
Lower Mississippi Valley Joint Venture
Pacific Coast Joint Venture (United States and Canada)
Playa Lakes Joint Venture
Prairie Habitat Joint Venture
Prairie Pothole Joint Venture
Rainwater Basin Joint Venture
Upper Mississippi - Great Lakes Region Joint Venture

Species Joint Ventures

Arctic Goose Joint Venture (United States and Canada)
Black Duck Joint Venture (United States and Canada)
Sea Duck Joint Venture (United States and Canada)

The North American Bird Conservation Initiative

The North American Bird Conservation Initiative (NABCI) is a partner-driven initiative based on the Joint Venture model to facilitate the integration of “all-bird, all-habitat” conservation as directed by the North American Waterfowl Management Plan, regional Joint Venture Plans, Partners in Flight Bird Conservation Plans, National and Regional Shorebird Conservation Plans, and North

American Waterbird Conservation Plans. The purpose of NABCI is to ensure the long-term health of North America's native bird populations by increasing the effectiveness of bird conservation initiatives, enhancing coordination among initiatives, and fostering greater cooperation among the continent's three national governments and their people.

Implementation of the North American Waterfowl Management Plan has always emphasized habitat conservation, not only for waterfowl but also for a wide variety of wildlife (e.g., fish, amphibians) and other values (e.g., water quality, hydrology). The Plan also recognized the importance of adjacent upland habitats to healthy wetlands with the concept of wetland-associated uplands. The 1998 update of the plan encouraged partners to expand the wetland and waterfowl focus to include collaboration with other bird and habitat initiatives. With the strong evolution of other bird initiatives and the emergence of NABCI as a unifying theme for all-bird conservation, the opportunities for broader-scale conservation outside of wetlands are now a considerably greater reality. In northwestern California, this is particularly true for a mosaic of habitats in the lowlands, which includes several types of wetlands along with riparian forest and shrub, grasslands, oak savannah, and woodland.

Under the vision of NABCI, Joint Ventures are being encouraged to play an integral role in the implementation of all-bird, all-habitat conservation. The degree to which each Joint Venture can accomplish this is variable and likely to change over time, but all the Joint Ventures, including the PCJV, are expanding their mission and their sphere of influence. The PCJV is doing this primarily in two ways: (1) engaging a broader array of partners with upland interests to add conservation value to wetland projects, and (2) actively looking for opportunities to partner in non-wetland projects that support the vision of NABCI. To support these efforts, the PCJV is engaging the structure of NABCI by helping to support the Northern Pacific Rainforest Bird Conservation Region Coordinator position, and actively integrating this position into State Committees and Management Boards.

This Northern California PCJV Strategic Plan and the conservation plans of other bird and habitat initiatives share many goals and objectives. Within the framework of NABCI, this plan supports and complements several other regional bird and habitat conservation plans, including the *Southern Pacific Coast Regional Shorebird Plan*, the *California Partners in Flight Oak Woodland Bird Conservation Plan*, the *California Partners in Flight Riparian Bird Conservation Plan*, and the forthcoming *California Current Bird Conservation Plan*. Objectives and recommendations presented in those plans will be integrated where appropriate into projects initiating from the wetland-driven objectives and recommendations originating out of our Strategic Plan. Additionally, we have included some of the higher priority objectives and recommendations of those plans to strengthen the NABCI vision, provide partners with direction on the best opportunities to pursue integrated bird conservation, and encourage strategic efforts to support all-bird all-habitat conservation.

CHAPTER 2. THE PACIFIC COAST JOINT VENTURE

The Pacific Coast Joint Venture is an international partnership established in 1991 to help ensure the long-term maintenance of coastal wetland ecosystems. These wetlands and associated uplands are essential to the survival of wintering and migrating populations of waterfowl, shorebirds, raptors, salmon, and other marine life and to the unique biological diversity of the west coast.

An estimated three-quarters of historic coastal wetlands have been lost to agricultural and industrial uses and urbanization. The challenge of the PCJV is to accommodate human use in concert with the conservation of remaining wetland habitat.

The Pacific Coast Joint Venture: The First Five Years (1991-1995) published in June 1996 described the coastal wetlands, PCJV conservation strategies, and examples of projects undertaken to conserve wildlife habitat. *The Pacific Coast Joint Venture: A Dozen Years of Accomplishments 1991-2002* further summarizes the activities of the PCJV.

Purpose of the Pacific Coast Joint Venture

The purpose of the PCJV is to coordinate efforts by private groups and government agencies to protect and manage important wetland and related habitat on the Pacific coast of North American from northern California to Alaska's Yukon River and the Hawaiian Islands.

The PCJV's overall goal is to ensure the long-term maintenance of habitat values and natural ecological processes within coastal wetland ecosystems. A wide array of conservation strategies are employed to accomplish these goals:

Securement

Securement provides long-term protection through fee title acquisition, easements, conservation covenants, government land transfers, and management agreements.

Enhancement

Enhancement projects increase the carrying capacity of specific habitats on secured lands. This is accomplished by projects such as livestock fencing, controlling invasive, non-native plants, and installing nesting or water control structures.

Restoration

Restoration of degraded wetlands attempts to re-establish ecological relationships that more closely represent the site's original conditions. Efforts to restore tidal marshes, riparian communities, and freshwater marshes are a major focus of the PCJV.

Management and Private Stewardship

Management and private stewardship include voluntary commitments by landowners to sound land and resource management. While conservation agencies manage habitat on public lands, private landowners take responsibility for resource management on their property. Private stewardship

projects include incentives to adopt wildlife-friendly management practices such as planting winter cover crops that provide benefits for both wildlife and soil conservation.

Monitoring, Evaluation, and Research

Monitoring activities measure the progress towards population and habitat goals and can flag emerging conservation issues such as species or populations in decline. Evaluation and adaptive management determines program success in terms of meeting objectives and provides insight into future directions. Research supports an evaluation program through investigation of wildlife population size, composition and distribution, restoration methodology, and habitat management.

Communication and Education

PCJV communications activities include various projects that increase public awareness, promote sustainable resource management and land use planning, and encourage political support for habitat conservation policies and programs. Education activities have included agricultural extension, nature interpretation, and environmental education.

CHAPTER 3. NORTHERN CALIFORNIA COMPONENT OF THE PACIFIC COAST JOINT VENTURE

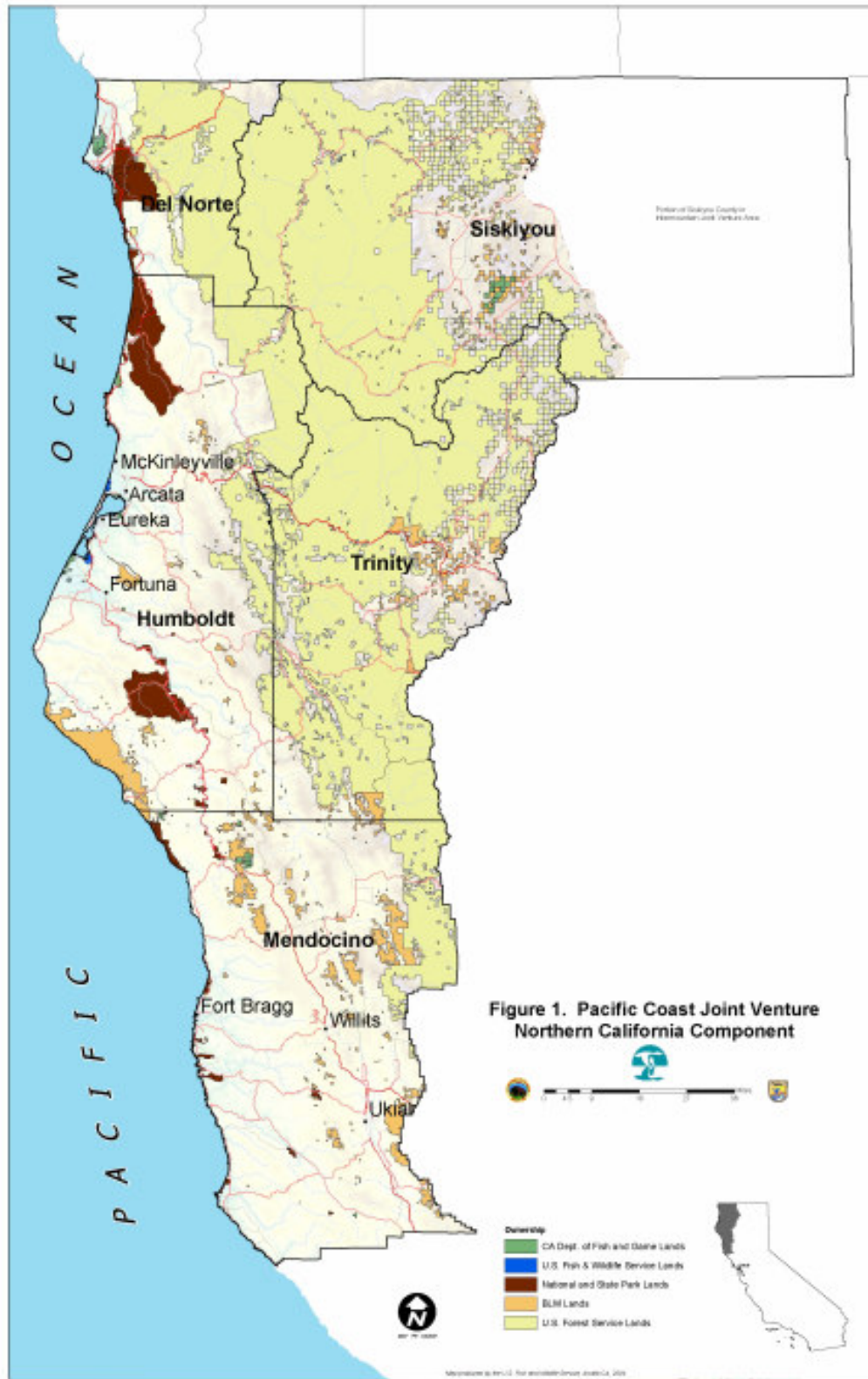


Figure 1. Pacific Coast Joint Venture Northern California Component

Since the establishment of the PCJV, the northern California focus area has competed successfully for more than \$7 million in federal wetland conservation grants. Through these grants, partners have acquired more than 13,000 acres of estuarine wetlands and diked agricultural land to be restored to estuarine habitats. Much of the land protection has occurred in the Humboldt Bay watershed, which is the most important wintering waterfowl habitat between San Francisco Bay and the Columbia River, and which qualifies as a site of international significance under the Western Hemisphere Shorebird Reserve Network.

The Smith River delta is the major migratory staging area for the Aleutian Cackling goose. When the PCJV was established, this population was on the federal endangered species list. Joint venture partners have contributed to key land acquisitions and pasture improvements in the delta, which is one of the factors that has caused the population to increase from fewer than 1,000 birds to more than 60,000, and to be removed from the federal endangered species list. Other areas where PCJV partners have acquired and restored important wetlands include the Elk and Eel River deltas, Lanphere Dunes, and Humboldt Bay National Wildlife Refuge.

The State of California, working with the Mendocino Land Trust, secured a \$1 million National Coastal Wetland Conservation Act (NCWCG) grant in 2001 to purchase the 8.2 mile estuarine portion of a larger project that will eventually include the entire Big River watershed. The watershed project protects 7,400 acres between a state park and a state forest, and completes a block of 74,000 acres of contiguous public land under permanent protection.

California Department of Fish and Game also secured nearly \$1 million in NCWCG funds to acquire 2,500 acres of wetland habitat and associated upland tracts around Lake Earl in Del Norte County, including a platted subdivision.

The Garcia River in Mendocino County is among the PCJV's highest priorities. The site winters a large number of waterfowl, including tundra swans. Several hundred acres of high quality riparian habitat in the project are also important to land birds, as well as the federally endangered Point Arena mountain beaver, snowy plover, red-legged frog, and a listed population of coho salmon. The project, which should be completed in 2004, will include an 1,800-acre acquisition of flood plain habitat at the mouth of the Garcia River. Funding was provided by a National Coastal Wetland Grant and various state programs.

Name	Date	Acres	County	Total Cost
Estero Americana	1991	25	Sonoma	\$31,000
Palco Marsh	1991	86	Humboldt	\$800,000
Fay Slough	1992	100	Humboldt	\$130,000
Cock Robin Island	1993	274	Humboldt	\$698,000
Elk River	1994	20	Humboldt	\$49,000
Lake Earl	1994	113	Del Norte	\$312,000
Goose Lake	1995	258	Humboldt	\$755,000
Cock Robin Island	1996	11	Humboldt	\$36,000
Eel River WA	1997	230	Humboldt	\$235,000
Janes Creek	1998	75	Humboldt	\$407,000
Big Lagoon	1999	135	Humboldt	\$1,222,000
Humboldt Bay NWR	1999	100	Humboldt	\$26,000
Humboldt Bay NWR	1999	1	Humboldt	\$119,000
Lake Earl	1999	77	Del Norte	\$495,000
Tomales Bay	1999	530	Sonoma	\$5,050,000
Casper Woodland	1999	72	Mendocino	\$3,500,000
Ferndale	2001	225	Humboldt	\$1,000,000
Humboldt Bay NWR	2001	315	Humboldt	\$189,000
Mad River Slough	2001	74	Humboldt	\$635,000
South Spit	2001	597	Humboldt	\$665,000
Upper Jacoby Creek	2001	1231	Humboldt	\$850,000
Westport Headlands	2001	8	Mendocino	\$728,000
Big River	2002	7334	Mendocino	\$26,000,000
North Coast Wetland Enhancements	2002	1220	Humboldt/Del Norte	\$744,000
Elk River WA	2003	85	Humboldt	\$35,000
Point St. George	2002	339	Del Norte	\$3,000,000
Salmon Creek	2003	80	Humboldt	\$46,000
Janes Creek	2003	3	Humboldt	\$15,000
Jacoby Creek	2003	150	Humboldt	\$870,000
Janes Creek	2003	11	Humboldt	\$924,000
Totals		13,779		\$49,566,000

Table 1. Representative List of Partner Projects

The Land

The Pacific Coast Joint Venture - Northern California Component is composed of Del Norte, Humboldt, Trinity, and Mendocino counties, and the western part of Siskiyou County. The northeastern boundary of the area includes the portions of Siskiyou County west of the Scott River drainage to its confluence with the Klamath River. To the south in Trinity and Mendocino counties the area is approximately bounded on the east by the dividing ridge between the Trinity and Eel River watersheds and the Sacramento River watershed. The area lies in the Klamath Province to the north and the North Coast Range province to the south (Figure 1).

Del Norte County

In Del Norte County, the coastline tends to be composed of rocky cliffs and high bluffs rising steeply into the coastal mountain ranges with their deeply cut canyons. Two major rivers drain the

interior mountain ranges and empty into the Pacific Ocean; the Smith River, which has its origins in northeastern Del Norte County and southern Oregon, and the Klamath River with headwaters to the north and east in south-central Oregon (Figure 2).

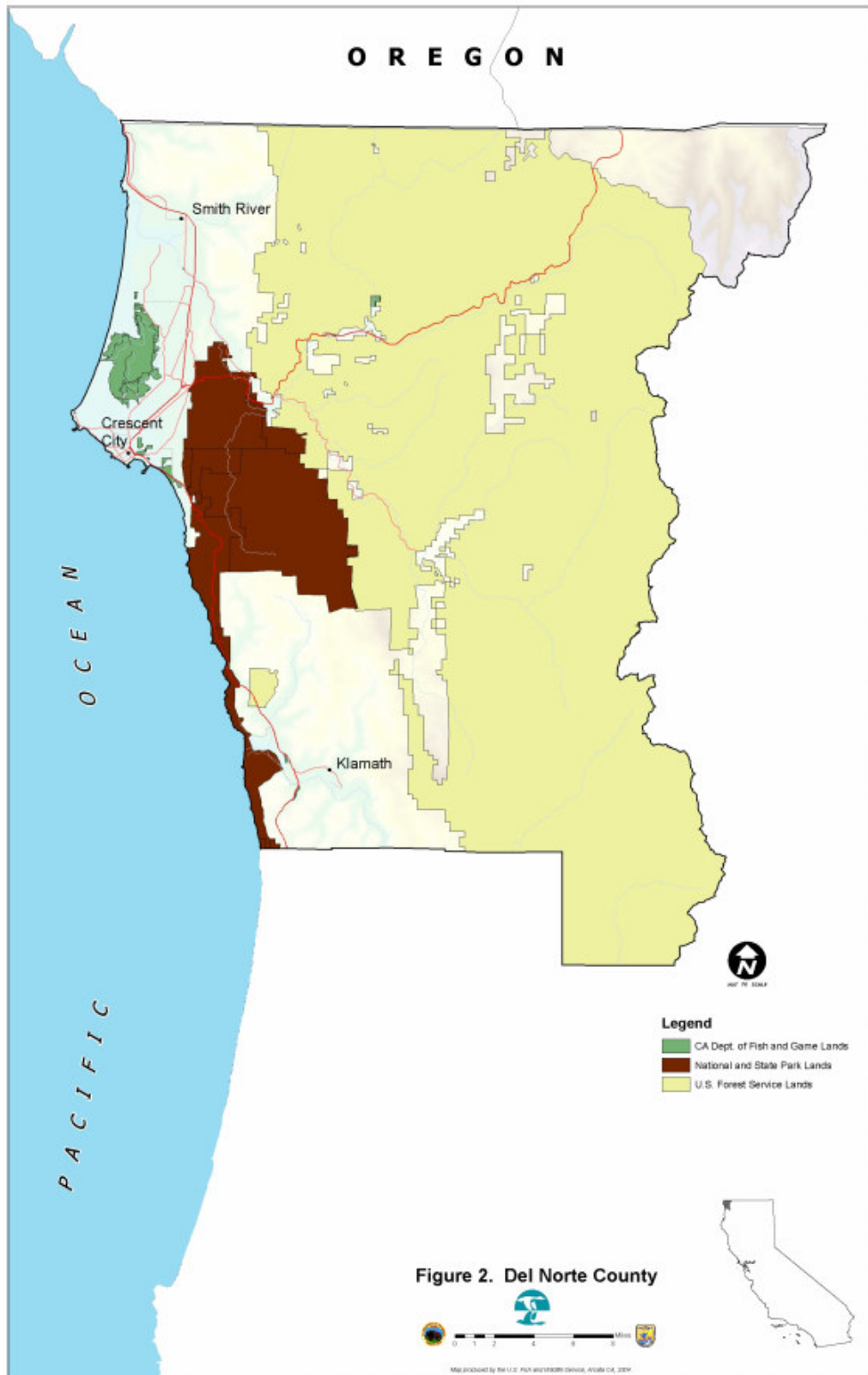


Figure 2. Del Norte County

Humboldt County

The most extensive coastal wetlands of Humboldt County are associated with floodplains in the lower Eel River Valley and the Humboldt Bay area. Other significant wetland habitats include Mad River Estuary, Little River Valley, Redwood Creek Estuary, Big Lagoon, Stone Lagoon, and Freshwater Lagoon. Major rivers and streams draining the mountain ranges of Humboldt County include the Eel, Van Duzen, Mad, Trinity, Klamath, Mattole, Bear, and Redwood Creek. Like the Klamath, the Trinity and Eel rivers have large drainage basins within the Coast Range and the Klamath Mountains. The Eel River and its tributaries also drain much of northern Mendocino County (Figure 3).

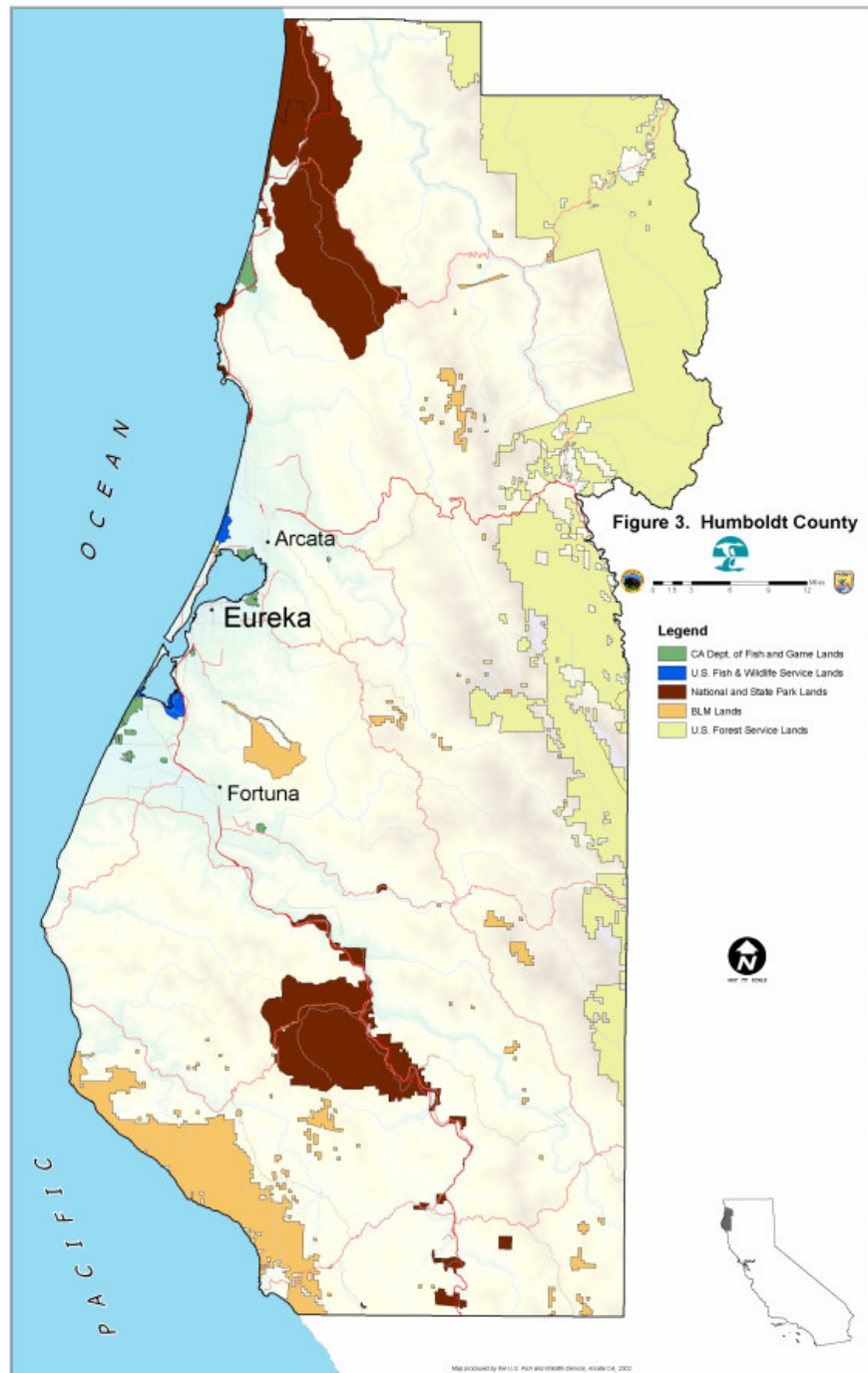


Figure 3. Humboldt County

Mendocino County

Two almost parallel ranges of the Coast Mountains extend through Mendocino County. The range on the east is a northern continuation of the Mayacmas Mountains (which include Mt. St. Helena). In this range, near Potter Valley, rise the two largest rivers of the southern portion of this area: the Eel, flowing north, and the Russian flowing south and then west to empty into the ocean north of Bodega Head. The western range is dissected by numerous small rivers such as the Ten Mile, Noyo, Big, Navarro, and Garcia rivers. These drain portions of the Coast Ranges and flow directly into the Pacific Ocean (Figure 4).

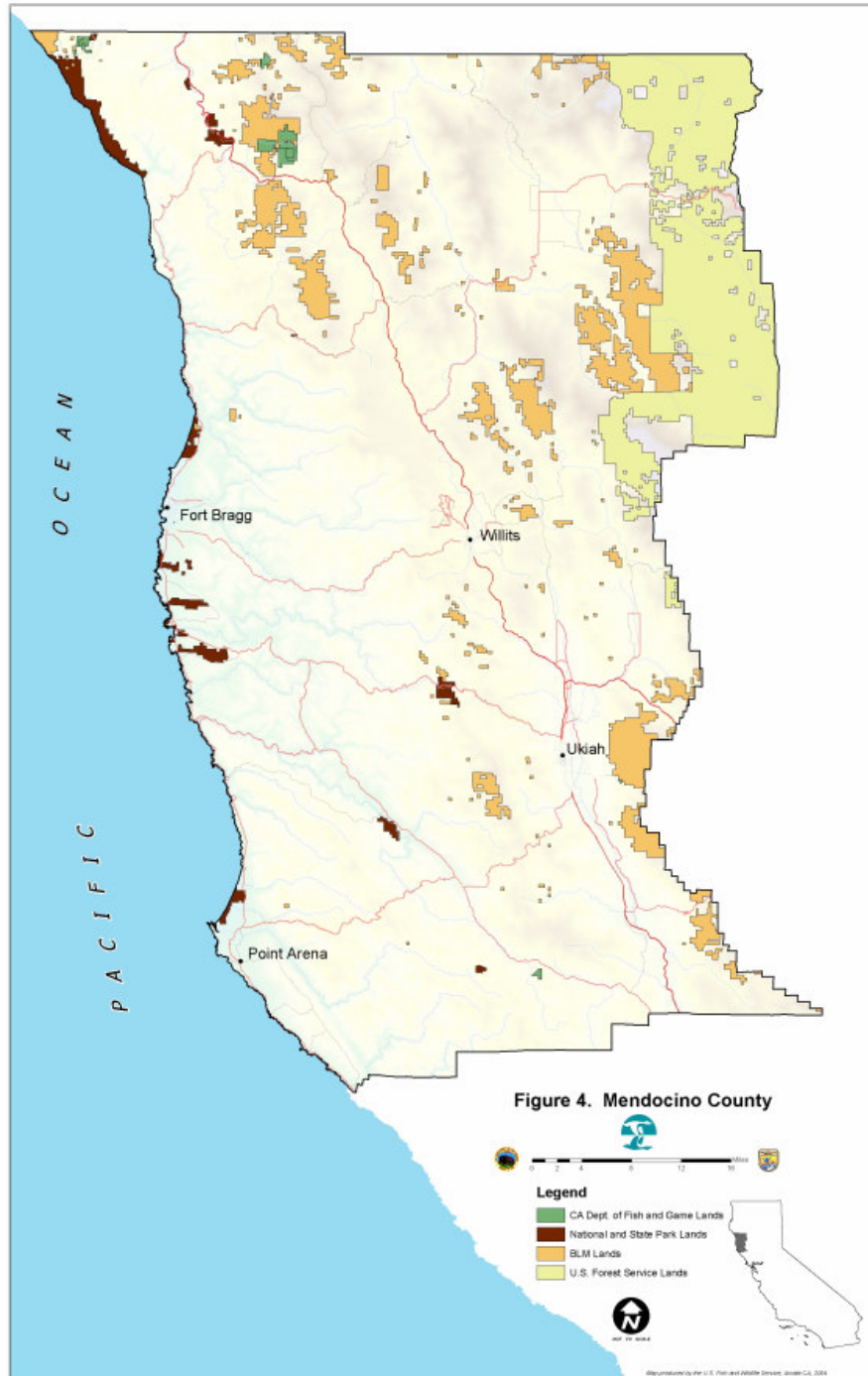


Figure 4. Mendocino County

Trinity and Siskiyou Counties

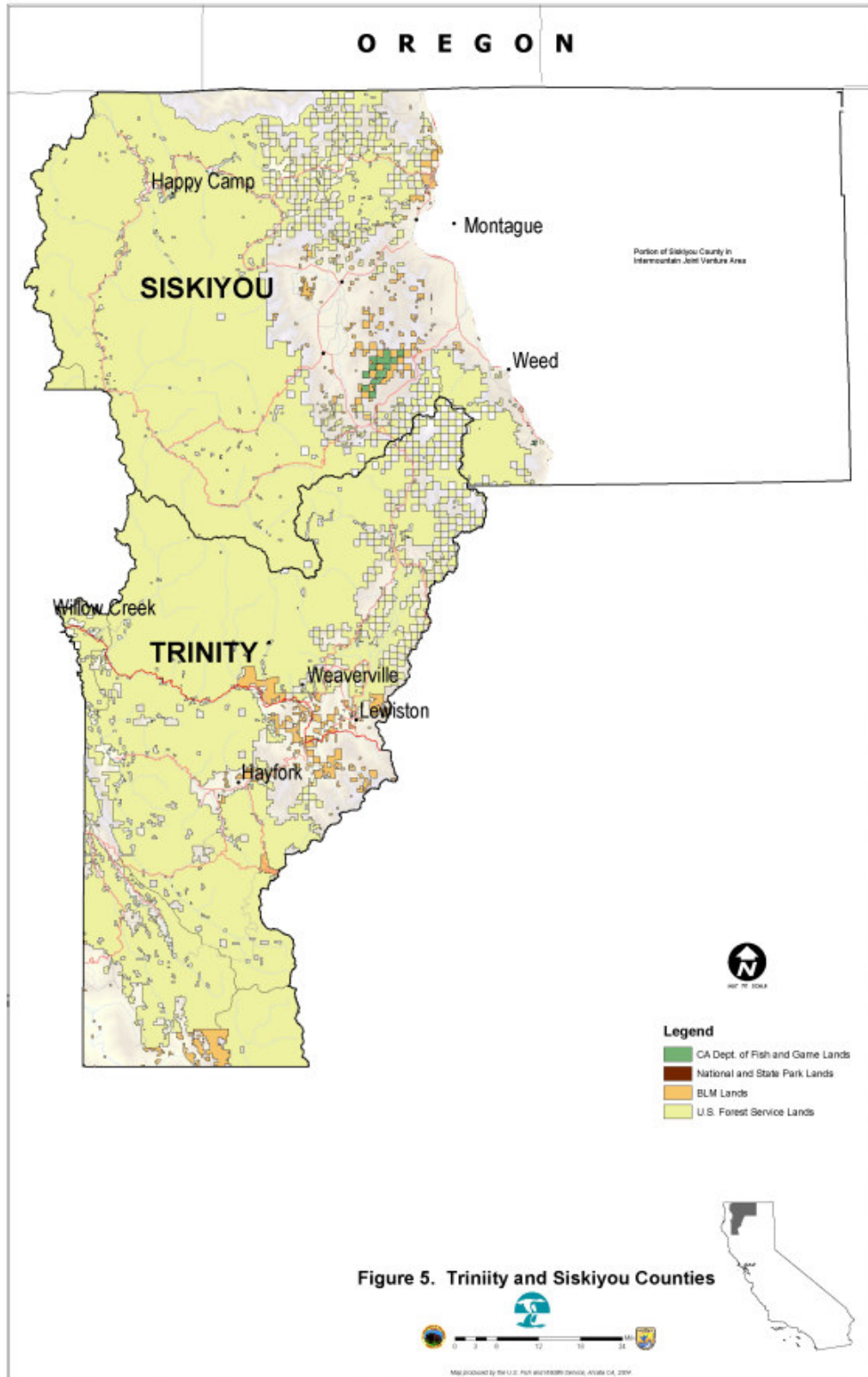


Figure 5. Trinity and Siskiyou Counties

Figure 5. Siskiyou and Trinity Counties

Trinity and Siskiyou counties are primarily forested regions of the Lower Klamath biotic province, with tree species diversity among the highest in the world. The area also includes a few important

riparian and floodplain areas as well as many of the region's existing and former wetlands adjacent to the interior valleys of the Scott and Salmon Rivers in Siskiyou County, the Lower Klamath and Trinity River systems, the Eel River system, and the northern portion of the Russian River system in Trinity County (Figure 5).

The People

The Northern California Coast Northern Focus Area is relatively uncrowded with a population of 258,000 (2000 census) that has increased steadily over the past 50 years, reflecting a more diverse and robust economy. The breakdown by counties includes 27,500 residents in Del Norte County, 127,500 in Humboldt County, 86,000 in Mendocino County, 13,000 in Trinity County and approximately 4,000 in western Siskiyou County. Eureka, located on Humboldt Bay, is the area's largest city (population 26,000). Other significant population centers include Arcata, Crescent City, Ferndale, Fort Bragg, Fortuna, McKinleyville, Ukiah, Weaverville, and Willits. Many smaller communities are located along the area's main highways.

Forest products, commercial fishing, agriculture, mining, and tourism have traditionally been the region's economic base. In recent times employment in the forest products industry has declined. The commercial fishing industry has also experienced a decline because of diminishing stocks of many harvested species, including salmonids. Near the coast, grazing of sheep, beef cattle, and dairy herds are important activities. Vineyards occupy the valleys near Ukiah and Hopland. Cattle grazing and haymaking are important businesses near Scott Valley. Small-scale gold-dredging continues along portions of the Trinity River and gravel mining occurs on selected river bars. In recent years, small scale manufacturing, service industries, recreation and tourism have become increasingly important factors in the local economic picture.

Coastal Wetland Ecosystems

Coastal wetland ecosystems are among nature's most productive ecosystems, essential to internationally significant populations of migratory birds and a wide diversity of other wildlife and fish species. The focus of the PCJV encompasses four important components of coastal wetland ecosystems:

Tidal Wetlands

Tidal wetlands are areas where the land is flooded during only a portion of the tidal cycle. These wetlands include important estuarine habitats such as eelgrass beds, salt marshes, and mudflats. Estuaries are the richest and most imperiled ecosystems on the Pacific Coast. PCJV partners place a high priority on estuarine programs because industrial, commercial and residential activities remain a major threat to the existence of these habitats.

Palustrine Dune Wetlands

Many of the vernal wetlands and ponds of palustrine dune wetlands (also called dune hollows) occupy several areas around Humboldt Bay. Many are still in private ownership and need protection. Dune swales are seasonal, freshwater wetlands that form in the troughs between dune ridges or in the deflation plain behind moving dunes. Standing water is common in winter months, but dune swales are completely dry during the summer.

Many dune swales have become degraded by the presence of exotic plant species that have interrupted dune processes (in some cases, preventing the hollows from expanding in size as dune sands are eroded).

Marine Areas

Marine ecosystems include open ocean, small bays, sheltered inlets, and nesting cliffs and islands. While under federal and state government administration, and not threatened by direct habitat loss, these areas are subject to degradation through increased marine traffic, pollution, and destructive methods of harvesting fish and other wildlife resources.

Freshwater Wetlands

Freshwater wetlands include rivers, streams, lakes, ponds, marshes, seasonally flooded meadows, and riparian areas. These wetlands provide breeding habitat for water birds, songbirds, amphibians, and spawning salmon. They also filter pollutants and assist in flood control. Habitat loss and degradation result from draining and filling, dredging, pollution, erosion, and run-off from adjacent lands.

Upland Habitats

Upland habitats include farmlands, forests, and other lands adjacent to wetlands. They provide winter habitat and wildlife movement corridors and are critical to maintaining water quality. Farmland provides feeding and resting areas for wintering and migrating waterfowl, shorebirds and other wildlife. These important habitats are threatened by urbanization, non-sustainable agriculture and poor forestry practices.

Wildlife Resources

The diverse mixture of habitat types found in northwestern California supports a wide variety of wildlife. Almost 450 species of birds and 60 species of mammals are known to occur here. At least 30 species of reptiles and amphibians have also been recorded, as well as many species of fish.

The coastal bays and wetlands attract hundreds of thousands of migratory birds during their passage between breeding grounds and wintering areas. The area provides key foraging and/or breeding habitat for several threatened, endangered, sensitive, and state special concern species including the Bald Eagle, Peregrine Falcon, Snowy Plover, Marbled Murrelet and Brown Pelican. Many rivers and streams entering the ocean support runs of Coho and Chinook salmon, steelhead trout, and coastal cutthroat trout. The bays and estuaries formed at the mouths of these rivers and streams are important nursery areas for many fish and other aquatic life forms.

Waterfowl

All of the coastal lowlands, including the Humboldt Bay/Eel River area and the Lake Earl/Smith River bottoms are important migration and wintering areas for approximately 2 dozen species of waterfowl and host anywhere from 25,000 to 100,000 birds on any given day from fall through spring. Among the most evident and numerous of species are Tundra Swan, Brant, Aleutian Cackling Goose, American Wigeon, Northern Pintail, Green-winged Teal, Mallard, Northern Shoveler, Canvasback, Redhead, Ruddy Duck, Greater and Lesser Scaup, and Bufflehead.

Humboldt Bay is particularly important for Brant (an Arctic nesting sea goose) because of its extensive and productive eelgrass beds and its location on the flyway. Humboldt Bay has the largest eelgrass beds on the west coast north of bays in Baja Mexico where the majority of Brant winter. Based on marked-resight data of banded birds it is estimated that over 40% of the Pacific Flyway population of brant use Humboldt Bay as a migratory stopover in the spring. It is not uncommon for more than 10,000 Brant to be on South Bay from late February through mid-April.

In recent years, introduced populations of resident Western Canada Goose (native to the Great Basin) have begun using the Humboldt Bay area. Western Canada geese are not native to the Humboldt Bay area but were transplanted in the late 1980's by local waterfowl enthusiasts in order to build a population large enough to sustain hunting. This population is now relatively stable in both state and federal wildlife areas in Humboldt and Del Norte counties and on agricultural lands immediately surrounding Humboldt Bay, the Eel River Delta and in the Crescent City/Smith River Delta area. Recent population estimates range between 1500-1900 birds supporting a limited harvest of about 200-250 birds per year (J.Black, pers.comm.).

A developing conservation problem in the north coast region of California involves the current population increase of the once endangered subspecies, the Aleutian Cackling Goose and the controversy surrounding their use of agricultural land as foraging habitat. Specifically, northcoast land managers must be exceptionally conscientious in their handling of this issue due to the intense public scrutiny to which such a problem will be subject, as well as the potential to set precedent for similar management issues.

The decline of the Aleutian Cackling Goose began with the release of Arctic and red foxes by fur farmers and trappers on the Aleutian Islands of Alaska within the nesting range of the goose in the 1700's-early 1900's (USFWS 2001). Predation by these non-native foxes led to the near-extirpation of this distinctive Cackling Goose subspecies. In addition, Aleutians were subject to hunting pressure throughout their range in the Pacific Flyway, particularly the migration and wintering grounds in California's Central Valley. Habitat alteration or loss throughout its migration and wintering range contributed to the decline. As a result of these combined factors, the Washington, Oregon, and California population of Aleutian Cackling Goose was listed as Endangered by the U.S. Fish and Wildlife Service in 1967 (32 FR 4001) (USFWS 2001).

A variety of conservation initiatives resulting from the Aleutian Cackling Goose Recovery Program were instituted. These included the removal of foxes from nesting sites; the closing of Canada/Cackling Goose wintering and migration areas to hunting of Aleutians; the translocation of wild geese caught on fox-free islands in the Aleutians, and habitat conservation (land acquisition, easements, and cooperative management). As a result of such management actions, the Aleutian Cackling Goose population began a remarkable recovery and the subspecies was reclassified as Threatened in 1990 (55 FR 51106) and finally delisted in 2001 (66 FR 15643).

The Aleutian Cackling Goose populations on the north coast of California have increased dramatically from previous years. Both the Crescent City and Humboldt Bay areas of the north coast, within the realm of the California Pacific Coast Joint Venture, serve as important spring staging areas for Aleutian Cackling geese preparing for migration to their breeding grounds in the Aleutian Islands (Bachman 2003, Dahl et al. 1999). Although some of these staging sites were used historically by the birds, several new sites have been established within the past six years (Black et al. 2003 *in* Bachman 2003). In addition, extensive tracts of well-managed agricultural pastures

upon which livestock are placed in the Crescent City and Humboldt Bay areas appear to be favored by Aleutian Cackling Geese.

Controversy has arisen among community members on the north coast as a result of the use of agricultural land by Canada/Cackling geese. The most intense grazing of agricultural land on the north coast by geese is a result of migrating Aleutians stopping over en masse and congregating during late winter and early spring although other geese use these areas as well, such as the larger Western Canada Goose (*B. c. moffitti*). Patterns of seasonal use vary significantly between the two subspecies. Aleutians depart Central Valley wintering grounds in late winter, arriving and then lingering in great numbers until March in dairy pastures of coastal Humboldt and Del Norte counties. Assembling in flocks of thousands and maintaining consistent daily foraging patterns, they consume a significant volume of forage in a relatively short period of time. While exhibiting some seasonal movement, Western Canada Geese are largely resident, occur in smaller numbers, and remain more evenly spread across the landscape.

Foraging pressure on agricultural lands has intensified in recent years with increased use of the Crescent City and Humboldt Bay areas by both Canada and Cackling Geese (Black et al. 2003 in Bachman 2003). Such extensive use of agricultural land by geese has prompted the initiation of a hazing program in the Crescent City area. Presumably as a result of such efforts in Crescent City, researchers have documented a shift in habitat use from the traditional spring staging area for Aleutians in the Crescent City area to the Humboldt Bay area, causing similar issues to arise there (Bachman 2003). Land managers on the northcoast are left with the difficult and sensitive task of managing a perceived overpopulation problem involving a subspecies whose population remains the smallest goose population in the world the recovery of which was an extraordinary success for the United States Fish and Wildlife Service (USFWS) whose efforts resulted in the return of the population from the brink of extinction and its subsequent delisting.

Shorebirds

The coastal wetlands in Northwestern California, especially those near Humboldt Bay and the Eel River delta, are a critical resource for shorebirds. In Del Norte County the Smith River estuary has held up to 4,000 shorebirds in fall (PRBO unpubl. data). Lake Talawa, has held over 13,000 shorebirds (PRBO unpubl. data). In Humboldt County, Humboldt Bay (including the Eel River mouth) –is recognized as a site of International Importance for shorebirds by the Western Hemisphere Shorebird Reserve Network (WHSRN). Depending on season 20,000 to 80,000 shorebirds reside in Humboldt Bay (Colwell 1994). While most species also occur in other coastal and/or inland wetlands, it appears that the entire population of the Aleutian subspecies of the Marbled Godwit winters primarily in these wetlands.

Numbers of shorebirds utilizing Humboldt Bay and surrounding seasonally wet pasturelands are higher than those for any other bay or estuary in California, except San Francisco Bay.

Integrated Bird Conservation

Implementation of the North American Waterfowl Management Plan has always emphasized habitat conservation, not only for waterfowl, but for a wide variety of wildlife (e.g., fish, amphibians) and other values (e.g., water quality, hydrology). The plan also recognizes the importance of adjacent upland habitats to healthy wetland habitats with the concept of wetland-

associated uplands. The 1998 update of the plan encouraged partners to expand the wetland and waterfowl focus to include collaboration with other bird and habitat initiatives. With the strong evolution of other bird initiatives and the emergence of the North American Bird Conservation Initiative (NABCI) as a unifying theme for all-bird conservation, the opportunities for broader-scale conservation outside of wetlands are a considerably greater reality than they have been in the past.

The Pacific Coast Joint Venture has generally focused on wetland and related aquatic habitats. However, PCJV partners recognize the importance of healthy watersheds for wetland habitats; thus, they have broader ecosystem-level interests and visions. Additionally, because of the landscape-scale approach to many projects and the interconnectedness of upland habitats within those landscapes, PCJV projects have often included conservation of upland habitats. This has been particularly true for lowland riparian (forest and shrub) and open herbaceous-dominated habitats (e.g., agricultural, tundra) that are often integral to wetland projects. These upland habitats have been included opportunistically in projects where partners have recognized their value and an opportunity was available. As integrated bird conservation evolves under the NABCI, PCJV partners not only will be continuing this opportunistic upland habitat conservation, but also looking to initiate upland-driven projects under the PCJV banner.

Among species groups, conservation of shorebirds and waterbirds and some riparian landbirds is often very compatible with the traditional PCJV conservation model, i.e. secure conservation status for a wetland site (e.g., acquisitions, easements, etc.) then conduct necessary enhancement or restoration activities. Thus, conservation of these groups of birds often falls neatly under the umbrella of traditional PCJV wetland conservation. California PCJV partners will continue to pursue this type of conservation while looking for opportunities to enhance shorebird and waterbird protection and habitat values in wetland-driven projects.

The conservation of forest landbirds and their habitats, which comprise a significant portion of the PCJV, is a very different model from that of most wetland-driven conservation. Most forest lands are under large blocks of ownership (e.g., government, tribal, industrial) and they are not under significant threat of loss or conversion to non-forest. The bird conservation model in these habitats is forest management which can be achieved on a small-scale when implemented on a project-by-project basis, but will be most effective when integrated into policy that has the potential to impact large areas of forest for bird conservation. California PCJV partners will promote conservation of forest landbirds opportunistically through wetland-driven projects, and proactively through other partners in their efforts to address integration of landbird conservation objectives and recommendations into forest policy and planning.

A list of northern California bird species with special conservation status is included as Table 2.

Species	Status Code	Species	Status Code
California Brown Pelican	FE,SE,CFP	Surfbird	BCC
Trumpeter Swan	CFP	Red Knot	BCC
Aleutian Cackling Goose	FE (Recovered)	Western Sandpiper	PI
Osprey	CSC	Rock Sandpiper	BCC
White-Tailed Kite	CFP	Dunlin	PI
Bald Eagle	FT,SE,CFP	Long-billed Dowitcher	PI
Northern Harrier	CSC	Wilson's Snipe	PI
Sharp-shinned Hawk	CSC	Red Phalarope.	PI
Cooper's Hawk	CSC	Caspian Tern	BCC
Northern Goshawk	FSS	Arctic Tern	BCC
Swainson's Hawk	FSS	Marbled Murrelet	FT,SE
Golden Eagle	CFP	Yellow-billed Cuckoo	FC,SE,BCC
Merlin	CSC	Spotted Owl	FT, , MNBMC
Peregrine Falcon	BCC	Great Gray Owl	SE,FSS
American Peregrine Falcon (recovered)	FE (Delisted), SE,CFP,FSS	Long-eared Owl	CSC
Greater Sandhill Crane	CFP,FSS	Black Swift	BCC
			FSC, CSC,
Black-bellied Plover	PI	Vaux's Swift	MNBMC
Western Snowy Plover	FT, CSC, PI	Rufous Hummingbird	BCC
Killdeer	PI	Lewis's Woodpecker	BCC
Mountain Plover	PI	White-headed Woodpecker	BCC
Black Oystercatcher	BCC,PI	Olive-sided Flycatcher	FSC,BCC
American Avocet	PI	Willow Flycatcher	SE,FSS
Greater Yellowlegs	PI	Purple Martin	CSC
Willet	PI	Bank Swallow	ST
Whimbrel	BCC,PI	California Thrasher	FSC, , MNBMC
Long-billed Curlew	BCC,PI	California Yellow Warbler	CSC
Marbled Godwit (beringiae ssp. only)	BCC,PI	Hermit Warbler	FSC, ,
Black Turnstone	BCC,PI	Yellow-breasted Chat	CSC
		Vesper Sparrow (affinis ssp. only)	BCC

SE - Listed as Endangered by the State of California
ST - Listed as Threatened by the State of California
FE - Listed as Endangered by the Federal Government
FT - Listed as Threatened by the Federal Government
FPD - Federally Petitioned for Delisting
FSC - Federal Species of Special Concern
CSC - California Species of Special Concern

Table 2. Special Status Bird Species of Northwestern California

Threats to Wetland Habitats

While human populations in southern and central California counties are increasing 30% per decade, populations within this area are increasing at 10-15%. Residential and commercial development is increasing and spreads outward from all the cities in the area including Crescent City, McKinleyville, Arcata, Eureka, Fortuna, Willits, Ukiah, and Fort Bragg. As development continues, many small wetlands are vulnerable to filling and draining, often without benefit of permits.

Many creeks and natural drainages are stripped of riparian vegetation and often channeled into culverts, receiving peak flows from adjacent paved and developed areas. The waters lack vegetation to assist in filtering out sediments and pollutants prior to entering creeks and drainages, increase erosion through concentrated discharge, and reduce water quality.

As we are experiencing an increase in population we are also experiencing a change in the demographics of the population. As the population becomes more urban, and as populations become more ethnically mixed, we get changing land values.

Fortunately, many of the area's major wetland areas are offered some measure of protection under California Coastal Commission regulations and the U.S. Army Corps of Engineers' Section 404 permit requirements. However, protection is not certain and losses of wetlands continue to result from draining and filling (often illegally) to reclaim or improve agricultural lands, and for residential, commercial, and industrial purposes. Water quality may also be threatened by failing septic systems and the introduction of inadequately treated wastewater.

Agricultural, timber, and mining operations, continue to threaten wetland habitats as a result of related draining, point source and non-point source pollution, removal of vegetation, and increased water, and pesticide use. Although most of the area's seasonally wet pasture lands are zoned for agricultural uses under the local coastal plans, some permitted activities can be detrimental to wetland habitat, including improved drainage. Loss of riparian habitat is of particular concern. Riparian forests are still being cleared to increase land available for farming purposes. Riparian habitat is also lost through surface gravel mining. Timber and mining operations continue to represent threats to some wetlands through erosion and siltation

Existing Habitat Protection

The California PCJV region presently contains approximately 7,910 hectares (19,590 acres) of secure habitat (habitat that is protected from adverse development such as that in state parks, wildlife areas, refuges etc.).

Del Norte County

The largest and most productive area in Del Norte County is the Smith River floodplain. It covers an area of about 18,200 hectares (45,000 acres). The remaining undeveloped lands include a variety and interspersions of vegetative types, combined with the streams, wetlands, and inshore ocean waters, and so provide habitats attractive to many forms of wildlife.

Beginning near Point St. George and extending north to the mouth of the Smith River, the landscape is dominated by coastal sand dunes. In places, the dunes extend as far as 760 meters (2,500 feet) inland and reach elevations of up to 20 meters (60 feet) above sea level. Maritime forests of beach pine and Sitka spruce are scattered throughout the dune habitat. Dense willow and alder thickets are common in wet areas. Also scattered throughout the dune community are a number of ponds and marshes.

The dominant wetland features associated with the coastal dunes are Lakes Earl and Tolowa. Lake Earl is the larger of the two lakes and its waters are fresh to slightly brackish. The waters of Lake Tolowa are much more brackish. These lakes are actually coastal lagoons that periodically breach the barrier dune, allowing interchange of fresh and salt water. This natural breaching has been replaced by artificial breaching as a means to lower lake levels and increase lands available for livestock grazing. Because of the shallow water depths, the lakes produce dense growths of submergent aquatic vegetation.

Areas currently receiving some level of habitat protection in Del Norte County include Lake Earl Wildlife Area [2,300 hectares (6,000 acres)], Tolowa Dunes State Park [2,400 hectares (6,000 acres)], Castle Rock National Wildlife Refuge [34 hectares (84 acres)], Elk Creek Wildlife Area [50 hectares (120 acres)], Crescent City Marsh Wildlife Area [135 hectares (335 acres)], Redwood National Park Wetlands [~50 hectares (~120 acres)], and Waukell Creek Wildlife Area [10 hectares (27 acres)]. Conservation needs in these areas are discussed in greater detail in Chapter 4.

Humboldt County

Humboldt County provides a range of wetland habitats similar to those found in Del Norte County, but of greater variety and over a larger area. In total, Humboldt County provides the greatest variety of wetland habitat types in northern California, including the second largest estuarine complex in the state (after San Francisco Bay and the Sacramento-San Joaquin delta). Humboldt Bay, the Mad River estuary, and the Eel River delta function as a single habitat complex, providing at least 8,000 hectares (20,000 acres) of low-lying seasonal wetland (diked former tideland); 8,000 hectares (20,000 acres) of tidal marsh and intertidal flat; and at least 1,800 hectares (4,500 acres) of tidal channels, sloughs, and other deepwater estuarine habitats. This wetland contains approximately 400 hectares (1,000 acres) of floodplain riparian forest, most occurring within the Eel River Delta, as a remnant of what was formerly a predominant wetland type in this region; this habitat type is recognized as one of the most important for migratory birds in northern California.

Associated with the coastal wetlands are a variety of other environmentally important areas. Sand dunes west of Humboldt Bay contain a total of about 640 hectares (1,600 acres) of dune forest, vegetated dunes, and open sand and is recognized as the most complete and least-disturbed dune ecosystem on the west coast of the United States. These dune areas provide key habitat for two endangered plant species (Menzies wallflower and beach layia), and threatened Snowy Plovers nest on the ocean side of dunes west of Humboldt Bay and the Eel River delta. Coastal marshes in this complex provide essential habitat for two additional threatened or endangered plants (Humboldt Bay owl's clover, and saltmarsh bird's-beak). The marine habitats inside Humboldt Bay and the nearshore waters of Humboldt Bay, Redwood Creek, and the Klamath River provide foraging for the threatened Marbled Murrelet, which nests in old growth forests adjacent to the coast. Peregrine Falcons, a state endangered species, are common winter visitors and recently have increased in numbers with nesting adjacent to coastal areas, where shorebirds constitute their major prey base.

Areas currently receiving or slated to receive some level of habitat protection in Humboldt County include Redwood Creek Estuary [120 hectares (300 acres)], Freshwater Lagoon [50 hectares (130 acres)], Dry Lagoon State Park [230 hectares (570 acres)], Big Lagoon Wildlife Area [590 hectares (1,600 acres)], Mad River Slough Wildlife Area [210 hectares (520 acres)], Arcata Marsh and Wildlife Sanctuary [100 hectares (250 acres)], Jacoby Creek Bottoms [120 hectares (300 acres)], Fay Slough Wildlife Area [200 hectares (500 acres)], Eureka/Palco Marsh [16 hectares (40 acres)], Elk River Wildlife Sanctuary [120 hectares (300 acres)], Elk River Wildlife Area [35 hectares (103 acres)], Humboldt Bay National Wildlife Refuge [1,250 hectares (9,000 acres)], and Eel River Wildlife Area [600 hectares (1,480 acres)]. These areas are discussed in greater detail in Chapter 4.

Mendocino County

Mendocino County is characterized by forested coastal mountains incised by numerous small rivers and streams. Much of the wetland habitat is associated with these river mouths.

Areas currently receiving or slated to receive some level of habitat protection in Mendocino County include Manchester State Park [308 hectares (760 acres)], Westport Union-Landing State Beach [24 hectares (60 acres)], Russian Gulch State Park [470 hectares (7,630 acres)], Jug Handle State Reserve [311 hectares (769 acres)], Mackerricher State Park [698 hectares (1,725 acres)], Mendocino Headlands State Park [151 hectares (374 acres)], Big River Unit of Mendocino Headlands State Park [2,996 hectares (7,400 acres)]. These areas are discussed in greater detail in Chapter 4.

Trinity and Siskiyou Counties

The primary wetland habitats in Trinity and Siskiyou counties are associated with the Klamath and Trinity Rivers and their larger tributaries. The surrounding lands are largely composed of extensive forests, much of which has a long history of management.



CHAPTER 4. STRATEGIC PLAN

Habitat Objectives

The California PCJV partners have identified priority areas and some habitat conservation objectives in Northwest California. These are outlined below. This includes lands already receiving some level of protection through ownership by local, state, or federal agencies. Priority areas have been identified using their existing wetland values, potential for restoration and improvement, proximity to other public lands, public use, and costs of whatever protection and enhancement measures may be appropriate.

Most of the identified priority lands in the coastal areas fall below the 10-foot (3-meter) contour. Most of these lands were formerly tidelands, swamp, and overflow lands that have been reclaimed for agriculture through construction of levees and installation of drainage systems. Ownership was conveyed from the federal government to the State of California in 1850 and many have been transferred from public to private ownership during preceding years. Although ownership was conveyed to private interests, these lands are still subject to the Public Trust under the granting statutes. This Public Trust is retained by the State and administered through the State Lands Commission. Therefore, use of these lands is restricted and subject to State Lands Commission approval. Recreation, ecological preservation, and aquaculture are permitted uses.

Identified priority areas do not encompass all wetlands in coastal Humboldt, Del Norte, Mendocino, Trinity, or Siskiyou counties. Identification of priority areas does not mean that wetland, riparian, or other habitats outside these zones should not be protected. All necessary efforts should be made to provide protection through regulatory processes, local zoning ordinances, cooperative landowner agreements, or other measures that may be appropriate.

It is proposed that emphasis for meeting the objectives of the Strategic Plan objectives be directed towards the identified priority areas as these areas presently contain extensive wetland habitats that support high numbers of migratory birds and other water-associated wildlife. They also provide the greatest opportunities for enhancement at minimal development and maintenance costs. Because of soil types, drainage problems, and other factors, many of the lands included within designated priority areas are not highly productive for use in agriculture other than for livestock grazing. Thus, landowners may be more receptive to some amount of wetland preservation or enhancement, particularly if monetary incentives are provided through conservation easements, cooperative funding projects, or other means.

Identification of priority areas does not suggest that land acquisition be conducted by public agencies. No such proposal is being made and it is important that local landowners understand this. However, acquisition and easement proposals can be considered on some lands where willing sellers or participants are involved. It is recommended that, where possible, objectives be met through cooperative working relationships with local landowners and incentive programs to encourage wetland preservation and enhancement.

The PCJV objectives for the Northern California Component are generally based on habitat levels present in 1970 and include the following measures:

- Maintain 8,800 hectares (22,000 acres) of seasonal wet pastureland in agricultural uses compatible with providing habitats for migratory water-associated birds and other wildlife.

- Permanently protect an additional 4,200 hectares (10,500 acres) of key wetlands through easements or fee acquisitions.
- Acquire additional lands for addition to existing wildlife areas as those lands become available.
- Restore and enhance riparian areas along streambeds disturbed by timber harvest, agriculture, or mining by planting riparian vegetation and encouraging landowners to contour streams to create ponds and wetland areas.
- Protect, restore, and enhance 4,040 hectares (10,100 acres) of wetlands on existing public lands.
- Assist landowners to protect, enhance, and restore 2,000 hectares (5,000 acres) of wetlands, riparian forests, and other associated wildlife habitats through various cooperative projects.

Population Objectives

Well-defined population goals are available for many waterfowl and shorebird species, and are presently being developed for representative landbird species. In any case, meeting population goals is best achieved through habitat goals. The overall waterfowl objective is to maintain populations equal to the greatest population since 1970 as follows:

- To provide and maintain habitats capable of supporting a peak wintertime population of 80,000 ducks and 17,500 brant and geese, providing 13,000,000 waterfowl use days from September through April.
- To provide and maintain habitats capable of supporting peak migration and wintering populations of shorebirds numbering at least 200,000, providing 20,000,000 use days from August through May.
- To provide and maintain habitats capable of supporting other water-associated wildlife in numbers no fewer than current levels, providing an estimated 20,000,000 use days on an annual basis.

Information, Education, and Recreation Objectives

The California PCJV Steering Committee has adopted specific objectives for informing and educating the public about the values of wetland and riparian habitats, to include the following:

- To foster understanding, involvement, and commitment among government and non-government entities, and public and private landowners to accomplish Pacific Coast Joint Venture objectives.
- To educate the public about wetland, riparian and upland habitat functions and values to help create an en-lightened conservation ethic.

- To encourage scientific and educational use of wetland, riparian and upland habitats.
- To provide for optimum recreational use of wetland, riparian and upland habitats for purposes related to natural resources to the extent that such uses do not adversely affect such resources.

Target Issues

California Coastal Act

Restoration/Enhancement projects in the coastal zone (under the California Coastal Act) are considered by many to be difficult to implement in part because there are special requirements for development projects.

A wide spectrum of government and NGO (non-government organizations) entities are struggling with these special permitting issues. Some entities are avoiding the coastal zone when proposing projects to circumvent the increased costs of implementation. Others, e.g. the Coastal Conservancy, end up spending money on the permitting issues rather than the implementation. The end result is that many worthwhile and important restoration/enhancement projects are not being done in the Coastal Zone or are being done at greater costs. There is a widespread belief that this process could be streamlined and better defined so that appropriate and worthwhile projects can be implemented more efficiently.

Challenges for working in the Coastal Zone fall within three categories.

1. Projects proposed for the Coastal Zone are not always appropriate under the Coastal Act. For example, it is not considered appropriate to convert one kind of wetland habitat into another, e.g. to dike salt water wetlands to create fresh water wetland habitat.
2. Permit applications for projects that are appropriate are often submitted to the Coastal Commission with insufficient or inappropriate information. This leads to delays in processing and often results in applications being returned to the project promoter for clarification and additional information.
3. Under the Coastal Act, enhancement/restoration projects are treated the same as any other 'development' projects. This then often imposes mitigation ratios on portions of the project that are difficult to meet on the project site. This situation either impacts the overall ability of the project to achieve the desired goals, or requires offsite mitigation efforts that increase the cost of the project.

The following solutions are proposed for resolving this challenge.

1. Develop a guide to restoration and enhancement activities appropriate under the Coastal Act. This guide would be in the form of a small brochure and would also be available on the California PCJV web site.
2. Develop a check list or flow chart that would guide project proponents through the Coastal Commission (and other agency) permitting processes. This would not only list the required components, but would give examples that would illustrate the level of detail necessary for each of the components. This check list/flow chart would also be available on the PCJV web site for downloading.

3. Approach the Coastal Commission with a proposal for distinguishing projects that have restoration and enhancement as primary or sole functions and allow for a separate and distinct permitting process for these projects.

Preliminary discussion with the Coastal Commission and some of their staff members has indicated that the existence of this problem is well known. Discussion with a variety of project proponents (e.g. US Fish and Wildlife Service, California Department of Fish and Game, California Waterfowl Association, Pacific Coast Fish, Wildlife and Wetlands Restoration, etc.) indicate that a generic solution to these problems is preferable to a project-to-project solution or an agency by agency solution. The Pacific Coast Joint Venture seems to be an appropriate vehicle for working with the Coastal Commission and producing the described products, as solutions would be more likely applicable to a broader range of projects and proponents.

Aleutian Cackling Goose

Given the visible treatment of the Aleutian Cackling Goose issue on the north coast, it is important to take a proactive approach to support and facilitate efforts at finding a feasible solution to the problem. Avenues through which the Pacific Coast Joint Venture can assist efforts toward this end include the following:

- Support research projects aimed at setting a science-based population objective for Aleutian Cackling Geese on the northcoast;
- Support research efforts that explore alternative avenues of addressing the Aleutian Cackling Goose issue
- Provide monetary incentives to stop hazing/harassment of geese, such as leasing of farmland, land purchase, and conservation easements.
- Facilitate the interaction of researchers/managers whose collaboration on similar or related projects might be beneficial in addressing the issue in the most comprehensive way possible.

Area-wide Recommendations:

The following recommendations are considered suitable for a large part of the northern California focus area.

- Restore diked former tidelands where feasible and appropriate.
- Restore or enhance floodplain riparian forests.
- Support research to evaluate estuarine habitat needs of anadromous fish, and identify criteria and potential sites for habitat rehabilitation.
- Support long-term, management- related research on the interaction between agricultural practices (e.g., grazing and haying) and forestry practices and waterfowl use in coastal lowland pastures.
- Initiate active seasonal management of water control structures to enhance existing wetland habitat where feasible and appropriate.

- Support creation of wetlands for water quality management where feasible and appropriate.
- Acquire additional wetland areas from willing sellers.
- Pursue cooperative management agreements with private landowners to protect, restore, or enhance wetland and wildlife values.
- Acquire land from willing sellers for restoration or enhancement purposes.
- Evaluate privately owned lands for existing wetland values and the potential to restore or create wetlands.
- Work with private landowners to pursue opportunities for cooperative wetland and riparian enhancement projects.
- Explore use of riparian conservation easements.
- Work with fisheries agencies to reduce the damaging effects that stream channelization could have on wetlands.
- Work with rural conservation districts (RCDs) and Natural Resources Conservation Service (NRCS) to plant riparian vegetation along stream channels.
- Work with local conservation groups to reduce non-native vegetation.
- Support retention of current zoning to protect existing habitat values and to protect agricultural lands from more intensive development.

Target Areas

The following discussion is broken down into sections identifying recommendations for specific target areas and general proposals that are directed toward acquisition, restoration, enhancement, and management of wetland and riparian habitats throughout northwestern California.

Del Norte County

Lower Smith River Delta - Parts of the Smith River Delta that are most important to wildlife use cover approximately 2,000 hectares (5,000 acres). Much of the original habitat has been altered drastically by farming and livestock grazing. However, the area is still used extensively by water-associated migratory birds and many other species of wildlife. Many sloughs, ponds, seasonally flooded pastures, and remnant stands of riparian vegetation provide habitats for both migrant and resident species. The area is used during the fall, winter, and spring months by thousands of waterfowl, including the Tundra Swan and recently delisted Aleutian Cackling Goose. Censuses conducted from 1970 to 1973 indicated an average of at least 295,000 annual bird-days.

The Smith River and its major tributaries are one of the most productive water systems in California for anadromous fish which supports Coho salmon, Chinook salmon, chum salmon, steelhead rainbow trout, and coastal cutthroat trout. The estuary of the Smith River is important in the life

cycle of salmonids as adults pass through on their way to spawn and as a nursery area for the young downstream migrants.

Recommended Actions:

- Restore or enhance floodplain riparian forests near the Smith River.

Lake Earl Wildlife Area – Located just north of Crescent City, Lake Earl Wildlife Area encompasses approximately 2,300 hectares (5,600 acres) including wetland as well as coastal dune and associated upland habitats that receive “State Wildlife Area” protection and are owned and managed by the California Department of Parks and Recreation. Lake Earl Wildlife area consists of high-quality habitat for a wide variety of species, including approximately 1,000 hectares (2,500 acres) of water surface and habitats comprised of dune communities, grasslands, and coastal forests. Numerous seasonal and perennial wetlands are scattered throughout the upland habitats. Federal- or state-listed species occurring here include Bald Eagle, Peregrine Falcon, Brown Pelican, tidewater goby, and Oregon silverspot butterfly. The area is particularly important as migratory and over wintering habitat for water-associated birds. Aerial census counts conducted from 1970 to 1973 by the Department of Fish and Game yielded the following population estimates expressed in average annual bird-days use:

<u>Species Group</u>	<u>Average Annual Bird Days Use</u>
Waterfowl	1,745,000
Shorebirds	124,000
Wading Birds	10,000
<u>Other water-associated birds</u>	<u>1,107,000</u>
Total	2,986,000

The lake also supports a variety of fish, including Coho salmon, Chinook salmon, steelhead trout, and coastal cutthroat trout.

Recommended Actions:

- Enhance wetland values and wildlife values on public lands managed by the California Department of Fish and Game.
- Work with the public and with public and local agencies to resolve lake management concerns while protecting habitat values.
- Acquire forested areas adjacent to the lake to provide roosting areas for water-associated birds and raptors.

Tolowa Dunes State Park - Publicly owned and managed by the California Department of Parks and Recreation, this area is approximately 2,400 hectares (6,000 acres) in size and extends from near Point St. George north to the mouth of the Smith River. Habitats include coastal dunes, coastal forests, grasslands, and wetlands. These wetlands are scattered throughout the other habitat types. Although no census figures are available, use of this area by water-associated birds and other wildlife is high. Federal- and state-listed species found on the Lake Earl Wildlife Area are also found on the Tolowa Dunes State Park.

Recommended Actions:

- Enhance wetland values and wildlife values on public lands managed by the Department of Fish and Game.
- Work with the public and with public agencies to resolve lake management concerns while protecting habitat values.
- Acquire existing wetlands south of Point Saint George (the Marhoffer Creek complex) from willing sellers, to be included in the project area.

Castle Rock National Wildlife Refuge – The Refuge is located about 2 miles offshore from Crescent City in Del Norte County, California and encompasses approximately 34 hectares (84 acres) and rises 335 feet. Due to negative impacts caused by disturbance as well as trampling of underground burrows used by nesting seabirds, public access to the island is restricted. A grassy flat provides an important feature for nesting seabirds and 20,000 – 50,000 wintering Aleutian Cackling geese that use the flat for roosting. Other features on the island are two large inlets and a variety of precipitous, vertical, and overhanging cliffs.

Recommended Actions:

- Maintain public access restrictions to protect the nesting seabirds, winter roosting habitat for Aleutian Cackling geese and hauling out areas for harbor seals, Steller’s and California sea lions, and northern elephant seals.
- Perform periodic review of site conditions as population of Aleutian Cackling geese increases.

Elk Creek Wetlands Wildlife Area - Wetlands associated with Elk Creek are located at the edge of Crescent City and behind the commercially developed strip along Highway 101. These wetlands include small ponds, sedge marshes, sloughs, and riparian vegetation. Adjacent uplands support dense stands of second growth coastal forests. The area of wetlands is approximately 240 hectares (600 acres) in size. Elk Creek supports populations of several species of anadromous fish including Coho salmon.

Recommended Actions:

- Acquire additional wetland areas to expand publicly owned lands in the Elk Creek wetland complex.
- Continue to work with Del Norte County in providing necessary public use trails, and interpretive signs within the wildlife area.
- Enhance wetland values and wildlife habitat values, especially in floodplain riparian forests, in existing public ownerships.

Crescent City Marshes Wildlife Area - The Crescent City marshes are also located east of the commercially developed strip along Highway 101 south of Crescent City. They extend from Elk Valley Road south to Howland Hill Road, and cover about 240 hectares (600 acres), 135 hectares (335 acres) of which are owned and managed by the California Department of Fish and Game.

Habitat types include open water, dense stands of emergent plants, sedge marshes, riparian vegetation, grasslands, and coastal forests. Recently, one of the largest known populations of the state and federally listed endangered Western lily was discovered within the Crescent City marshes.

Recommended Actions:

- Acquire additional wetland areas from willing sellers to consolidate public ownership of wetlands.
- Enhance wetland values and wildlife values on lands already publicly owned and managed by the Department of Fish and Game and Redwood National Parks.

Klamath River Delta - The delta is located about 30 kilometers (19 miles) south of Crescent City. It includes the Lower Klamath River floodplain and the wetland complex associated with Hunter and Panther creeks. The delta includes about 220 hectares (550 acres) of open water associated with the river and tidal areas; 110 hectares (280 acres) of fresh and brackish marsh; and 260 hectares (650 acres) of floodplain riparian forest. Shorebirds are the most numerous water-associated wildlife in the delta; several thousand birds are present during peak population periods from August through May. Smaller numbers of waterfowl are present during this period, particularly scoter, merganser, ruddy duck, scaup, bufflehead, and teal.

The Klamath River is extremely important to anadromous fish, including Coho salmon, Chinook salmon, and steelhead trout. Coastal cutthroat trout are present in the lower river and its local tributaries. Both white and green sturgeon occur in the lower river.

Recommended Actions:

- Pursue opportunities for cooperative wetland management, restoration, and enhancement projects with private landowners, especially near the Hunter Creek/Panther Creek complex.
- Restore and enhance wetland values and wildlife values, especially in floodplain riparian forests, on publicly owned lands in or adjacent to the Klamath River.
- Acquire additional wetland areas from willing sellers.
- Pursue cooperative management agreements among Department of Fish and Game, Redwood National Park, other public agencies, and tribal entities with respect to wetlands already in public ownership.

Humboldt County

Target Areas

Redwood Creek Estuary - The estuary is located near the town of Orick. It has been drastically affected by the construction of large flood control levees. The remnant estuary covers about 50 hectares (125 acres) of tidal flats, river bars, and open water. An estimated 570 hectares (1,415 acres) of pasturelands through which Redwood Creek flows are similar to other coastal pastures that tend to be water-saturated and flood easily during the rainy season. Both shorebirds and waterfowl

use these wet pastures. A few locally nesting Mallard and Cinnamon Teal are present during the summer months. Coho salmon, Chinook salmon, steelhead trout, and coastal cutthroat trout inhabit the stream.

Recommended Actions:

- Pursue cooperative management agreements among public agencies (especially the Corps of Engineers, Redwood National Park, and Humboldt County) for Redwood Creek estuary, leading to levee reduction and/or widening of the levees to allow for greater meander opportunity.
- Pursue cooperative agreements with private landowners to protect or enhance wetland and wildlife values.
- Restore and enhance floodplain riparian forests on Public Trust lands in or adjacent to Redwood Creek.

Stone Lagoon - Stone Lagoon is located on Highway 101, 61 kilometers (38 miles) north of Arcata. It covers an area of 210 hectares (520 acres) when full. The barrier dune that forms the lagoon is periodically breached, allowing water levels to drop considerably. Only one perennial stream (McDonald Creek) drains into Stone Lagoon. Just south of Stone Lagoon is a small side drainage known as Dry Lagoon that contains a marshy area dominated by emergent vegetation. This site was probably a former segment of Stone Lagoon. These wetlands are used by significant numbers of waterfowl and other water-associated birds from fall to spring. Over 670,000 average annual waterfowl bird-days use was recorded during aerial censuses from 1970 to 1973. Salmon, steelhead trout, and coastal cutthroat trout use the lagoon and its tributary.

Recommended Actions:

- Pursue cooperative management agreements with private landowners near McDonald Creek to protect wetland and wildlife values in McDonald Creek and Stone Lagoon.

Big Lagoon - The largest of Humboldt County's coastal lagoons is Big Lagoon, located about 39 kilometers (24 miles) north of Arcata. It includes about 590 hectares (1,600 acres) of open water and marsh. When full, almost the entire area is covered by water. At its fullest, and when ocean tides and currents are just right, a breach will occur in the barrier dune and water levels drop dramatically. The sandbar closes and over time, the lagoon will refill from its main tributary, Maple Creek. Sago pondweed and wigeon grass form dense submergent stands in some areas. Big Lagoon attracts thousands of waterfowl, shorebirds, and many other water-associated birds; a 1990-91 survey documented more than 360,000 annual bird use days. In addition, Big Lagoon and its tributaries support Coho salmon, Chinook salmon, steelhead trout, and coastal cutthroat trout.

Recommended Actions:

- Acquire additional shoreline and wetland acreage to consolidate public ownership, especially of wetlands east of Highway 101.
- Continue existing management practices for Big Lagoon.

Little River and the Little River Estuary - Little River is a relatively small coastal drainage that enters the Pacific Ocean about 10 kilometers (6 miles) north of the Mad River. The estuary is only about 10 hectares (30 acres) in size. The river meanders through a flat coastal floodplain covering approximately 360 hectares (900 acres). Over much of its length, the riverbanks are densely vegetated with willow and alder. Seasonal flooding of the pasturelands provides habitat for moderate numbers of waterfowl and shorebirds. The riparian cover along the river supports a nesting population of Wood Duck and occasionally Hooded Merganser. A few Mallard and Cinnamon Teal also nest locally. Little River supports runs of Coho salmon, Chinook salmon, steelhead trout, and coastal cutthroat trout.

Recommended Actions:

- Pursue cooperative management agreements with private landowners to protect, restore, or enhance wetland and wildlife values.
- Restore and enhance wetland and wildlife values on public trust lands in or adjacent to Little River, especially as floodplain riparian forest.
- Acquire land from willing sellers for restoration or enhancement purposes.

Mad River and the Mad River Estuary - The Mad River enters the Pacific Ocean 21 kilometers (13 miles) north of the entrance to Humboldt Bay. The estuary is not extensive and covers only about 120 hectares (300 acres) of open water, tidal flats, and river bars. Some remnant floodplain riparian forest stands occur in a few locations along the lower river. About 1,200 hectares (3,000 acres) of pasturelands lying to the south of the river provide significant habitat for many water-associated birds when shallow flooding occurs during the rainy season. These pasturelands are contiguous with similar habitats near Mad River Slough and Humboldt Bay and attract thousands of waterfowl and shorebirds. They are also important hunting areas for egrets, herons, and the state- and federally-listed Peregrine Falcon. The Mad River supports runs of Coho salmon, Chinook salmon, and steelhead trout.

Recommended Actions:

- Pursue opportunities with private landowners and the McKinleyville Community Services District for wetland enhancement on agricultural lands.
- Pursue cooperative management agreements with the McKinleyville Land Trust, the McKinleyville Community Services District and Humboldt County to protect estuarine habitat values and other instream values in the estuary and local creeks as development occurs in McKinleyville.
- Restore and enhance wetland and wildlife values on public trust lands in and adjacent to the lower Mad River, especially as floodplain emergent wetlands, floodplain riparian forests, and instream habitat.

Humboldt Bay - Humboldt Bay is the second largest bay on the California Coast and follows only San Francisco Bay in terms of biological productivity. The bay, including its adjacent salt and brackish water marshes, was over 10,900 hectares (27,000 acres) in size before development began. Diking and filling to reclaim land for agricultural, industrial, and other uses has reduced the tidally influenced area of the bay to about 6,500 hectares (16,000 acres). Despite human caused

alterations, the bay still provides an abundance of wetland habitats. Its extensive open water, tidal flats, eelgrass beds, and salt marshes attract hundreds of thousands of migratory waterfowl, shorebirds, and other water-associated birds. Humboldt Bay is also an important haul-out and pupping area for hundreds of harbor seals. In addition, 95 species of fish are listed from the bay, including several species of salmonids that use bay tributaries for spawning; and a large majority of the ocean commercial fishery stocks, which spawn, inside the bay.

Recommended Actions:

- Work with federal, state, and local agencies, conservation groups, agricultural community, etc. to develop a long-term plan for restoration and enhancement (and protection) opportunities that treat Humboldt Bay and the Eel River delta in a comprehensive manner.
- Implement the existing U.S. Fish and Wildlife Service plan for acquisition and management of lands within the approved boundary of the Humboldt Bay National Wildlife Refuge.
- Enhance wetland habitats and wildlife values on publicly owned wildlife areas managed by the California Department of Fish and Game.
- Implement California Department of Fish and Game plans for acquisition and management of high value wetlands near the Eel River Wildlife Area.
- Work with local, state, and federal agencies to ensure that mariculture activities are compatible with wildlife values within tidelands of Humboldt Bay.
- Restore tidal action to diked wetlands where feasible and appropriate to enhance wetland and wildlife values as well as estuarine volume.
- Work with Humboldt County and the cities of Eureka and Arcata to ensure that wetland and wildlife values are protected as development occurs, particularly in the Martin Slough/Elk River, Freshwater Creek, Jacoby Creek, and Janes Creek drainages and on the North Spit.
- Work with the City of Eureka and individual landowners to restore/enhance wetland and wildlife values in the Eureka Marsh/PALCO wetland complex and other wetlands within the city.
- Work with the City of Arcata and individual landowners to restore/enhance wetland and wildlife values in the West End Road wetland complex and other wetlands within the city.
- Work with the County of Humboldt and individual landowners to enhance existing freshwater wetland values where appropriate, especially in the Fields Landing/King Salmon area and on the North Spit.
- Work with the Humboldt Bay Harbor, Recreation, and Conservation District to assure that wetland and wildlife values are protected on Public Trust lands as development occurs within improved harbor areas.
- Work with federal, state, and local agencies, conservation groups, and the agricultural community to acquire and restore lands with palustrine dune wetlands.

- Acquire land from willing sellers for restoration or enhancement purposes.
- Where feasible and appropriate, work with public agencies and individual landowners to address excessive erosion upstream in the watershed, to reduce impacts on delta wetlands and wildlife values.

Eel River Delta – This is the lower floodplain of the Eel River, extending from the mouth of the river upstream to its confluence with the Van Duzen River. It covers approximately 13,400 hectares (33,000 acres). The dominant physical feature of the area is the wide river course that meanders through pasturelands and eventually breaks up into a network of tidal sloughs and saltwater bays. Although much reduced by land clearing, substantial stands of floodplain riparian forests still can be found in scattered locations along the river and its tributary channels. Much of what were once extensive salt marsh and other intertidal habitat has been converted to farmland by dike construction. These lands still function as wetlands when flooded by winter rains. The mosaic of bays, tidal flats, sloughs, marshes, and seasonal wetlands supports hundreds of thousands of resident and migratory water-associated birds. Census results from 1967 to 1970 (expressed as average total annual bird-days use) are shown as follows:

Species Group	Average Annual Bird Days Use
Waterfowl	1,351,960
Shorebirds	1,023,825
Wading Birds	39,420
Other Water Associated Birds	274,845
Total	2,690,050

The area provides habitat for many other wildlife species, including threatened and endangered species such as the Bald Eagle, Peregrine Falcon, Snowy Plover, Brown Pelican, Aleutian Cackling Goose, and possibly the tidewater goby. In addition, the Eel River is one of California’s most important spawning streams for Coho salmon, Chinook salmon, and steelhead trout. The lower estuary is rich in marine life, including invertebrate species, which provide rich feeding grounds for shorebirds. Harbor seals also use it as a haul-out and pupping area.

Recommended Actions:

- Restore and enhance wetland and wildlife values in Public Trust lands in the Eel River delta, especially floodplain riparian forest, riverine pools, and the estuary.
- Work with the Humboldt County Resource Conservation District to restore and enhance wetland functions in the Salt River watershed, including habitat values and tidal flushing.
- See recommendations for Humboldt Bay. The Eel River Delta and Humboldt Bay should be managed in a comprehensive manner.

Hoopa Valley – The Hoopa Valley is Indian reservation land located 45 kilometers (28 miles) northwest of Arcata along Highway 96 and consists of lands owned and managed by the Hoopa Indian Tribe and many private landowners. The reservation is bisected by the Trinity River and its northern border is adjacent to the confluence of the Klamath and Trinity Rivers. Deep well-drained river gravels underlie the surface soil. Salmonids spawn in streams adjacent to the valley floor. Any small ponds that once existed have been drained.

Recommended Actions:

- Work with private landowners to pursue opportunities for cooperative wetland and riparian enhancement projects.
- Explore use of riparian conservation easements.

Mendocino County

Round Valley - Round Valley is 24 kilometers (15 miles) by air northeast of Laytonville along the Middle Fork of the Eel River. This 62,000-hectare (15,300 acre) interior valley historically had numerous small wetlands scattered over the entire valley. Many have been drained and leveled. The sloughs, creeks, seasonal wetlands, and winter pasture attract large numbers of Wood Ducks and up to 500 Lesser Canada Geese. The valley is important winter habitat for Bald Eagles, Peregrine Falcons, and other raptors. Occasionally large numbers of Band-tailed Pigeons winter in and around the valley when large acorn crops are present. Round Valley has in the past been identified as having potential as a water project reservoir.

Recommended Actions:

- Maintain existing agricultural land uses through zoning.
- Work with Round valley Indian Reservation and private landowner to pursue opportunities for cooperative wetland enhancement projects.

Eden Valley - Eden Valley is located on the Eden Creek tributary to Middle Fork of the Eel River 27 kilometers (17 miles) by air northeast of Willits. In single ownership, this 500-hectare (1,250 acre) valley is farmed for hay production. Canada Geese, Bald Eagles, Peregrine Falcons, and Tule elk use this valley. A large block of Bureau of Land Management land with some wetlands is found to the east of this valley.

Recommended Actions:

- Maintain existing agricultural land uses through zoning.
- Work with private landowners to pursue opportunities for cooperative wetland and riparian enhancement projects.
- Explore use of riparian conservation easements.

Potter Valley - Potter Valley is 22-kilometers (14 miles) by air northeast of Ukiah on the East Fork Russian River. This 3,600-hectare (8,900 acre) interior valley historically supported a large wetland. Most has been drained; however, some areas along the Russian River are difficult to farm because of saturated soil during winter and spring. The water table is close to the surface and wetland enhancement would not be difficult. Land values are high. A large portion of the historic waterfowl use has been lost.

Recommended Actions:

- Work with volunteer groups to place Wood Duck nest boxes along the Russian River.
- Support retention of current zoning to protect existing habitat values.
- Explore use of riparian conservation easements.

Lake Mendocino and Russian River Valley to Hopland- This area extends from just northeast from Ukiah south along the Highway 101 corridor. The Army Corps of Engineers diversion to the Eel River water storage project on the East Fork Russian River, along with the riparian and stream habitat of the Russian River, support peak populations of 3,000 to 5,000 ducks. Lesser Scaup at Lake Mendocino often reach 2,000 to 2,500. Farm ponds throughout the Russian River Valley provide a substantial amount of habitat for wildlife.

Recommended Actions:

- Work with volunteer groups to place Wood Duck nest boxes at suitable habitat within the target area.
- Support retention of current zoning to protect existing habitat values.
- Enhance wildlife values on Lake Mendocino through cooperative efforts with the Army Corps of Engineers.

Little Lake Valley – This valley extends around the town of Willits on the north and east side. The 1,620-hectare (4,200 acre) Little Lake Valley represents one of the last good examples of interior wetlands found in the north coast range of California. The wetlands are a floodplain of the Eel River drainage and represent a significant staging area for waterfowl in early spring. The area is farmed for hay production or cattle grazing. Up to 800 hectares (2,000 acres) flood during major winter storm events at the present time. Acquisition through fee title would allow wetland enhancement necessary to increase breeding habitat for Mallard, Cinnamon Teal, and Wood Duck. This watershed is also important spawning and nursery habitat for salmonids.

Recommended Actions:

- Seek the acquisition of approximately 400 hectares (1,000 acres) from willing landowners within the flooded area.
- Work with fisheries agencies to reduce the damaging effects that stream channelization could have on wetlands.
- Work with rural conservation districts (RCDs) and Natural Resources Conservation Service (NRCS) to plant riparian vegetation along stream channels.
- Work with local conservation groups to reduce non-native vegetation.

Cottaneva Creek - Cottaneva Creek flows into the Pacific Ocean near the town of Rockport 35 kilometers (14 miles) north of Fort Bragg. Sandpipers and dabbling and diving ducks winter in the

wetland along Cottaneva Creek estuary. Nesting Black Oystercatchers, Western Gulls, Brandt's Cormorants, Pelagic Cormorants, and Pigeon Guillemots populate the rocky coast. Steelhead spawn in Juan Creek south of Cape Vizcaino. Thurber's reed grass (California Native Plant Society, List 2) grows along Highway 1.

Recommended Action:

- Cooperate with Campbell Timberland Management to investigate the potential for restoration of wetlands through the removal of existing fill areas.

Tenmile River - This is 13 kilometers (8 miles) north of Fort Bragg and flows into the Pacific immediately north of MacKerricher State Park. Its estuary constitutes one of Mendocino County's largest wetlands. Thirty hectares (75 acres) of salt marsh lie in back of the dunes at the river mouth. The state-listed endangered Menzies wallflower grows in the coastal strand vegetation covering the dunes; nearby are nesting sites for Snowy Plovers. Common Mergansers nest in the marsh at the river's mouth. The Mendocino coast paintbrush grows on the bluff near the Highway 1 bridge. Coho salmon, steelhead, and Pacific lamprey spawn in the north and south forks of Ten Mile River; state- and recently de-listed Bald eagles forage in the upstream tributaries during migration. Ten Mile Beach, one of the longest stretches of dunes in California, extends from the river mouth south for 7.2 kilometers (4.5 miles). Thurber's reed grass, which is CNPS-listed as rare is California and is know from fewer than ten occurrences in the state, grows in the dunes back of the beach. Surfperch frequent offshore waters, and night smelt spawn along the beach.

Campbell Timberlands Management owns approximately 85% of the watershed.

Recommended Actions:

- Work with private timberland managers to restore wetlands on corporation lands in the watershed.
- Support State Park actions to provide protection to Ten Mile Beach for wintering and nesting Snowy Plovers and rare plant populations.
- Support the work of local agencies and conservation groups to reduce non-native vegetation.

Inglenook Fen - Inglenook Creek flows into the Pacific at MacKerricher State Park, 10 kilometers (6.6 miles) north of Fort Bragg. Vegetation of Inglenook Fen is similar to that of bogs and marshes, but contains unusual insect and plant species. Sandhill Lake, at the edge of the fen, is formed by the confluence of two creeks. Dunes surrounding the lake prevent highly acidic runoff from upland redwood and pine forests from entering the marsh. Within the dunes surrounding Inglenook Fen, a diverse biotic community includes at least 30 rare or endemic species of insects and spiders. In the marsh area surrounding but mostly east of Sandhill Lake, plants such as the rein orchid, marsh pennywort, St. John's wort, and brooklime, grow among stands of common rushes. Buckbean, uncommon at this low elevation, grows in the fen's rich soil.

Recommended Actions:

- Encourage State Park management to continue efforts in securing and enhancing wetland and riparian habitats that are presently used as pasture.

pudding Creek - Pudding Creek flows into the Pacific just north of the town of Fort Bragg. This small 22-hectare (54-acre) coastal wetland was altered many years ago with the installation of a dam that blocks tidal action approximately 400 meters (1,300 feet) upstream from its mouth at the Pacific Ocean. About 6 hectares (15 acres) at the mouth of Pudding Creek is included in MacKerricher State Park. Although subject to human disturbance because of its proximity to the town of Fort Bragg, Pudding Creek provides feeding and resting habitat for migratory waterfowl, especially dabbling ducks. A small breeding population of Canada Geese has developed in recent years. Small coastal wetlands like Pudding Creek, with their association of marsh (including aquatic and riparian vegetation), collectively provide important resting and feeding areas for birds using the Pacific Flyway.

Recommended Actions:

- Support retention of current zoning to protect existing habitat values.
- Enhance wildlife values on Pudding Creek through cooperative efforts with the private landowner, Campbell Timberland Management.
- Work with volunteer groups to place Wood Duck nest boxes at suitable habitats within the target area.

Big River - Big River empties into the Pacific just south of the Mendocino Headlands, 16 kilometers (10 miles) south of Fort Bragg. Big River estuary, including mudflats and marsh, covers 610 hectares (1,500 acres) and is one of the largest relatively undisturbed estuaries along the California coast. Starry flounder and Dungeness crab inhabit the river estuary; coho salmon and steelhead spawn upstream. Geese, ducks, and endangered Bald Eagles overwinter in the river's inland watershed.

Recommended Action:

- Support the Big River Land Trust and the California State Park in developing a long-term monitoring and management plan for the estuary and the adjacent forested lands.

Albion River - Albion River flows into the Pacific Ocean 10 kilometers (8 miles) south of Fort Bragg. The river mouth, open to the sea year-round, is a saltwater estuary inhabited by rainbow and rubberlip surfperch, starry flounder, and Dungeness crab. Beds of eelgrass grow along both sides of the channel. Great Blue Herons build their nests along the river, and geese and ducks winter here. The river is also an important sport fishing area for Coho salmon and steelhead. Harbor seals frequent the river mouth, and river otters are common further upstream.

Mendocino Redwood Company owns 54% (14,806 acres) of the 27,512 acres which make up the watershed (mostly the lower, middle, and south fork areas). The rest is made up of smaller industrial timber ownerships, ranches, and small public and private parcels (mostly residential). Mendocino county, and school and community districts are the public entities in ownership of several parcels.

Recommended Action:

- Provide information and support to Mendocino Redwood Company and other private landowners to provide improved management and enhancement of wildlife habitats.

Navarro River - The Navarro River enters the Ocean 13 kilometers (8 miles) south of the town of Mendocino. The river supports Coho salmon, steelhead, and striped bass, as well as surfperch and starry flounder. Shorebirds forage at the river mouth, which is a Dungeness crab nursery; migratory waterfowl use the estuary in the winter months. Great Egrets are permanent residents along the river.

Recommended Actions:

- Work with private landowners and other groups to provide enhanced Wood Duck nesting habitat.
- Monitor the permitting and operation of commercial fishing mariculture to ensure the protection of eelgrass beds.

Manchester Plain Wetlands - Between Irish Beach and Point Arena headlands, 40 kilometers (25 miles) south of Mendocino, are six wetlands that collectively are very important to migratory birds on the Pacific Coast. At the north is Alder Creek, then Manchester Lagoons, both tributary to the Pacific Ocean. Brush Creek enters the Pacific west of Manchester. Hunter's Lagoon has no outlet, but surface vegetation characteristics indicate subsurface flow to Brush Creek. Hathaway Creek marsh drains into the Garcia River wetlands west of Highway 1. In total, these wetlands provide a significant portion of Mendocino County's coastal wetlands. Because adjacent lands are still primarily agricultural, wildlife disturbance is minimal and waterfowl move easily from one area to another.

Alder Creek - Alder Creek wetlands contain 2 hectares (5 acres) of open water, 2 hectares (5 acres) of riparian habitat, 3 hectares (7 acres) of mud flat (including sand and rock), and .1 hectare (.25 acre) of brackish marsh. California Department of Parks and recreation owns a portion of this area, primarily the beach. Smelt spawn at the mouth of Alder creek, and steelhead spawn further upstream. Migratory waterfowl winter along the creek in freshwater habitat that extends from the creek mouth to 3 kilometers (2 miles) upstream. The north-facing bluff west of Highway 1 is habitat for the Point Arena mountain beaver.

Manchester Beach Lagoons - These lagoons are two interconnected brackish water lagoons containing about 12 hectares (30 acres) of excellent wetland habitat. Uplands to the north and east are primarily grazing land. The California Department of Parks and recreation manages the southerly lagoon. Since human disturbance is very low, these two lagoons are extensively utilized for resting and feeding by migrating water-associated birds.

Brush Creek - Brush Creek is the major tributary to 17.5 hectares (43 acres) of wetlands adjacent to 50 hectares (120 acres) of permanent pasture that historically were wetlands. This area is commonly used by Tundra Swans that winter mainly on the Garcia River.

Hunters Lagoon - Hunters Lagoon contains 11 hectares (26 acres) of open water, 11 hectares (28 acres) of freshwater marsh, and 23 hectares (58 acres) of riparian habitats. This freshwater pond, surrounded by marsh within the stabilized dunes, has a canopy of aquatic vegetation, including

yellow pond lilies. Two plants uncommon near the coast, bladderwort and mare's tail, grow in the surrounding marsh.

Hathaway Creek - This creek enters the Garcia River about 1.6 kilometers (1 mile) upstream from the river mouth. This 31-hectare (77 acre) wetland flows through pasturelands and rolling hills. The highway has altered the hydrology of the wetland to the east of Highway 1. West of the highway, agricultural practices periodically degrade wetland values. Great Blue Herons nest along Hathaway Creek. The coast lily and Mendocino coast paintbrush grow along the stream, and federally listed endangered Peregrine Falcons have been sighted in the area where the creek flows into the Garcia River.

Garcia River Wetlands - These wetlands contain 23 hectares (56 acres) of open water, 20 hectares (50 acres) of salt marsh, 3 hectares (8 acres) of brackish marsh, 2.5 hectares (6 acres) of freshwater marsh, 12 hectares (30 acres) of seasonal wetland, 80 hectares (200 acres) of riparian habitats, 4.5 hectares (11 acres) of sand and mudflat, and over 120 hectares (300 acres) of pastureland (most of which historically was wetland). Sandpipers, dabbling ducks, and diving ducks winter in the Garcia River estuary. A flock of Tundra Swans returns there on their yearly migration. This species, which summers in the Alaska tundra, usually winters in the Central Valley and is rarely seen on the coast. The river supports spawning runs of Coho and steelhead.

The Point Arena Headland - The Headland is at the terminus of the Garcia River. Nesting Black Oystercatchers, Pelagic Cormorants, and Pigeon Guillemots inhabit the offshore rocks.

Gualala River Estuary - The estuary is at the southern Mendocino County boundary. The majority of the estuary extends into Sonoma County, but the Little North Fork contains riparian vegetation. Sandpipers, dabbling ducks, and diving ducks winter in the Gualala River estuary. The river supports spawning runs of Coho and steelhead.

Recommended Actions:

- Support retention of current zoning to protect existing habitat values and to protect agricultural lands from more intensive development.
- Evaluate privately owned lands for existing wetland values and the potential to restore or create wetlands.
- Work with agricultural landowners to create riparian easements.
- Enhance wildlife habitat through cooperative efforts with private landowners and California Department of Parks and Recreation.
- Work with the California Department of Transportation to ensure that any project involving Highway 1 fully considers the impacts to the area's wildlife habitats.
- Work with volunteer groups to place Wood Duck nest boxes at suitable habitats within the target area.

Trinity and Siskiyou County

Ruth Reservoir is inland 70 kilometers (45 miles) southeast from Fortuna near the headwaters of the Mad River. The reservoir is generally steep-sided with a riparian delta on its upstream side. A few shallower streams form inlets along its banks.

Hayfork Valley lies inland approximately 80 kilometers (50 miles) east of Fortuna just north of the junction of Highway 3 and Highway 36. The valley has deep gravelly soils. This 12,000-hectare (5,000 acre) valley is privately owned. There are ephemeral ponds near the county-operated airport and several millponds.

Trinity Lake (Clair Engle Lake)/Lewiston Reservoir - This reservoir complex is 22 kilometers (15 miles) northeast of Weaverville and stretches along 60 kilometers (23 miles) of the Trinity River. Two dams impound water that is redirected into the Sacramento River system. Although the shoreline surrounding Trinity Lake is mostly steep-sided, areas along the shore with shallow coves and inlets have developed riparian vegetation, and there is a broad delta with associated gravel dredger tailings at its northern end that is visited during migration by shorebirds and waterfowl. At Lewiston Reservoir, plant species consist of those typically found in standing water and include floating species, rooted aquatic species, and emergent wetland species. Along both sides of the central portion of the Lewiston Reservoir there are dense stands of emergent cattail and rush wetland and riparian vegetation, which are constrained by fluctuating water levels and steep banks. Numerous small creeks drain into the reservoir and there are a few dredger gravel ponds inland along the eastern shore. Dispersed flocks of about 2000 ducks and some Canada Geese over-winter on both Lewiston Reservoir and Trinity Lake. Bald Eagle and Osprey are frequently seen near the fish hatchery immediately below Lewiston Dam.

Mainstem of Trinity River - Prior to construction of Trinity Dam the natural hydrograph of the Trinity River was characterized by high winter and spring flows followed by greatly reduced summer flows that exhibited great inter-year variability. Large winter and spring floods maintained multi-age riparian vegetation through channel scouring, periodic channel migration, and variability in seed dispersal during flow recession. This natural hydrographic pattern resulted in a mosaic of early-successional willow-scrub vegetation, combined with patches of largely mature monocultures of willow-alder and alder-dominated plant communities. Pre-dam aerial photographs suggest that nearly 300 acres of diverse riparian vegetation occurred between Lewiston Dam and the North Fork of the Trinity River.

Many native wildlife species that inhabited river and riparian habitats prior to construction of the Trinity and Lewiston dams still occur along the mainstem. Although species associated with early-successional stages of riparian vegetation or require greater riverine structural diversity likely occurred in greater abundance prior to construction of the dam, the current flow regime has established conditions favoring upland habitat at the expense of early successional wetland and aquatic habitat. This shift in habitat types is hypothesized to be the primary causative factor in the current depressed populations of aquatic, semi-aquatic, and wetland wildlife species compared to terrestrial species. Species such as the northwestern pond turtle have declined since completion of the dams in response to diminishing instream habitat, whereas taxa that favor mature, late-successional riparian habitats appear to prefer current mature conditions.

Approximately 28 species of birds are commonly found within riparian habitat, six are found mostly in uplands, whereas more than 45 taxa are known to inhabit both habitats. Common species found in the riparian zone include Yellow warblers, Yellow-breasted Chat, Rufous-sided Towhee,

Wilson's Warbler, Green-backed Heron, Great Blue Heron, Mallard, Common Merganser, Osprey , Belted Kingfisher, and American Dipper.

Construction of the Trinity River Division has greatly reduced the magnitude of peak flows, obstructed coarse sediment input from above the dam, and allowed fine sediment to accumulate on channel features, which were historically scoured by flood flows. As such, a static system susceptible to expansion and maturation of woody riparian vegetation has evolved. Riparian vegetation has now increased in area by almost 300 % (~ 900 acres) by encroaching into areas previously scoured by flood flows. Expansion and maturation of woody riparian vegetation has had detrimental effects, including formation of a riparian berm that effectively armors and anchors riverbanks, prevents the river from meandering within the channel, and exacerbates encroachment and maturation of woody vegetation.

Trinity River

Lewiston Dam to North Fork - Existing riparian vegetation is most prevalent from Lewiston Dam to the confluence with the North Fork of the Trinity River. This reach includes approximately 330 acres of early- successional willow-dominated vegetation, 170 acres of more mature later-successional alder-dominated vegetation, and 380 acres of willow-alder mix. Distribution of aquatic and riparian vegetation is closely juxtaposed by more arid upland vegetation. Combined structural and functional complexity of these distinct plant communities contributes the overall high levels of biological diversity of native species of wildlife, particularly birds and amphibians.

North Fork to the South Fork - Between the North Fork and the South Fork, the Trinity River channel is even more greatly restricted than from Lewiston Dam to the North Fork by canyon walls that limit riparian vegetation to a narrow band; however, peak flows in this reach have been impacted only modestly by dam operations.

South Fork to Klamath River - Between the South Fork and the Klamath River, the Trinity River alternates between confined reaches with little riparian vegetation to alluvial reaches with vegetation similar to pre-dam conditions in the reach between Lewiston Dam and the North Fork.

Trinity and Klamath River Valleys - These valleys including the South Fork of the Trinity River, the Scott River and Salmon River comprise over 580 kilometers (350 miles) of interior river habitat. Many pools and glides provide nesting and foraging habitat for Common Mergansers and other river ducks. Sheltered banks, side channels, and sloughs provide habitat for western pond turtles.

The principal opportunities for wetland conservation in the Scott Valley area of Siskiyou County are riparian habitat restoration and anadromous fish habitat enhancement along the Scott River and its tributaries. Whereas, along the Trinity River basin the primary opportunities for wetland conservation and enhancement involved rehabilitation of numerous riverine dredger pond mine tailings and adjacent wetlands, instream side channels, the mouths of major tributaries, adjacent flat floodplains, riparian point bars, and upland hardwood and conifer terraces on federal, state, and private lands, and in association with the 44 instream anadromous fisheries restoration sites that are part of the Trinity River Restoration Program.

Comprehensive resource management planning in cooperation with the Natural Resources Conservation Service (NRCS) and the Wetland Reserve Program and various state and federal restoration programs provide opportunities for implementing conservation on private lands in these

areas. As riparian zones are protected, buffer wetlands within these zones will receive protection as well (*Intermountain Joint Venture Implementation Plan, Draft Klamath Basin Plan*, Gary L. Ivey for Oregon Joint Venture).

Recommended Action:

- Encourage local landholders to plant riparian vegetation along river channels.
- Work with agencies that are currently involved in existing river, riparian, and watershed restoration programs (Trinity River Restoration, Trinity County Resource Conservation District) to identify potential restoration sites and partner in restoration and fundraising efforts.
- Many opportunities exist to place Wood Duck boxes along glides and pools, refurbish existing side channels and degraded wetland systems, enhance and diversify structurally and functionally the numerous existing gravel dredger ponds along the river to increase their overall use by local wildlife, while simultaneously working to control invasive exotic species such as bull frogs and starthistle.
- Work within existing regulatory programs such as zoning laws and area-wide general plans to protect existing wetlands from degradation and loss of habitat values.
- Secure firm water supply (from *Draft Klamath Basin Plan and recommended flows for the Trinity River Restoration Program*).
- Secure conservation easements and acquire ownership from willing private landowners for lands that would provide habitat suitable for wetland restoration. Protect and restore at least 10,000 acres of wetland habitats on private lands through the Wetland Reserve Program, conservation easements, and cooperative efforts with land owners (from *Draft Klamath Basin Plan*).
- Develop locally coordinated habitat management guidelines for landowners to enhance wildlife production and use (e.g., develop more permanent water sites) and pursue opportunities for cooperative habitat enhancement efforts with private landowners. Additionally, seek assistance for providing funding and technical assistance to private landowners and other partners interested in restoration and enhancement projects (from *Draft Klamath Basin Plan*).

Multi - County Target Areas

Offshore Rocks and Pinnacles - The U.S. Bureau of Land Management has withdrawn from surface entry, mining, and mineral leasing thousands of unreserved islands, rocks, pinnacles, and reefs extending above the mean high tide level off the coast of California from Oregon to the Mexican border. These offshore rocks and pinnacles are of crucial value to the California Department of Fish and Game and they were subsequently designated the Offshore Rocks and Pinnacles Ecological Reserve by the California Game and Fish Commission.

The primary management objectives for the Reserve are:

1. To provide for public use of the Offshore Rocks and Pinnacles Ecological Reserve that is consistent and compatible with California Fish and Game laws and regulations.
2. To permit only those activities on the reserve demonstrated as not detrimental to breeding pelagic bird species during the nesting season (April 1 to August 15).
3. To provide for educational and scientific uses for the Reserve.
4. To prohibit the removal of vegetation, minerals, or other products having commercial value.

Recommended Action:

- Support the Memorandum of Understanding between the Bureau of Land Management, California Department of Fish and Game and California State Parks for continued management of the Offshore Rocks and Pinnacles Ecological Reserve as a critical wildlife sanctuary along the California coast.

Further Goals

Revisit the Plan in three years

- Revise and update Target Areas, Objectives, Accomplishments and Recommended Actions
- Include identified Important Bird Areas as Target Areas
- Revise and update details for Trinity and Siskiyou counties



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