



Pacific Coast Joint Venture Implementation Plans

draft

Willamette Valley

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For:

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WILLAMETTE VALLEY FOCUS AREA PLAN

Introduction

The Oregon Habitat Joint Venture is a coalition of groups and agencies involved in cooperative efforts to protect and restore important habitats for birds and other native fish and wildlife. As the Oregon operating arm of two larger, regional joint ventures – the Pacific Coast Joint Venture and the Intermountain West Joint Venture – this partnership serves as a vehicle for implementation statewide of national and international conservation initiatives targeting habitat for birds, including waterfowl, shorebirds, waterbirds, and landbirds.

This plan is intended to serve as the Pacific Coast Joint Venture implementation plan for the Willamette Valley. Although its primary purpose is to provide a common framework for action by the joint venture partners, it may also serve other purposes in highlighting habitat conservation needs and opportunities at an ecoregional scale. Because implementation depends on voluntary action by individual joint venture partners and collaborating landowners and resource managers, the joint venture's on-the-ground conservation efforts are often opportunistic in nature. This plan is intended to provide a strategic framework for these site-specific habitat protection and restoration projects.

About the Joint Venture

The Oregon Habitat Joint Venture's mission is to "promote protection, restoration and enhancement of important habitats for birds and the systems on which they depend." The organization plays a statewide leadership role in encouraging and supporting efforts to conserve habitats through voluntary, cooperative means. The Joint Venture functions as a facilitator and coordinator, assisting public and private partners in accomplishing activities that support the organization's mission. Partners retain their individual roles, responsibilities and decision-making authority.

Oregon Habitat Joint Venture Goals

- Provide an organizational framework at the state level for voluntary, cooperative efforts to conserve important bird habitats. Link to local, regional and continental habitat conservation initiatives.
- Use planning processes to identify habitat conservation needs and opportunities statewide and assess priorities at multiple levels (state, ecoregion, and watershed).
- Develop financial and public support for specific projects and habitat conservation in general.
- Help establish partnerships to implement habitat conservation projects.
- Enhance communication and information sharing among Joint Venture partners.
- Expand public awareness and understanding of bird habitat values and conservation needs.

A Working Document

This document is intended to be a dynamic document, amended as necessary to accommodate new initiatives and opportunities. Since conservation is a process, not

a one-time event, this document will evolve as some goals are achieved and new ones are conceived.

Funding

Funding for joint venture projects comes from a wide variety of sources, including joint venture partners, federal and state programs, and private organizations. Major funding sources for projects in the Willamette Valley include the Wetlands Reserve Program administered by the U.S. Natural Resources Conservation Service; the North American Wetlands Conservation Act grant program administered by the U.S. Fish and Wildlife Service; the Oregon Watershed Enhancement Board; and local government parks and greenspaces programs.

Relationship to national bird conservation initiatives

This plan is intended to address multiple objectives and strategies related to conservation of important bird habitats within the areas targeted for action by Joint Venture partners. The North American Waterfowl Management Plan, the 1986 international agreement that provided the original impetus for joint ventures' wetland habitat conservation efforts, included goals to restore and maintain the diversity, abundance, and distribution of waterfowl that occurred during the 1970s. Over the years, the North American plan has evolved to encompass broader goals that include benefits for other wetlands-dependent wildlife, hydrology and water quality. The 1998 update of the plan encouraged partners to expand that focus to include collaboration with other bird conservation efforts. Since then the North American Bird Conservation Initiative has identified the joint ventures as a primary vehicle for implementing habitat measures to support all four of the major bird conservation initiatives. This emerging international framework is ultimately expected to serve as a unifying umbrella for the North American Waterfowl Management Plan, Partners in Flight (landbirds), the U.S. Shorebird Conservation Plan, and the North American Waterbird Conservation Plan.

The Oregon Habitat Joint Venture traditionally focused on wetlands and related riparian and aquatic habitats. Because of this focus on habitats, and the landscape-scale approach typically used to frame options for potential projects, Joint Venture conservation strategies have been broad enough to support a variety of goals and objectives. This plan for the Willamette Valley specifically expands the focus beyond wetlands and related habitats such as floodplain forests to include two other general types – grasslands and oak habitats – that are high priorities for landbirds in this ecoregion. As such, the plan is intended to be broad enough in scope to address the objectives of all four of the conservation initiatives encompassed under the North American Bird Conservation Initiative.

Introduction to the Willamette Valley

The Willamette Valley Focus Area includes the entire Willamette River watershed above the limit of tidal influence at Oregon City. (The area below Oregon City is included in the Lower Columbia River Focus Area.) It encompasses all or portions of Washington, Clackamas, Marion, Yamhill, Polk, Benton, Linn, and Lane counties. The area is bounded on the west by the Coast Range, the Cascade Mountains to the east, and the Calapooya Divide to the south.

The Willamette Valley is a 120-mile-long alluvial plain up to 40 miles in width that drains north to the Columbia River. The basin covers about 12,000 square miles (about one-eighth of Oregon) and has approximately 16,000 miles of streams. The gradient is low, dropping from about 400 feet elevation at Eugene to near sea level at the Willamette's confluence with the Columbia River near Portland. Average annual precipitation is approximately 40 inches in the valley, most of it falling as rain between November and June. Snow is infrequent at lower elevations, and summers are generally warm and dry. Native habitats on the valley floor have largely been converted to agricultural uses and urban development, with scattered patches of hardwood and conifer forests. In the mountains to the west and east, vegetation is dominated by mixed conifer forests, primarily Douglas fir at lower elevations.

Major tributaries to the Willamette River drain both the Cascades and the Coast Range. The largest rivers originate in the Cascades, including the Clackamas, Molalla, Santiam, Calapooya, McKenzie, and Middle Fork Willamette rivers. The headwaters of the Coast Fork Willamette River originate on the Calapooya Divide, which separates the Willamette basin from the Umpqua basin to the south. Tributaries originating in the Coast Range include a number of smaller rivers and streams, including the Long Tom, Marys, Luckiamute, Yamhill, and Tualatin rivers.

The advent of European-American settlement in the 1840s marked the beginning of dramatic changes in the landscape of the Willamette Valley. Before the mid-19th century, fires set by Native Americans helped maintain a mosaic of grasslands, oak savannas and woodlands, conifer forests, riparian forests, and marshes. Construction of dams and impoundments, changes in fire regimes, drainage of wetlands, commercial forestry, cultivation of crops, livestock grazing, introduction of exotic plants, and urbanization have reshaped the entire valley ecosystem. Only small fragments of historic native habitat remain in a landscape dominated by agriculture and urban development.

The Willamette Valley is now home to more than 70 percent of Oregon's residents and accounts for roughly half of Oregon's agricultural sales. Already supporting a population of more than two million, the basin population is expected to grow by 1.7 million people by 2050. Much of the population is centered in the Portland metropolitan area. Outside the Portland metropolitan area, growth is concentrated around Salem, Corvallis, and Eugene. Although suburbs in the metropolitan area are growing rapidly, most of the communities scattered throughout the valley retain their small-town and rural character.

Manufacturing, high technology, higher education, government, and services are major contributors to the Willamette Valley's diversified economy, but natural resources – and the agricultural and forest products industries they support – continue to provide much of the foundation. The valley is a major producer of fruits, nuts, berries, grass seed, corn

and other vegetables, grains, and ornamental trees and shrubs. Poultry, dairy products, and beef are produced throughout the valley. Forest products processing and manufacturing have long been mainstays of the local economy in many communities.

Wetland and Related Wildlife Resources

The past 150 years of human use and development have taken their toll on the Willamette Valley's wildlife diversity and abundance. Wetland acreage has decreased significantly. Some wetland dependent species, including the spotted frog and a half-dozen invertebrate and plant species, have been extirpated from the valley. Development of the floodplain has increased flooding hazards. The mouth of the Willamette River is a Superfund site and investigation of harmful pollutants continues in the Newburg Pool and other river reaches. Despite the extensive development and adverse impacts, the Willamette Valley's vestiges of natural habitat contribute significantly to the state's biological diversity, and many species are thriving in areas heavily modified by human uses.

The Willamette River and its tributaries support native populations of chinook salmon, steelhead trout and bull trout, all listed as “threatened” under the Endangered Species Act. Many streams also support native cutthroat trout. Aquatic habitats support limited populations of several other at-risk species, including western pond turtle, painted turtle, clouded salamander, western toad, northern red-legged frog, foothill yellow-legged frog, and the endangered Oregon chub. The few remaining fragments of native wetland prairie support several threatened, endangered, or sensitive plant species.

The valley is located in the Pacific Flyway, providing essential habitat for migrating and wintering waterfowl, shorebirds, and landbirds, and significant breeding populations of ducks and a variety of songbirds. More than 30 species of ducks, geese, and swans, and a diverse assemblage of shorebirds and wading birds use the wetlands in the valley on a regular basis. Recent counts have shown use by more than 300,000 wintering waterfowl, including seven subspecies of Canada geese in winter (U.S. Fish and Wildlife Service 2002). The southern and central Willamette Valley have been recommended for inclusion in the Western Hemisphere Shorebird Reserve Network (Drut and Buchanan 2000). Agricultural fields, mudflats, and the borders of freshwater wetlands support up to 10,000 wintering killdeer, a regionally declining species, and total shorebird numbers of 40,000 or more during the winter (Taft and Haig 2003). Remnant riparian forests, grassland-savanna, and oak woodlands provide important habitat for more than 100 breeding migratory landbird species.

The Willamette Valley historically contained extensive and diverse wetlands, ranging from wet prairies, shrub swamps, and forested wetlands to backwater sloughs, oxbow lakes, and permanent marshes. Most of these wetlands have been lost as a consequence of agricultural, urbanization, and flood control measures, and the few that remain have been highly modified. Forested wetlands, which support the highest diversity of wildlife species, have been substantially reduced, and riparian corridors are extremely narrow in most areas. Virtually all of the valley's remaining wetlands are degraded by human activities to some degree, and most are dominated by invasive, non-native vegetation.

Prior to European settlement, the Willamette River through much of its length flowed through braided, shallow channels that shifted across a broad floodplain with numerous sloughs and extensive marshes. The river's flow varied with the seasons and during times of peak flow frequently flooded large portions of the valley, at times attaining widths of two to six miles (Benner and Sedell 1997).

Over the past 150 years, revetments and levees have transformed the Willamette River into a deeper, straighter, and narrower channel, and flows have been regulated by dams in the upper watersheds of its tributaries. Between Eugene and Albany the channel length has been reduced 45 to 50 percent, with most of the loss in primary and secondary channels. These deliberate modifications resulted in a complex web of unintended secondary changes that have fundamentally altered the system's natural ecological processes and functions (Benner and Sedell 1997)

Other Priority Habitats

In addition to the riparian habitats discussed above, Partners in Flight's plan for Westside Lowlands and Valleys (Altman 2000) identified two other habitat types – grassland-savanna and oak woodlands – as priorities for landbird conservation in the Willamette Valley. Current estimates of grassland and savanna habitat are less than one percent of the historic extent in the Willamette Valley. Contributing factors include cultivation of lands for agriculture, loss of habitat to development, livestock grazing, and introductions of exotic species. The two most significant factors contributing to loss and alteration of oak woodlands have been removal by harvest for development or agriculture, and invasion by conifers and dense exotic shrubs from fire suppression and grazing (Altman 2000). More than half of the remaining oak woodlands are now dominated by Douglas fir, and without active management, will eventually become conifer forests. An estimated 98 percent of these savanna and oak habitats are in private ownership, and less than one percent receive any formal protection (Oregon Biodiversity Project 1998).

For landbirds, the consequences of these habitat losses and changes have been dramatic, resulting in species range reductions, population declines, and some local and regional extirpations (Altman 2000). Partners in Flight identified 93 native landbird species that are highly associated with breeding habitats in the Western Lowlands and Valley. Of those, some 50 species have experienced significant recent or long-term declines based on Breeding Bird Survey data, and several other species not adequately sampled by the Breeding Bird Survey (e.g., Oregon vesper sparrow, streaked horned lark, northern harrier) are thought to be declining. Formerly common species such as Lewis' woodpecker, and yellow-billed cuckoo have been extirpated as breeding species from parts or all of the Willamette Valley.

Threats to Wetlands and other Priority Habitats

Estimates of total losses of wetland and riparian habitat in the Willamette Valley vary from 41 percent (Gabriel 1993, in Bernert et al.) to 87 percent (Oregon Natural Heritage Program 1998). Losses continue despite regulatory restraints. An Oregon Division of State Lands report (Daggett et. al 1998) showed that most of the wetland loss from 1981 to 1994 was associated with intensification of agricultural practices while urbanization and climatic factors accounted for a moderate portion of the loss.

Flood control has reduced natural disturbances. Floodplains that were historically flooded every ten years on average are now flooded only once in 100 years. Efforts to clean up toxics and to conserve and restore riparian habitat have improved the river's water quality, but development pressure throughout the valley will continue to threaten the ecological integrity of the entire area.

Habitat loss and degradation are clearly central to threats faced by wetland habitats in the valley. However, the spread of aggressive non-native plant species such as reed canary grass and purple loosestrife, and animal species such as the bullfrog and largemouth bass, have also had devastating effects on native wetland communities.

Remaining grassland and oak habitats are vulnerable to several threats. Conversion of these habitats to more intensive agricultural uses, including vineyards, is a possibility in some areas. Because many oak habitats are zoned for rural residential use, these lands

are also vulnerable to development. Fire suppression and invasive non-native plant species present very significant ecological threats as well.

Existing Habitat Protection

Land ownership is overwhelmingly private in the Willamette Valley and the surrounding foothills. (The upper reaches of the watershed are predominately federal lands in national forests or the checkerboard ownership of the Bureau of Land Management.) Remnant native wetland habitats currently receiving some level of formal protection are limited to a relatively few small, isolated areas managed by federal, state, and county agencies and private conservation organizations such as The Nature Conservancy.

Only one percent of the valley is managed for conservation purposes (Oregon Biodiversity Project 1998) and just a fraction of that is wetland. The most significant remaining blocks of wetland habitat are found within the floodplain of the Willamette River and its tributaries and in a handful of national wildlife refuges and state wildlife areas scattered along the length of the valley.

The U.S. Fish and Wildlife Service manages more than 11,000 acres within a complex that includes the William L. Finley, Ankeny, Baskett Slough, and Tualatin River national wildlife refuges. More than 2,500 acres of native and restored wetlands are currently managed for a variety of species at these refuges. The Oregon Department of Fish and Wildlife's Fern Ridge Wildlife Area west of Eugene and E.E. Wilson Wildlife Area north of Corvallis also protect fragments of native habitat and restored wetlands. The Oregon Parks and Recreation Department's Willamette Greenway properties encompass a number of significant floodplain forests and wetlands. Other major blocks of protected habitat include the West Eugene Wetlands Project, where partners have acquired more than 2,000 acres for protection and restoration; the Jackson Bottoms area near Hillsboro; and private lands enrolled in the federal government's Wetlands Reserve Program, most of which are scattered down the western side of the valley.

Restoration Initiatives

Dozens of agencies and organizations are involved in watershed and habitat restoration efforts in the Willamette Valley. Local efforts in some areas have been coordinated through watershed councils working to implement the state's Oregon Plan for Salmon and Watersheds, with funding from the Oregon Watershed Enhancement Board and a variety of other sources. In some areas, local governments have developed their own initiatives to address specific local priorities, including open space protection, water quality improvement, and wetland conservation and mitigation. Many of these watershed health and habitat conservation efforts have been driven by regulatory pressures and have focused on water quality and endangered species issues.

In October 1998, Governor Kitzhaber established the Willamette Restoration Initiative to prepare a basin-wide strategy to address water quality and habitat conservation needs. The initiative, which brought together a wide spectrum of stakeholders, issued a broad outline for a conservation strategy in 2001. The initiative's board adopted as its blueprint a "conservation scenario" map developed by the Northwest Ecological Research Consortium, which highlighted priority areas for habitat protection and restoration in analyzing potential future development patterns in the valley. The Willamette

Restoration Initiative's conservation priorities look beyond listed species to encompass a variety of at-risk habitats, including wetlands, bottomland hardwood forests, and oak savanna and woodlands.

Federal agency initiatives in the valley include a number of programs. Besides managing the refuges scattered throughout the western side of the valley, the U.S. Fish and Wildlife Service supports habitat restoration on private lands through its Partners for Fish and Wildlife Program.

The Wetlands Reserve Program, administered by the Natural Resources Conservation Service, pays landowners to restore and protect wetlands. The program purchases permanent or 30-year conservation easements on eligible lands and provides funding for habitat restoration. The Oregon Department of Fish Wildlife, U.S. Fish and Wildlife Service, Ducks Unlimited and other organizations often assist with design and implementation of Wetlands Reserve Program projects.

The Army Corps of Engineers works with state and local agencies to restore and enhance aquatic habitats under its Section 1135 and Section 206 programs.

The Oregon Department of Fish and Wildlife and the U.S. Fish and Wildlife Service's Willamette Valley refuges also collaborate to work with private landowners on wetland projects that don't fit well with other programs. Many of these projects are smaller in scale or involve shorter-term agreements.

Several local governments, including Metro, the cities of Eugene and Corvallis, and Marion County, have active greenspaces programs that focus on protecting and restoring natural areas.

A number of non-government conservation organizations are actively involved in the valley. The Nature Conservancy maintains a half-dozen preserves and assists government agencies with land acquisitions. Ducks Unlimited has been involved in a broad range of wetland restoration efforts on both public and private lands. The Wetlands Conservancy, Greenbelt Land Trust, Three Rivers Land Conservancy, and the McKenzie River Trust all work with landowners and government agencies to secure permanent protection for wetlands and other important habitats on private lands. The Trust for Public Land and Western Rivers Conservancy both assist government agencies in acquiring lands and transferring them to public ownership.

Challenges to Address

The Willamette Valley is the center of the state's population and the most productive agricultural region in Oregon. Many of the valley's historic wetlands have been ditched and drained for agriculture or urban development. Creeks and streams throughout the area have also been severely impacted. Many are channelized, diverted from their original course, with hydrology so significantly changed that they dry up in the summer or become flashy during winter rain events that erode the banks, adding extra sediments to the system. Often development or agriculture goes right up to the edge of the bank or wetland. Urban development and agricultural pressures continue to present a challenge to the remaining wetland and stream resources in the valley as intensification of land continues to grow.

The invasion of exotic plant and animal species is a threat to the remaining native habitats and to restoration projects. Reed canary grass forms dense monotypic stands throughout many wetlands in the valley, choking out native species and limiting biological diversity. Purple loosestrife (*Lythrum salicaria*) has invaded valley wetlands in some areas. First introduced as a garden ornamental, it is now listed on the state's noxious weed list and efforts are underway to stop its spread. Bullfrogs, nutria, and carp and other warm water fish are also damaging native habitats and displacing native species.

Many landowners are willing to restore wetland and riparian habitats on their property or sell conservation easements or property for habitat protection. However, securing funds to acquire land or conservation easements will continue to be a major challenge. Political opposition to conservation acquisitions and easements has increased significantly in recent years. In addition, current uses and continued demands are likely to keep land prices high and limit restoration opportunities, especially along the mainstem of the Willamette River.

Priority upland habitat types present similar challenges. Non-native birds such as European starlings and house sparrows have proliferated and negatively impacted native cavity-nesting oak species such as Lewis' woodpecker, American kestrel, and western bluebird. Fire suppression and grazing have altered the structure of most oak habitats, and the understory is dominated by non-native species in most areas. Native upland prairies and grasslands are rare. Because most of these upland areas are not high value for agriculture or timber production, they receive only limited protection under Oregon's land use planning laws. In addition, unlike wetlands, there have been few funding sources for conservation of oak savanna and woodlands and native grasslands.

Important Habitats

Within the Willamette Basin there are a number of large complexes of mixed land uses that stand out as good prospects for landscape-scale habitat conservation efforts. Identified in this plan as "target areas" for habitat protection and restoration, most of these complexes are found:

- along the mainstem of the Willamette River,
- around confluence areas with the Willamette's major tributaries,
- adjacent to the U.S. Fish and Wildlife Service's national wildlife refuges and Oregon Department of Fish and Wildlife's state wildlife areas,
- protected areas managed by private non-profits, local governments or other state and federal agencies,
- in areas with extensive hydric soils that have been converted to other uses.

The 15 target areas listed in the plan provide important wintering and migrating habitat for waterfowl, waterbirds, shorebirds, and landbirds. Many areas also provide habitat for listed species and other species whose numbers are declining such as western pond turtles and red-legged frogs. The mainstem Willamette River and the confluence areas provide essential habitat for spring chinook salmon and steelhead trout. These areas have all been extensively modified by human activities, especially for agriculture. Even though the soils have been extensively drained, the potential for wetland restoration is extremely high as shown by numerous successful projects scattered throughout the

valley. Bank stabilization and riparian plantings will greatly increase habitat values along targeted creeks and rivers.

Some of the target areas also include extensive oak savanna and woodland habitats, including remnants of native grasslands or prairies. Although most have been altered by fire suppression, livestock grazing and other human uses, these remain important breeding habitats for many bird species and other wildlife. Most of these habitats would benefit from restoration and active management.

Habitat Objectives

The following are the joint venture's broad habitat goals for wetlands and other priority habitats in the Willamette Valley:

1. Over the next 20 years, ensure long-term protection for at least 79,000 acres in targeted areas. Use conservation easements, cooperative agreements, and partnerships, or acquisition of fee title from willing landowners.
2. Restore 58,000 acres of wetlands, floodplain, and riparian habitats using partnerships with willing landowners and other partners.
3. Protect and/or restore 14,000 acres of oak savanna and woodlands and grasslands through easements, acquisitions and partnerships with landowners and other partners.
4. Ensure all protection and restoration areas are managed to maintain a diversity of native habitats by designing projects to meet a variety of habitat goals, controlling exotic species, and establishment of a long-term monitoring and maintenance schedule.

Target Area Objectives

Target Areas are important habitat complexes that have been identified as priorities for conservation action through the Joint Venture partnerships. These areas are detailed in the pages following the table. Table 1 summarizes habitat objectives for Target Areas.

Table 1. Habitat conservation objectives (in acres) for target areas in the Willamette Valley

Target Areas	Protect	Restore	Wetland/ floodplain/ riparian	Oak savanna & woodland/ grassland
Willamette Forks	3,000	4,000	3000	1000
West Eugene-Long Tom	2,500	4,000	2500	1500
McKenzie Confluence	4,000	3,000	2500	1500
Mid-Willamette Floodplain	20,000	20,000	20000	0
Coburg Hills	3,000	3,000	500	2500
Muddy Creek	1,500	2,500	1000	1000
Marys River	2500	2500	1000	2000
Calapooia River	2,000	2,000	2000	0
Buena Vista	4,500	4,500	3500	1000
North Santiam Flats	2,000	2,000	2000	0
Baskett Slough	2,500	2,500	1000	1500
South Yamhill	5,000	5,000	3000	2000
Lake Labish-Pudding River	1,000	1,000	1000	0
Mission-Champoeg Bottoms	10,000	10,000	10000	0
Tualatin Basin	5,000	5,000	5000	0
Total	68,500	71,000	58,000	14,000

Target Area Descriptions

Willamette Forks Confluence

This area includes the confluence of the Middle Fork and Coast Fork of the Willamette River and Howard Buford County Park. It extends upstream along the Middle Fork to Elijah Bristow State Park, and up the Coast Fork to Creswell and Camas Swale.

Located between the forks at their confluence is Mt. Pisgah. This area includes bottomland forest and slough habitats along the rivers and upland prairie and savanna habitats on Mt. Pisgah. Both Bradshaw's lomatium (*Lomatium bradshawii*) and the western pond turtle (*Clemmys marmorata marmorata*) are found in the county park, and the floodplain supports some of the largest populations of western pond turtle in the Willamette Valley. The confluence holds tremendous potential for restoring a diverse array of wetlands. Upstream along the Middle Fork, Elijah Bristow State Park includes an important large block of relatively natural floodplain habitat. Mt. Pisgah has been designated as an Oak Woodland Bird Conservation Area (Altman 2000) and is one of the highest priorities for oak conservation in the Willamette Valley.

Just east of Creswell off the Coast Fork, Camas Swale is a broad band of hydric soil and floodplain area that is presently farmed. During the winter months the area floods, providing habitat for wintering waterfowl and a stopover for flocks of sandhill cranes. There is potential to restore wet prairie habitat throughout the area and upland prairie and oak savanna on the fringes of the swale. Native Americans historically used this area for collecting camas bulbs. The Natural Resources Conservation Service has purchased one permanent easement in this area and the City of Creswell owns a small parcel.

Recommended Actions:

- Protect and restore an additional 1,000 acres of floodplain habitat around the confluence area through conservation easements and fee title acquisition from willing landowners.
- Restore and enhance oak savanna and woodland habitats on and around Mt. Pisgah and Camas Swale.
- Acquire and protect intact floodplain forest along the Middle Fork.
- Protect and restore wetlands in the Camas Swale area through conservation easements and fee title acquisition from willing landowners.
- Create a riparian and floodplain corridor along the Coast Fork from the confluence upstream to Creswell.

West Eugene – Long Tom

The West Eugene-Long Tom complex includes the Amazon Creek drainage, Willow Creek, lands around Fern Ridge Reservoir and along Coyote Creek, and downstream from the reservoir on the Long Tom River. This area supports significant remnants of native habitats. Portions of the complex are protected under a variety of ownerships including the Bureau of Land Management, The Nature Conservancy, City of Eugene, the U.S. Army Corps of Engineers, and private landowners enrolled in conservation programs. Existing efforts to protect this area include the West Eugene Wetlands Plan, the The Nature Conservancy's's Willow Creek Natural Area, and BLM's Long Tom Area of Critical Environmental Concern (ACEC) and adjacent lands.

This complex is one of the few areas left in the Willamette Valley harboring native wet prairie and associated species, providing critical habitat for a number of at-risk species. These include: Bradshaw's lomatium, Willamette daisy (*Erigeron decumbens* ssp. *decumbens*), shaggy horkelia (*Horkelia congesta* ssp. *congesta*), Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*), and white-top aster (*Aster curtus*) and Fender's blue butterfly (*Icaricia icarioides fenderi*) (The Nature Conservancy 1996). The area also provides important migratory, wintering and breeding habitat for a wide variety of birds as well as several amphibian species. There is a potential to restore wet prairie, seasonal wetland, and riparian habitat.

The Oregon Department of Fish and Wildlife manages more than 5,100 acres on and around Fern Ridge Reservoir as a state wildlife area, with half of that area being wetland. Moist soil management and an emphasis on wintering waterfowl are ODFW's key management objectives.

Historically there were large wetlands along Coyote Creek. Most of these have been lost and degraded by reed canary grass over the years. However, the riparian corridor along Coyote Creek is still fairly intact. A consortium of public agencies is working with private landowners to acquire and restore 915 acres of wetland and riparian habitat along the creek.

The West Eugene Wetland Plan is a multiple-objective land use plan that identifies and addresses a number of community goals, including wetland protection and establishment of a mitigation bank to restore degraded wetlands. The plan recommends protection for remaining valuable wetlands along Amazon Channel, including Willow Creek. The Bureau of Land Management has used Land and Water Conservation Funds appropriations to purchase more than 1,130 acres in the west Eugene plan area. The City of Eugene is the lead planning agency for the west Eugene wetlands. The city operates a mitigation bank and is using funds from a local ballot measure to acquire open spaces. The majority of the restoration work along Amazon Creek is being done by the U.S. Army Corps of Engineers under its Section 1135 authority with the City of Eugene as the local sponsor.

The 398-acre Willow Creek Natural Area is owned and managed by The Nature Conservancy. The area supports healthy populations of all six rare native prairie species (see above) and healthy stands of tufted hairgrass (*Deschampsia cespitosa*) prairie. Active management of the area has been ongoing since 1986.

Much of the Long Tom River system has been channelized and its associated wetlands degraded and drained for forestry and agriculture uses. A small portion of the riparian zone is intact between Franklin Road and Clear Lake Road. This area contains the Long Tom Area of Critical Concern managed by the BLM, which has tufted hairgrass prairie, populations of white-topped aster and Bradshaw's lomatium. Western pond turtles also inhabit and breed in this area.

ODFW, Ducks Unlimited, Natural Resources Conservation Service and U.S. Fish and Wildlife Service personnel have worked with various private landowners to complete wetland restorations along the Long Tom River and associated Amazon Channel. To date, over 550 acres of seasonal marsh for waterfowl habitat and ponds for Oregon chub have been restored in the drainage. Restoration on an additional 150-acre wetland

restoration project will begin in 2001. There is potential throughout the watershed for restoration of seasonal and forested wetlands and riparian habitat for dabbling ducks, geese, and neotropical migrants.

This area also includes extensive relatively intact oak woodland and savanna habitats. The city of Eugene, the BLM, and other partners have been working to protect and enhance key sites through the federal Forest Legacy program and other funding sources.

Recommended Actions:

- Continue moving levees to restore floodplain habitat along Amazon Channel.
- Create a greenway corridor connecting Fern Ridge Reservoir to the City of Eugene.
- Work with willing landowners along Coyote Creek to secure and then restore 915 acres of wetland and riparian habitat.
- Continue cooperative land acquisition program in the West Eugene Plan area.
- Develop and maintain a diversity of wetland habitats at Fern Ridge Wildlife Area, as called for in the area's management plan.
- Protect and restore wetland and riparian habitats along 12 miles of river channel from Fern Ridge Reservoir to Monroe.
- Restore the Long Tom River's historic channel, reconnecting it with the floodplain.
- Increase habitat for western pond turtles.
- Restore areas for Oregon chub.
- Work with public and private landowners to protect and restore oak savanna and woodland habitats.

McKenzie Confluence

The McKenzie Confluence area is defined as the area from the Willamette River confluence to a point seven miles downstream (including Spring Creek) and up the McKenzie to Walterville. It totals more than 14,000 acres. Current mapping of the Willamette River system shows some of the most extensive intact habitats – side channels, floodplain and forests – at the confluence of the McKenzie and Willamette rivers. Spring chinook salmon, summer steelhead, cutthroat trout, bull trout, rainbow trout, brook trout, and whitefish use these reaches for various stages of their lifecycles. Wintering, migratory and nesting waterfowl, shorebirds, neotropical birds, western pond turtles, and red-legged frogs use this mosaic of habitats. However, aggregate operations, agriculture and rural residential development have heavily impacted the area.

The McKenzie River Watershed Council is developing conservation strategies for the confluence area in collaboration with the aggregate industry, state and federal agencies and other interests. The area has extremely high potential for enhancing fish and wildlife habitat by excavating new side channels and restoring floodplain and riparian habitat.

The McKenzie River Trust acquired more than 850 acres on Green Island in 2003. The remainder of the 1,300-acre island complex is in various public ownerships. More than one-third of the island has been farmed. Long-term plans call for restoration of native habitats and natural floodplain processes on the island.

The Coburg Ridge area immediately north of the McKenzie River includes some high quality oak and prairie habitats that support a number of at-risk plant and animal species. This area is a high priority for protection and restoration.

Recommended Actions:

- Support collaborative planning effort to identify actions in the confluence area to restore fish and wildlife habitat and maintain economic activities.
- Work with willing landowners and other partners to protect and restore floodplain, wetland, and riparian habitats throughout the area.
- Work with McKenzie River Trust and other partners to restore native habitats on Green Island.
- Protect and restore oak and prairie habitats in the Coburg Ridge area.

Mid-Willamette Floodplain (Mainstem Willamette, RM 120-175)

Although numerous reaches along the Willamette River have significant values for habitat restoration, the section from the McKenzie River north to the Calapooia River has the greatest potential to return natural river functions along the mainstem Willamette. This extensive reach supports the greatest aquatic biodiversity, with actively moving channels and extensive floodplain and forests. This reach has the largest acreage of hydric soils that could be potentially restored to high quality wetland and riparian habitats. It also holds significant value for numerous rare and endangered species including nesting bald eagles, western pond turtles, and red-legged frogs, and provides important seasonal habitat for salmon and steelhead. Ninety percent of the remaining rearing habitat for native spring chinook salmon is found between the McKenzie River confluence and Harrisburg.

A 20,000-acre restored river corridor along this reach of wetland and active floodplain would greatly benefit fish, waterfowl, wading birds, amphibians, and neotropical migrants. Management of 20,000 to 50,000 acres for floodplain restoration could reduce peak flood flows by as much as 18 percent (River Network). This reach of the Willamette River includes important biological “nodes” at the confluence of the Long Tom River, Sam Daws Landing, Snag Boat Bend, Truax Island, Half-moon Bend and Bowers Rock State Park. There is significant potential for acquisition of land or conservation easements and habitat restoration at these important areas, but land will be expensive compared to other places in the valley.

The U.S. Fish and Wildlife Service added a 340-acre property at Snag Boat Bend to its William L. Finley National Wildlife Refuge complex in 2001.

Numerous potential projects with private landowners have been identified along this reach. Cascade Pacific RC&D is working with private landowners to restore 2.5 miles of continuous riparian habitat 180 feet wide from south of Sam Daws Landing to Norwood Island along the east side of the river. The U.S. Fish and Wildlife Service and the Natural Resources Conservation Service restored a 180-acre backwater habitat on private land six miles north of Peoria along Cartney Drive and are working with several other landowners to restore an additional 400 acres of streambank along this stretch of the river.

The Long Tom River below Monroe is also a prime area for restoration of oxbows, wet prairie, seasonal wetland, riparian and forest habitats, as well as stream bank stabilization. Drained and heavily farmed, the area floods during high water periods in winter. Wetland and riparian restoration along this five-mile stretch would greatly increase habitat values for fish and wildlife.

Recommended Actions:

- Secure funding for acquisition of conservation easements or fee title from willing sellers within the floodplain.
- Work with willing landowners to restore oxbow and off-channel habitat, forested wetlands, and seasonal wetlands.
- Create a continuous wetland and riparian corridor along the entire reach.
- Develop off-channel habitat for Oregon chub.
- Protect important rearing habitat for spring chinook salmon.

Coburg Hills

The Coburg Hills area extends east from Interstate 5 to the Coburg Hills and is bounded by West Point Hill on the South and Indian Head on the north. Little Muddy Creek and Pierce Creek drain most of the area. The Bashaw clay soils found on the flats perch water in the winter and dry out during the summer, providing good opportunities for restoration of seasonal wetlands and wet prairie. Upland portions of this area along the lower portions of the Coburg Hills include remnant grasslands, oak savanna and woodlands that provide important habitat for a variety of landbirds. This area has been designated as a Grassland Bird Conservation Area (Altman 2000) and supports the highest concentrations of several grassland bird species in the Willamette Valley. The lower slopes of the Coburg Hills also contain some of the best remnant oak habitats on the east side of the valley.

Like much of this portion of the Willamette Valley, most of the valley floor in this area is currently cultivated for grass seed production. No lands in this area have been formally protected or restored.

Recommended Actions:

- Work with willing private landowners to protect and restore oak and grassland habitats.
- Secure conservation easements or purchase from willing landowners to protect and restore lands for wet prairie and seasonal wetlands.

Muddy Creek

The Muddy Creek area lies just west of Highway 99W from Dawson Road near Monroe north to the creek's confluence with the Marys River, just west of Corvallis. The area includes William L. Finley National Wildlife Refuge, and Beaver and Bull Run creeks. The riparian zone of Muddy Creek and the lower reaches of the Marys River contain diverse native riparian plant communities. The Muddy Creek area contains the best Oregon ash-Oregon oak forest remaining in the valley (TNC 1996).

Finley National Wildlife Refuge (5,235 acres) provides critical habitat for wintering Canada geese and thousands of migratory waterfowl, as well as Oregon chub, western pond turtles, and red-legged frogs. Extensive wetland restoration on the refuge has converted croplands into productive wetland habitat. A high quality native prairie maintained by an active burning program supports Bradshaw's lomatium, Willamette daisy and Nelson's checkermallow (*Sidalcea nelsoniana*). More than 240 acres adjacent to the refuge have been identified for potential acquisition. The refuge also supports extensive oak habitats that provide good opportunities to demonstrate options for restoration and management for use on other ownerships.

Habitat restoration along Muddy Creek would create an important wildlife corridor from the refuge's McFadden Marsh to the Marys River. The Greenbelt Land Trust, U.S. Fish and Wildlife Service, and Oregon Department of Fish and Wildlife have coordinated efforts in this area. The creek has never been channelized and has a good oak and ash riparian forest. Over 1,000 acres of restoration on private land has already taken place in this area, much of it through the Wetlands Reserve Program, including a 220-acre project at the confluence of Muddy Creek and the Marys River. The area is also an important cultural area for the Kalapooya Indians.

The conservation investments already made in Muddy Creek's floodplain areas and the presence of significant oak and grassland habitats make this a good place to pursue broader landscape efforts that address these upland habitat types as well.

Recommended Actions:

- Protect and restore a continuous riparian corridor along Muddy Creek through conservation easements and acquisitions from willing landowners.
- Work with willing sellers around Finley NWR to secure high priority additions to the refuge.
- Continue to provide technical assistance to willing landowners to restore riparian and wetland habitats.
- Work with willing public and private landowners to protect and restore oak and grassland habitats.

Marys River

Situated at the foothills of the Coast Range just west of Corvallis, this area encompasses a diverse range of habitats including seasonal marshes and ponds as well as riparian zones, floodplains, and oak savanna. The complex extends up the Marys River from its confluence with the Willamette through Philomath to Wren and the surrounding hills. Potential restoration projects would increase off-channel habitat, wet prairie, seasonal wetlands and riparian forest for western pond turtles, red-legged frogs, waterfowl, cutthroat trout, and a wide variety of landbirds.

The Marys River area offers a variety of restoration opportunities. Most of the area is agricultural with scattered industrial and rural residential development. Urban uses encroach on the confluence area in Corvallis. The City of Corvallis owns land at the confluence with the Willamette River. The Greenbelt Land Trust and other partners have been working with private landowners to protect additional floodplain and oak habitats along the lower reaches of the river.

The watershed of Newton Creek, a tributary of the Marys River located on the north side of Philomath, includes more than 400 acres of wetland with good restoration potential. The Greenbelt Land Trust has been working to protect and restore this large wetland complex, including a 65-acre private parcel to the northwest containing wet prairie, ash swales and riparian corridor along Newton Creek.

The hills west of Corvallis include extensive oak woodlands and savanna habitats, including Bald Hills Regional Park and portions of Oregon State University's McDonald Forest. These lands offer good opportunities for long-term management to conserve oak habitats, including cooperative efforts with industrial forest land owners. The Nature Conservancy holds a conservation easement donated by Weyerhaeuser that encompasses oak habitats on some of the timber company's ownership in this area.

Recommended Actions:

- Secure funding for purchase of wetland properties along Newton Creek.
- Work with landowners to restore wetlands and riparian habitat on private lands.
- Create a wildlife corridor along the Marys River.
- Work with the City of Philomath and private landowners in the industrial area to protect and restore wetland areas and allow appropriate development.
- Work with public and industrial timberland owners to restore and maintain oak habitats.

Calapooia River Corridor

Drained and used extensively for grass seed farming, the corridor along the Calapooia River still contains some of the best riparian forests remaining in the valley, and the river supports small populations of native spring chinook salmon and summer steelhead. The best riparian zones are found just east of Interstate 5; south of Roberts Drive at Walton Slough; between Highway 99E and Tangent Drive; and in fragments west and south of Albany (TNC 1996). Backwater sloughs and native stands of Sitka and Pacific willow are also found throughout the basin. The Courtney Creek mudflats are the largest vernal pool communities remaining in the Willamette Valley.

Studies of wintering shorebird use in the Willamette Valley found the Calapooia drainage to be extremely valuable habitat for killdeer and dunlin (Haig 2000). The saturated soils, ponding, and low vegetation cover found throughout the drainage provided the necessary wintering habitat requirements for large populations of these shorebirds and lesser numbers of least sandpiper, snipe, longbilled dowitcher, and greater yellowlegs.

Recommended Actions:

- Protect and restore riparian corridor along the Calapooia River from Brownsville north to the confluence with the Willamette River through conservation easements, purchases, and agreements with private landowners.
- Secure conservation easements or purchase land from willing landowners to protect rare vernal pool habitats in the Courtney Creek mudflats.
- Work with farmers to maintain winter ponding and soil saturation on farmed fields to protect wintering shorebird habitat.

Buena Vista

This area just north of Albany is centered on the confluence of the Luckiamute, Santiam and Willamette rivers. Areas along the Willamette River include Buena Vista, American Bottoms and Black Dog Slough, and to the east, Ankeny National Wildlife Refuge. The target area also extends west to Airlie and Maple Grove to include the lower portions of the Luckiamute and Little Luckiamute drainages, and on the south, Soap Creek and the state's E.E. Wilson Wildlife Area. This diverse area encompasses a variety of important valley habitats, including wetlands, floodplain forests, and oak savanna and woodlands. The confluence of the Luckiamute and Willamette rivers historically contained the largest block of cottonwood gallery forest in the Willamette Valley. Although reduced from their historical extent, current riparian forests in this area are among the highest priorities for conservation in the Willamette valley. These forests support large concentrations of neotropical migratory songbirds.

The Luckiamute-Santiam confluence area has high waterfowl and tundra swan use. It also provides habitat for western pond turtles, heron colonies, fish, and numerous landbirds. Historically the area was a series of sloughs, wet prairie, seasonal wetlands and riparian forest. Now, the lowlands are drained and farmed for corn and grass, with eroding banks along the river and creeks.

Ankeny NWR contains extensive shallow-water seasonal wetlands. The refuge provides critical habitat for many of the same species as Finley National Wildlife Refuge. Acquisition of 1,400 acres adjacent to the refuge would provide additional wintering habitat for wintering dusky and other subspecies of Canada geese and many other species. Just east of the refuge, a private landowner began work in 2003 to restore a large block of oak savanna and woodland and riparian habitats.

Throughout the Buena Vista area there is potential for protecting and restoring wetlands and riparian habitat. The seasonally flooded lowlands provide winter habitat for Canada geese, swans and shorebirds. Hundreds of tundra swans and a small group of trumpeter swans regularly feed in this area. Preserving and restoring a mosaic of wet prairie, seasonal wetlands, riparian and forest habitats would greatly increase the habitat along this important section of the flyway, and provide valuable habitat for shorebirds, landbirds, amphibians, and turtles.

A number of Joint Venture partners have been actively pursuing projects in this area for almost a decade, and some key pieces of the conservation strategy are in place. Wetland restoration on the E.E. Wilson Wildlife area and Ankeny National Wildlife Refuge has recreated some important habitats, and projects on private lands have established the foundation for a network of conservation lands in the Luckiamute drainage. Recent acquisitions by the Western Rivers Conservancy and the Oregon Parks and Recreation Department have expanded the large block of protected floodplain habitats around Luckiamute Landing, and the parks department is working to restore and enhance riparian forests on its properties.

Upper portions of the Luckiamute and Soap Creek watershed include extensive oak woodland and savanna habitats. This is a good area to target these habitats because of the potential for linkages with other sites in the emerging network of conservation lands.

Recommended Actions:

- Protect and restore floodplain habitats in the American Bottoms area southeast of Monmouth.
- Protect and restore habitats in floodplain of the Luckiamute River below the confluence of the Little Luckiamute around Mitchell.
- Block up public ownership and restore floodplain habitats around Luckiamute Landing.
- Protect and restore floodplain habitats at the confluence of the Santiam River and Black Dog Slough.
- Work with public and private landowners to protect and restore oak and prairie habitats and forested wetlands in upper portions of the Luckiamute and Soap Creek watersheds.

North Santiam Flats

Defined by the North Santiam River to the south, Highway 22 to the east, Delany Road to the north, and Parrish Gap Road to the west, this valuable bottomland encompasses McKinney Creek, Perrin Lateral Canal, Marion Creek and Mill Creek. This area consists of unique soil types with high organic contents that are presently farmed. Restoration to native habitats would make the bottomlands one of the most productive wetlands in the valley for wintering waterfowl, geese, and shorebirds. The seasonal wetlands and wet prairie habitats would also support a diversity of other wildlife and plants.

Marion County recently took over management of a 77-acre ODOT mitigation site near Aumsville, at the headwaters of Porter Creek, within the Mill Creek Watershed. The county plans to continue to restore the native wetland complex. Marion County Public Works is a willing partner to manage easements and other activities in this area.

Along the North Santiam, the City of Stayton is restoring the waterfront of riparian forest and wetland braided channels and acquired a key 55-acre property in 2003.

At the lower end of this reach of the North Santiam River, Wiseman Island represents one of the largest blocks of relatively intact floodplain habitat in the valley. The Oregon

Department of Fish and Wildlife and Marion County own the bulk of this area, which encompasses about five miles of river.

Recommended Actions:

- Work with public and private landowners to protect and restore seasonal wetlands, wet prairie and riparian forests in the flats.
- Work with the City of Stayton to continue acquisition of wetland and riparian habitat along the North Santiam River.
- Expand protection of floodplain habitats in the Wiseman Island area through easements, acquisitions, or voluntary agreements with landowners.

Baskett Slough

This complex includes the Baskett Slough National Wildlife Refuge and Rickreall Creek. The Baskett Slough refuge (2,500 acres) is situated in open farm fields, just northeast of Dallas. Wetland restoration efforts in recent years have increased the refuge's seasonal wetland habitat, resulting in dramatically increased waterfowl and shorebird use. The refuge and surrounding private lands to the north and east also provide important oak savanna and woodland habitat. Nearly 2,400 acres of land adjacent to the refuge has been identified as providing exceptional wetland restoration values. The refuge also provides valuable habitat for Fender's blue butterfly and Willamette daisy.

Rickreall Creek is a water quality-limited stream because of high summer temperatures and low oxygen levels. The basin is mainly agricultural and joins the Willamette River just above Salem. Despite the adverse impacts, the area has a high restoration potential because of its proximity to Baskett Slough NWR.

One private landowner has already restored more than 400 acres of farmland to seasonal wetlands. The only known site of nesting black neck stilts in the Willamette Valley is found in the private restoration area.

Recommended Actions:

- Work with the Rickreall Watershed Council, DEQ and the City of Dallas to improve the water quality in Rickreall Creek and restore riparian habitat.
- Through conservation easements, projects and acquisition from willing landowners, protect and restore additional native habitats on lands adjacent to the refuge.
- Increase habitat for the Fender's Blue Butterfly and the Willamette Daisy on Baskett Slough NWR.
- Work with private landowners to protect and restore oak woodland and prairie habitats.

South Yamhill

Bordered by Highways 18 and 22 and Baskett Slough NWR to the south, the South Yamhill basin encompasses the South Yamhill river, Salt Creek Bottoms and Upper Ash Swale. In the winter, the area receives extensive use by waterfowl and shorebirds. The South Yamhill River is critical steelhead habitat, though it is limited by late season in-stream flows. The floodplain, wetlands, and sloughs have been extensively drained and farmed for grass seed.

The clay soils found throughout the area are ideal for holding water to restore wet prairies, seasonal wetland and ponds. Ducks Unlimited has identified a 1,500 acre restoration project below the Briggitine Monastery and additional land acquisition opportunities along the South Yamhill River. USFWS holds conservation easements on a portion of Salt Creek. So far, four private landowners participating in the USFWS Partners for Fish and Wildlife program have completed restoration projects adjacent to the refuge along Upper Ash Swale, totaling over 525 acres.

This area includes some of larger blocks of oak woodlands in the valley, which represent one of the best targets for conservation of this habitat.

Recommended Actions:

- Secure in-stream water rights for the South Yamhill River to increase summer flows.
- Restore riparian habitats along Salt Creek Bottoms.
- Pursue opportunities for acquisition of land or easements to protect and restore native habitat along the Upper Ash Swale – Livermore Valley adjacent to Baskett Slough NWR.
- Stabilize the banks of the South Yamhill River through bioengineering projects and riparian plantings.
- Work with landowners to protect and restore wetland, prairie and oak habitats throughout the South Yamhill River basin.

Lake Labish - Pudding River

Considered one of the unique sites in the Willamette Valley, Lake Labish is a peat bog that has been ditched and drained for farming, primarily production of onions. The 800-acre lakebed represents an opportunity to restore a rare wetland type in the valley. The lake bottom soils remain high in organic content, offering the opportunity to restore the land back to seasonal wetlands and wet prairie that characterizes a peat community.

Labish Ditch, controlled by the Labish Drainage District, flows both east and west. The eastern flow drains into the Little Pudding River a few miles before its confluence with the Pudding River, while to the west it drains into the Willamette River. This Labish/Pudding River habitat complex is very degraded but has high potential for wetland restoration. Once an important breeding area for wood ducks, the restoration of forested wetlands, seasonal wetlands and riparian areas along the Pudding River would once again create habitat for waterfowl and improve water quality in the river. Land prices in this area have traditionally been comparable to those found along the Willamette River because of the high value of agriculture crops.

Recommended Actions:

- Protect and restore portions of historic Lake Labish by securing conservation easements or land purchase from willing landowners to restore the bog ecology.
- Work with willing landowners to restore riparian and wetland habitats along the Little Pudding and Pudding River.

Mission – Champoeq Bottoms

Stretching along the Willamette River between Champoeq State Park (1,000 acres) and Willamette Mission State Park (2,000 acres), this area section encompasses 12,000

acres of historic floodplain, oxbows, seasonal wetlands and forested wetlands. This area includes Grand Island, Lambert Slough, Mission Lake, Windsor Slough, Goose Lake, Spongs Landing County Park and Hubbard Lake.

Like most areas along the Willamette the majority of the wetlands have been drained and the land is farmed in corn, pumpkins, hops, legumes and grass seed. Recently, increased acreage is being planted to Christmas trees and nursery stock. Bank erosion is extensive throughout the area and the river is encroaching back into the historic floodplain. The area is interspersed with meandering sloughs and oxbows that are essentially isolated from each other. Two endangered plants, Nelson's checkermallow and Bradshaw's lomatium, are probably found in the area.

The area floods regularly during winter, creating valuable habitat for waterfowl and long-legged shorebirds. This is a traditional dusky Canada goose use-area. The area around Mission Bottom contains extensive bigleaf maple forests in Willamette Mission State Park. Restoration of oxbows, the historic channel, riparian areas, wet prairie, seasonal wetlands and forested wetland would greatly increase the habitat value along the river.

Oregon Parks and Recreation Department is undertaking a series of conservation projects at Willamette Mission and Champoeg state parks, including restoration of high water flows through Mission Lake, cover cropping on agricultural fields, and several other wetland and upland restoration projects.

Recommended Action:

- Pursue opportunities for acquisition of land or easements to protect and restore wetland and floodplain habitats along the Skookum Lake bottom.
- Pursue opportunities for acquisition of land or easements to protect and restore wetland and floodplain habitats in the Mission Bottom, Grand Island and Lambert Bend areas.
- Reconnect sloughs and oxbows to the main channel.
- Work with state parks to complete planned restoration projects.

Tualatin Basin

The Tualatin River meanders through Washington County for more than 70 miles from its headwaters in the Coast Range and through Clackamas County for eight miles before joining the Willamette River at West Linn. The Tualatin runs through a mosaic of agriculture, commercial and industrial land uses. The extensive floodplain and historic riparian areas are the major targets for restoration at Wapato Lake near Gaston, Fernhill Wetlands in Forest Grove, Jackson Bottom Wetlands in Hillsboro and the Tualatin River National Wildlife Refuge near Sherwood. Metro Parks and Greenspaces has purchased access points along the river that will establish a canoe trail connecting the many natural area nodes. Further up in the basin, Metro has also purchased Banks Marsh, located on the west fork of Dairy Creek off of Highway 6, a large remnant of forested and scrub-shrub wetland that used to be found throughout the basin.

The goals for these major restoration areas are to restore native plant communities and hydrology, and to protect, restore and develop a diversity of habitats for migratory birds

including songbirds, wading and shorebirds, wintering waterfowl, and resident and anadromous fish.

Wapato Lake, located in the headwaters of the Tualatin River valley, was historically one of the most important waterfowl sites in the Willamette Valley and is still used extensively in the winter by dabbling ducks, Canada geese, and swans. The U.S. Fish and Wildlife Service manages 150 acres of land in the ancient lakebed. The entire lakebed, approximately 1,000 acres, has high potential for wetland restoration. The area is currently ditched, drained and farmed. Most of the landowners have expressed interest in selling their land to the Fish and Wildlife Service, which is studying options for a new refuge unit encompassing Wapato Lake and the riparian systems along the Tualatin River downstream to near Fern Hill.

Fern Hill Wetlands will be approximately 300 acres at build out with a mix of lakes, ponds and wetlands. As part of the restoration efforts, Clean Water Services is establishing a wetland mitigation bank at the site. Students at Pacific University in Forest Grove use the wetlands as an outdoor classroom. They are doing extensive monitoring of the restoration activities and different attempts to control exotic species, especially reed canary grass.

Jackson Bottom Wetlands Preserve has restored 650 acres of the Tualatin floodplain. The master plan for Jackson Bottoms sets a goal of 3,000 acres of restored habitat containing six river miles. With Metro's purchases in the area and required mitigation for a landfill, a total of 912 acres will be restored within the next few years.

The Tualatin River National Wildlife Refuge, with an authorized boundary encompassing 3,058 acres along 10 miles of the meandering river, currently includes almost 1,100 acres. A 400-acre restoration of seasonal, permanent, and forested wetlands and riparian habitat has been completed, with another 140-acre restoration project in the works. The refuge's other restoration targets include riparian forest, forested wetland, scrub-shrub wetland, emergent marsh and wet prairie habitat, 75 percent in the 100-year floodplain of the Tualatin River.

Recommended Actions:

- Pursue opportunities to protect and restore habitats in the floodplain identified in the management plans for the Tualatin NWR, Fern Hill Wetlands and Jackson Bottoms Wetland Preserve.
- Pursue establishment of a new national wildlife refuge unit in the historic Wapato Lake area and restore wetlands and riparian habitats.
- Enhance natural function and promote reestablishment of native wetland plant community in Banks Marsh.

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 - Ken Hale, NRCS - Dallas Office (10/13/00)
 - Tim McNeil – River Network (10/18/00)
 - Matt Thorburn, Keli Kuykendall, Bob Hansen – Marion Co. Public Works (10/25/00)
 - Steve Smith – Oregon Department of Fish and Wildlife (10/26/00)
 - Dana Field – Oregon Division of State Lands (11/3/00)
 - Jim Houk and Mark Fisher – U.S. Fish and Wildlife Service (11/8/00)
 - Ralph Webber – U.S. Fish and Wildlife Service (11/14/00)
 - Karlene McCabe – Greenbelt Land Trust (11/15/00)
 - Ed Alverson – The Nature Conservancy, Eugene (11/17/00)
 - Michael Carlson – Clackamas River Watershed Coordinator (11/29/00)
 - Chris Bonsignore – Ducks Unlimited (11/30/00)
 - Matt Rea – U.S. Corps of Engineers, Portland District (12/1/00)
 - John Runyon, Private Consultant working on the McKenize(12/6/00)
 - Karen Strohmeier, Cascade RC&D, Corvallis (12/12/00)
 - Rob Stockhouse – Pacific University (12/15/00)
 - Pat Willis – Jackson Bottoms (12/15/00)
 - Tom Vander Platt – Unified Sewage Agency (12/15/00)
 - Steve Gordon – Lane Council of Governments (12/18/00)
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