Umpqua Prairie and Oak Partnership
Conservation Strategy

December 2013

Overview

This project was conducted by The Nature Conservancy with extensive input from the Umpqua Prairie and Oak Partnership and is intended to frame out a long-range vision and plan of action for the protection and restoration of the oak and prairie landscape of the central Umpqua Basin. The landscape level concept map and conservation strategies included in this report are non-regulatory and subject to volunteer property owner participation.

Umpqua Prairie and Oak Partnership

The development of this plan was guided by a Technical Committee representing the Umpqua Prairie and Oak Partnership. The Technical Committee provided local knowledge, expertise, and feedback throughout this planning effort and will be instrumental for implementing the proposed conservation strategies. The Umpqua Prairie and Oak Partnership include the following agencies and organizations:

- US Bureau of Land Management (BLM)
- Douglas Soil and Water Conservation District
- Lomakatsi Restoration Project
- Oregon Department of Fish and Wildlife
- Natural Resources Conservation Service (NRCS)
- The Nature Conservancy
- US Fish and Wildlife Service (USFWS)

Technical Analysis

Detailed descriptions of the data and analysis used during this planning process have been documented in various technical reports and are available from the US Bureau of Land Management upon request.

Special Thanks

This effort would not have been possible without funding assistance from the U.S. Bureau of Land Management through the Resource Advisory Council's Title II Secure Rural Schools and Community Self-Determination Program with matching funds provided by The Nature Conservancy.

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Report Produced By

The Nature Conservancy, with assistance from Jeff Krueger Environments LLC

Project Purpose and Background

Project Purpose

The purpose of this partnership project was to create a set of conservation strategies and an associated concept map that will help direct efforts to protect and improve the oak and prairie landscape of the central Umpqua Basin. The conservation strategies will be implemented by a broad partnership of public land management agencies, local landowners, and non-profit organizations. Benefits of the project will include long-term conservation and enhancement of Oregon white oak and prairie/grassland habitats, which are identified in the *Oregon Conservation Strategy* (ODFW, 2006) as key strategy habitat types for the ecoregion.

Contents

Background

The central Umpqua Basin is home to most of Douglas County's residents and its signature oak and grassland/prairie communities are very much a part of the region's natural and cultural heritage. The combination of geology and climate have created a unique landscape characterized by hills and valleys covered with oak savannas and woodlands, mixed oak-conifer forests, and open grasslands. The landscape provides ranch lands, pastures, hay fields, woodlots, and habitat for native plants and wildlife. Both the commercial and ecological values provided by this landscape are under threat.

Oak savanna and woodland are common on the hills and valleys of the Umpqua basin.

Although the landscape includes many different tree species, Oregon white oak (*Quercus garryana*) best characterizes it. The range of this species extends from northern California up into the very southern portion of British Columbia. According to *A Landowner's Guide for Restoring and Managing Oregon White Oak Habitats* (Vesely and Tucker 2004), oak forest and associated habitats in the Pacific Northwest are among the most threatened forest types in North America. The *Oregon Conservation Strategy* (ODFW 2006) estimates that oak woodland may now occupy only four to seven percent of their historic range. Oak savannas and oak woodlands are known to be used by more than 200 species of native wildlife, including the

The Umpqua Basin contains some of the largest remaining landscape-scale examples of Oregon white oak forests and savannas in the Pacific Northwest.

Columbian white-tailed deer, western gray squirrel, white breasted nuthatch, western bluebird, Oregon vesper sparrow, and purple martin. Several invertebrates, including various moths, butterflies, gall wasps, and spiders are found exclusively in association with Oregon white oak habitats. Many plant species are also endemic to oak habitats, including the following listed species: Kincaid's lupine, red root yampah, rough popcorn flower, and Hitchcock's blue-eyed grass. It has been documented that as many as 186 species of birds and mammals use oak species as a food source. Similarly, the grasslands often associated with these oak habitats have also been reduced significantly in extent and quality over time, as have the wildlife species dependent on this open landscape structure.

Each state and province within the range of the Oregon white oak recognizes the value of and threats to oak habitat types and, therefore, have recognized them as conservation emphasis areas. The Umpqua Basin lies in the heart of the range and contains extensive remaining landscape-scale examples of white oak forests and savannas with associated grasslands. However, these vegetation types are not static and are being changed by a number of factors including invasive species, the lack of controlled burns, and development pressure (both agricultural and urban). Without action, these threats increase risk of wildfire and decrease the habitat for many species dependent on oak habitat for survival.

This project is a key step in the process of understanding the landscape that surrounds us and helping private and public landowners make active and informed decisions about oak and grassland/prairie habitat management.

Photo: Cary Kerst

Acorn Woodpecker

Planning Process

The development of this plan was guided by a Technical Committee, which provided local knowledge and expertise as well as reviewed draft products. The Technical Committee consisted of local representatives from the following agencies and organizations:

- US Bureau of Land Management
- Douglas Soil and Water Conservation District
- Lomakatsi Restoration Project
- Oregon Department of Fish and Wildlife
- Natural Resources Conservation Service
- The Nature Conservancy
- US Fish and Wildlife Service

In addition to the Technical Committee, a *Stakeholders* group representing a broad range of interests was formed, and both participated in a planning workshop held on May 12, 2012. A total of 40 attendees representing both the Technical Committee (listed on previous page) and the Stakeholders group participated in this day-long event. Stakeholder participants included representatives from the American Bird Conservancy, Friends of Kanipe Park, Umpqua Watersheds, Douglas Forest Protective Association, McKenzie River Trust, US Forest Service, Trout Mountain Forestry, OSU Extension Service, South Umpqua Rural Community Partnership, Umpqua Valley Audubon Society, and Oakland School District (AmeriCorps), plus four private land owners. Workshop participants focused on generating conservation priorities for both species and habitats, identified threats to those priorities, and created strategies to mitigate those threats. They also provided local knowledge to map the geographic locations of potential conservation priority areas. The Technical Committee led the effort of compiling input from the Stakeholder workshop and other sources to generate the recommendations described herein.

Stakeholders and Technical Committee members used local knowledge to identify conservation strategies and priority conservation areas.

North Umpqua River

Central Umpqua Planning Area

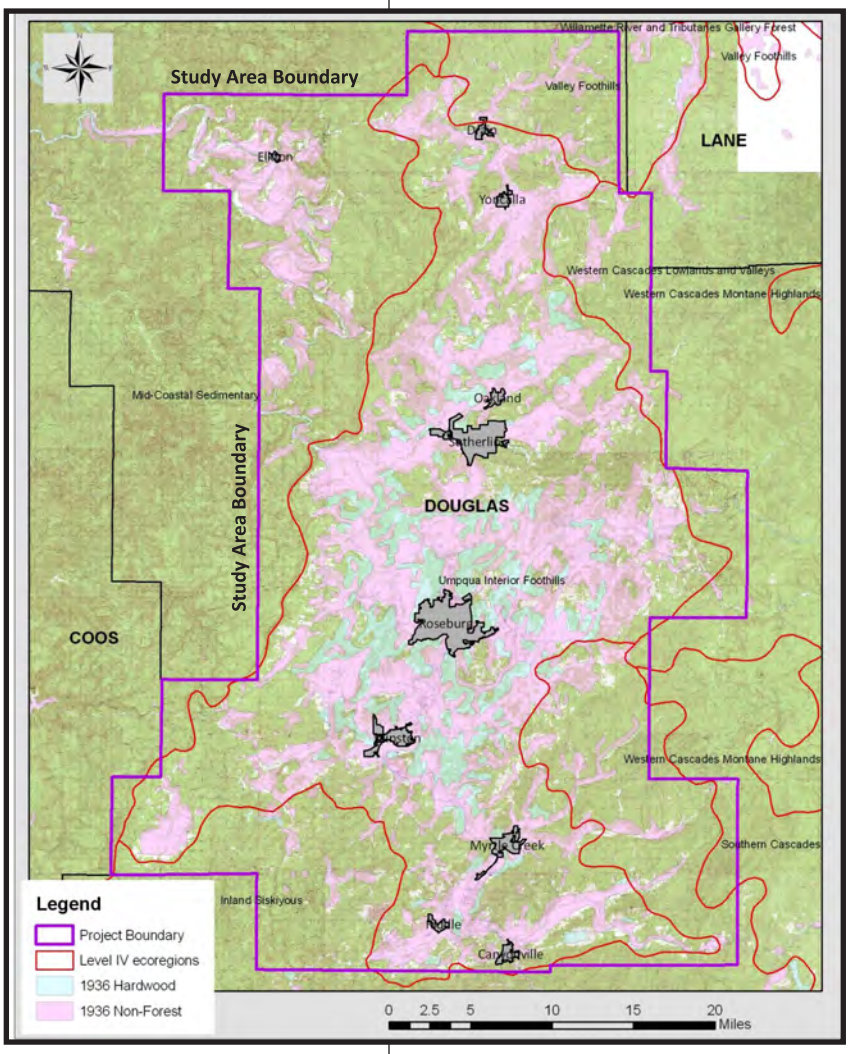


Figure 1: ***Study Area Map***

General vegetation trends in the Umpqua Basin between 1850 and 2010 include a significant loss of prairie-savanna and woodland, a significant increase in conifer and mixed forest, and slight increases in urban and intensive agricultural land uses.

Study Area Boundary

The Technical Committee delineated the study area to encompass the 1936 extent of prairie and oak vegetation within the basin (see Study Area Map). The 1936 data were used because they are the earliest data available that cover the entire project area. Additionally, the extent of prairie and oak vegetation at the time could arguably represent the maximum possible restorable extent of these habitats in the central Umpqua Basin. The study area covers nearly 770,000 acres.

Current and Historic Vegetation

To help understand the vegetation changes in the central Umpqua Basin since Euro-American settlement, maps of historic and current vegetation were compiled. Three vegetation layers were used for the comparison: 1850, 1948, and 2010 (1850 and 2010 shown on facing page). *General Land Office* information gathered by surveyors between 1851 and 1917 was used to generate the 1850 vegetation layer. The layer was completed in stages, funded by the BLM (1997-1999) and the Oregon Watershed Enhancement Board (2003). It was later refined by the Oregon Biodiversity Information Center (2009). Aerial photographs were used to develop the 1948 and 2010 layers. The vegetation categories in each layer were equated to five vegetation types:

- Conifer or Mixed Forest
- Oak Woodland
- Prairie-Savanna
- Intensive Agriculture
- Other (urbanized lands)

Over the last 160 years (1850 to 2010), some vegetation cover classes within the study area have remained fairly constant while others have changed dramatically. For example, there has been a relatively small increase in land converted to more urban uses (from 1% to 3% cover) and in land converted to intensive agricultural uses (+ 2% cover). More significant changes include a reduction of prairie, savanna, and oak woodland (- 350,000 acres, from 80% to 31% cover) paired with a corresponding increase in conifer or mixed conifer/hardwoods (+300, 000 acres, from 19% to 64% cover). This trend of increasing conifer and mixed forest cover is likely due to cessation of Native American burning and long-term fire suppression, which has allowed less fire resistant woody vegetation to establish.

Figure 2: *1850 Vegetation Map*

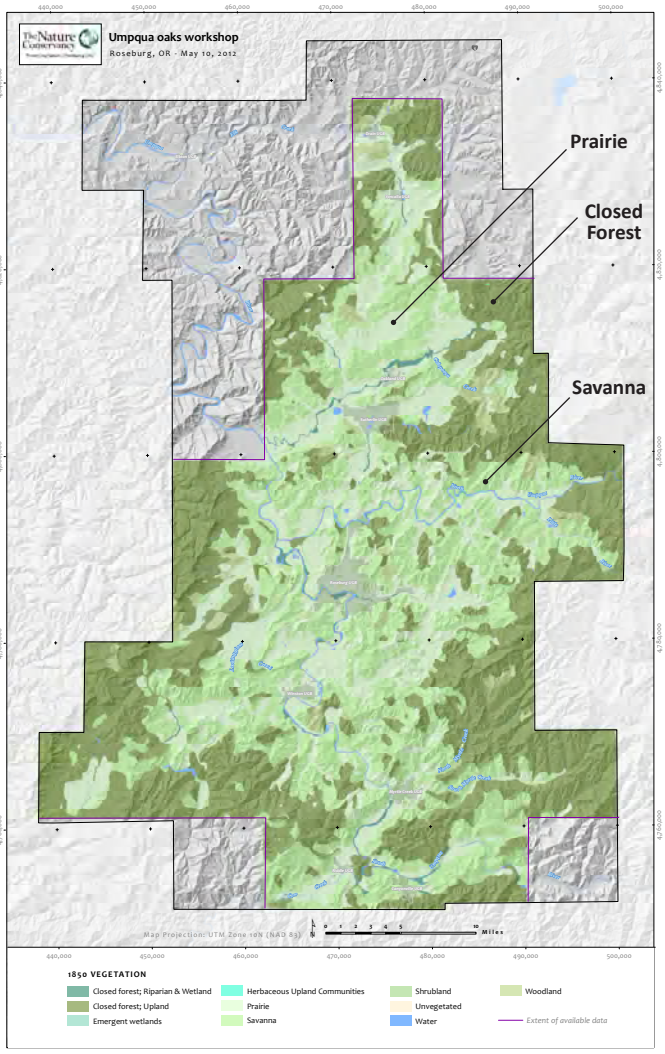
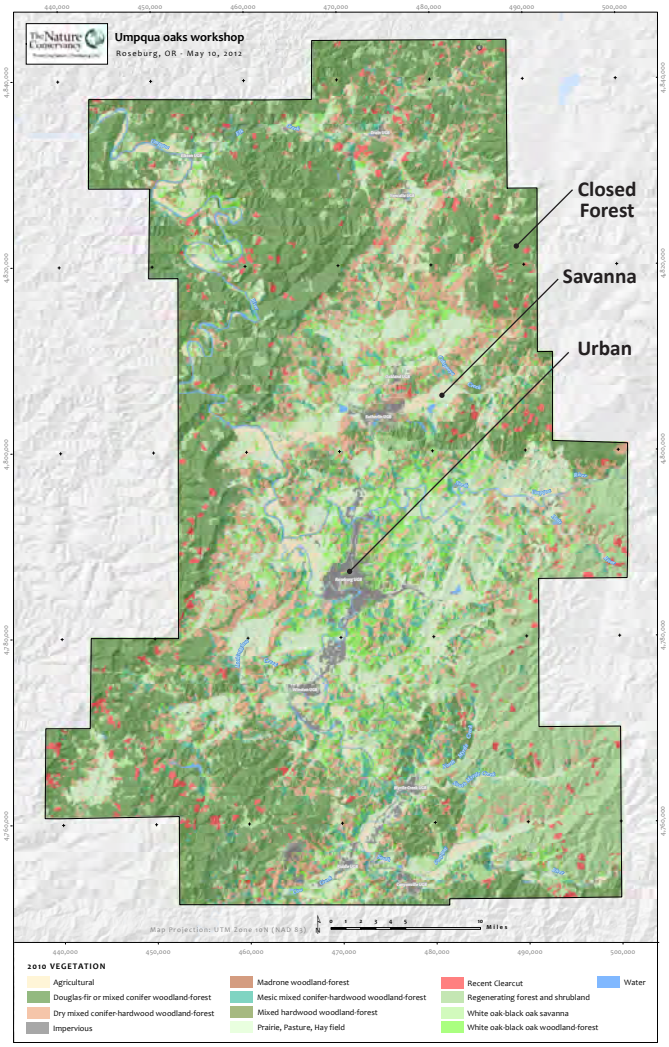


Figure 3: *2010 Vegetation Map*



Despite the large loss of prairie, savanna, and woodland; 20% of the land (over 150,000 acres) still remains open with prairie or savanna structure today. These areas appear to be largely managed as pasture. Additionally, 11% (over 80,000 acres) of the land appears to contain habitats with oak woodland structure.

This large amount of prairie and oak habitat represent a significant opportunity to protect and build a landscape-scale system of restored and protected areas.

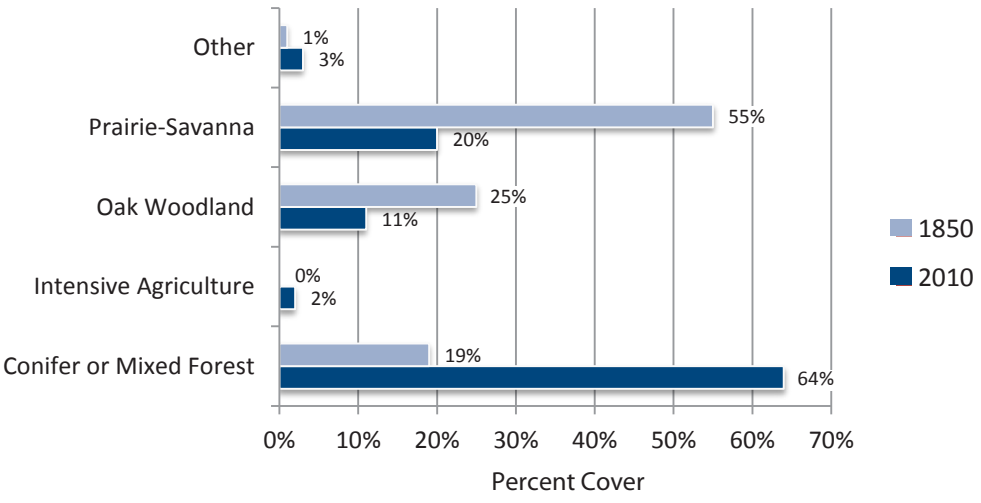


Figure 4: *Change in Vegetation Cover from 1850 to 2010*

The 'target' systems and associated plant and animal species of the Umpqua Study Area will be prioritized for future conservation and restoration efforts.

Conservation Priorities

Conservation 'targets' is a term used to describe a set of species, communities, and ecological systems that are chosen to represent and encompass the full array of biodiversity found in a project area. The term 'system target' is used for large-scale ecological systems and the term 'nested species target' denotes a particular species of conservation importance that depends on the system target. The list of system targets generated by the Technical Committee include:

- **Grasslands** of prairie, serpentine, herbaceous balds, chaparral, and savannas that could contain California black oak, Oregon white oak, ponderosa pine and/or Douglas-fir
- **Upland Oak Woodland/Forests** of California black oak, Oregon white oak, and/or madrone
- **Bottomland Oak Woodland/Forests** of Oregon white oak and/or Oregon ash
- **Oak-Conifer Mixed Forests** of Oregon white oak, California black oak, madrone, Douglas-fir, and/or incense cedar

Grasslands

Upland Oak Woodland/Forests

Bottomland Oak Woodland/Forests

Oak-Conifer Mixed Forests

Figure 5: ***Conservation Targets and Important Nested Targets***

Primary Targets	Key Attributes	Current Key Attribute Condition	Nested Targets (Threatened or Endangered ESA species in **bold**)	
Systems	**Size, Composition, or Structure**	**Poor, fair, good, very good**	**Plants**	**Animals**
Grasslands Prairie, Savanna (Black Oak, White Oak, Ponderosa Pine), Serpentine, Chaparral, and Herbaceous Balds	Size =	**Good** for size of connected habitat blocks.	Cox's mariposa lily, dwarf false rue anemone, Hitchcock's blue-eyed grass, **Kincaid's lupine**, Koehler's rock-cress, red-root yampah, **rough popcorn-flower**, shaggy horkelia, thin-leaved peavine, Umpqua mariposa lily, white fairy poppy	Columbian White-tailed Deer, Sharp-tailed Snake, Yuma Myotis, Acorn Woodpecker, Common Kingsnake, California Towhee, Lewis' Woodpecker, **Oregon Vesper Sparrow**, Western Bluebird, Grasshopper Sparrow, White-breasted Nuthatch, Ash-throated Flycatcher
	Composition =	**Poor** for herbaceous layer composition.		
	Structure =	**Fair to good** for open-grown oak tree morphology.		
Upland Oak Woodland/Forest (Black Oak, White Oak, Madrone)	Structure =	**Fair** for significant invasive shrub and small tree component which alters historic structure and composition.	**Kincaid's lupine**	Columbian White-tailed Deer, Sharp-tailed Snake, Yuma Myotis, Common Kingsnake, Acorn Woodpecker, Blue-gray Gnatcatcher, Lewis' Woodpecker, Western Bluebird, White-breasted Nuthatch, Ash-throated Flycatcher
	Composition =	**Poor** for herbaceous layer composition.		
Bottomland Oak Woodland/Forest (White Oak, Oregon Ash)	Size =	**Fair** for size of connected habitat blocks.	Dwarf false rue anemone **Rough popcorn flower**	Columbian White-tailed Deer, California Kingsnake, Downy Woodpecker, Lewis' Woodpecker, Acorn Woodpecker, White-breasted Nuthatch
	Composition =	**Poor** for herbaceous layer composition.		
	Structure =	**Fair** for over dense canopy structure.		
Oak-Conifer Mixed Forest (White Oak, Black Oak, Madrone, Douglas-Fir, Incense Cedar)	Structure =	**Fair** for over dense canopy structure.	**Kincaid's lupine**	Columbian White-tailed Deer, Yuma Myotis, California Kingsnake, Lewis' Woodpecker, White-breasted nuthatch
	Composition =	**Poor** for herbaceous layer composition.		

Photo: Matthew Hunter

Oregon Vesper Sparrow

Columbian White-tailed Deer

Ash-throated Flycatcher

Native understory and prairie species, as shown above, are often displaced by invasive non-native species.

Habitat Loss and Threats

The term 'threat' is used to describe the various factors that immediately affect the ecological integrity of target habitats, which in this case include grasslands, upland oak woodland/forests, bottomland oak woodland/forest, and oak-conifer mixed forests. During this planning process, a comprehensive list of all likely threats occurring in the central Umpqua Basin were identified and then distilled into the seven most critical threats listed below:

Threats

1. Understory non-native invasive species (displacing native species)
2. Change from historic fire management regime
3. Woody plant invasion in historically open habitats (trees and shrubs moving into grasslands)
4. Conifer encroachment/increased tree density (overtopping oak and shading understory species)
5. Conversion to intensive agriculture (viticulture, row crops, etc.)
6. Incompatible grazing regime
7. Habitat loss due to rural residential development

See proposed Conservation Strategies identified to address threats (next page) →

Conifer encroachment and increased tree density will displace savanna and oak woodland over time.

Woody vegetation (trees and shrubs) will colonize grasslands without management actions.

Strategy Development

A set of 'priority conservation strategies' were developed by the Steering Committee based on input provided at the Stakeholders at the May 2012 workshop and evaluation of projected benefits, feasibility, and cost of implementing each strategy. Each conservation strategy is intended to address critical threats to restore degraded targets and protect habitat. The priority strategies are listed in the table below under the categories of Coordination and Prioritization, Outreach and Demonstration, and Ecological Treatment. Numbers in parenthesis indicate which of the habitat threats listed on the previous page are addressed by the strategy.

California black oak in spring

Priority Conservation Strategies

(Numbers indicate which 'threats' each strategy is intended to address)

Coordination and Prioritization

- Formalize *Umpqua Prairie and Oak Partnership* (1, 2, 3, 6)
- Continue to refine extent of priority units (yellow polygons on map) to focus partner resources (1, 2, 3, 6)
- Inventory and ground truth prioritized areas (1, 3, 7)

Outreach and Demonstration

- Utilize and refine oak restoration guidelines (2, 3, 4)
- Develop pasture/prairie management guidelines (1, 2, 3, 6)
- Continue to implement habitat restoration demonstration projects (1, 2, 3, 4)
- Maintain ability to use ecological burns and educate the public on associated benefits (2, 3)
- Promote conservation-oriented vineyard management practices (5)
- Work with community leaders on restoration projects to build credibility with the community (2, 3)
- Develop stewardship plans for private lands (1, 2, 3)
- Conduct outreach and distribute educational materials to support habitat conservation (5, 6)
- Explore use of voluntary conservation easements as a tool for habitat protection where appropriate (1, 2, 3, 5, 6, 7)

Ecological Treatment in Priority Areas

- Implement restoration projects on private lands (1, 2, 3, 4)
- Work to control invasive species and increase native species (2, 3)

Ecological burn

Pasture with oaks

Photo: Bob Altman

Conservation Strategy Map Development and Purpose

The *Conservation Strategy Map* (facing page) was developed by the *Umpqua Prairie and Oak Partnership* and refined through a combination of GIS analysis, field surveys, and aerial photo interpretation. The map depicts areas identified as having high value oak and prairie habitat, locations of areas that are actively being managed for habitat values, and critical habitat connectors or corridors. The landscape level concept is intended to help the Partners focus their future habitat management resources with the goal of preserving, enhancing, and connecting large viable patches of habitat. The strategy depicted on the map is non-regulatory and subject to volunteer property owner participation.

Map Legend Key

- Umpqua Study Area Boundary: Established by the Community Partners, the study area boundary encompasses nearly 770,000 acres of the central Umpqua basin and is based on current and historic extent of oak and prairie habitat.
- State and Federal Ownership: Consolidated state and federal owned lands. Within the study area boundary, this is almost exclusively in U.S. Bureau of Land Management ownership.
- County Ownership: Douglas County owned properties (includes parks).
- Existing Conservation Anchors: Relatively large areas of public land that are being managed to benefit habitat including oak and prairie. Within the study area, this includes the 1,100-acre Kanipe County Park (Douglas County) and the 6,600-acre North Bank Habitat Conservation Area (BLM).
- Priority Areas: Areas containing significant concentrations of high-value oak and prairie habitat based on *Partnership* assessment.
- Habitat Restoration Projects on Private Lands: Major habitat restoration projects that have occurred on private lands through NRCS led programs, which include oak release, invasive species control, and pasture improvement.
- Key Habitat Connectors: Areas that could function as habitat corridors between Priority Areas if enhanced. These include a corridor between the Roseburg and Myrtle Creek units and between the North Umpqua and Kanipe units.

Priority Conservation Units

A total of six Priority Conservation Units have been identified, covering a total of approximately 143,700 acres, or 19 percent of the Umpqua study area. These units, which will be refined over time, include:

- Kanipe Unit: Approximately 31,900 acres located to the north of Oakland. The 1,100-acre Kanipe County Park serves as a Conservation Anchor for this unit.
- North Umpqua Unit: Approximately 42,800 acres located along the North Umpqua River. The 6,600-acre North Bank Conservation Area (BLM owned and managed for Columbian white tailed-deer) serves as a Conservation Anchor for this unit.
- Roseburg Unit: Approximately 30,800 acres located to the south and east of Roseburg.
- Eagle Point Unit: Approximately 3,800 acres located to the northwest of Oakland. This unit contains important grassland bird habitat.
- Calapooya Unit: Approximately 8,500 acres located along lower Calapooya Creek to the west of Sutherlin. This unit provides important grassland bird habitat and a connection to the Umpqua River.
- Chaparral Unit: Approximately 25,900 acres located in proximity to the South Umpqua River. In addition to oak habitat, this unit contains areas of chaparral, which is uncommon in the Umpqua Valley and the northernmost known population of the California Towhee.

Priority Conservation Strategies

Coordination and Prioritization
- Formalize *Umpqua Prairie and Oak Partnership*
- Continue to refine extent of priority units (yellow polygons) to focus partner resources
- Inventory and ground truth prioritized areas

Outreach and Demonstration
- Utilize and refine oak restoration guidelines
- Develop pasture/prairie management guidelines
- Continue to implement habitat restoration demonstration projects
- Maintain ability to use ecological burns and educate the public on associated benefits
- Promote conservation-oriented vineyard management practices
- Work with community leaders on restoration projects to build credibility with the community
- Develop stewardship plans for private lands
- Conduct outreach and distribute educational materials to support habitat conservation
- Explore use of voluntary conservation easements as a tool for habitat protection where appropriate

Ecological Treatment in Priority Areas
- Implement restoration projects on private lands
- Work to control invasive species and increase native species

Eagle Point Unit
Kanipe Unit
North Umpqua Unit
Calapooya Unit
Roseburg Unit
Chaparral Unit
Kanipe County Park
North Bank Habitat Conservation Area (BLM)
Whistlers Bend Park
Elkton
Drain
Yoncalla
Oakland
Sutherlin
Roseburg
Winston
Myrtle Creek
Riddle
Canyonville
Hwy 38
Hwy 138
Hwy 42
I-5
Umpqua River
North Umpqua
South Umpqua
Coast Fork Willamette Rv.
Elk Cr.
Bachelor Cr.
Pollock Cr.
Oldham Creek
Connector
Calapooya
Hidden Valley Cr
Cooper Cr.
Huntley Cr.
Oak Cr.
Deer Cr.
Lookingglass
Rice Cr.
Willis Cr.
Myrtle Cr.

Umpqua Prairie and Oak Partnership
Conservation Strategy Map

Legend
- Umpqua Study Area Boundary
- State and Federal Ownership
- County Ownership
- Rivers and Streams
- Urban Growth Boundaries
- Highways
- Existing Conservation Anchors*
- Priority Conservation Units (High Value Habitats)
- Habitat Restoration on Private Land (NRCS projects)**
- Key Habitat Connectors (Focus Restoration to Improve Connectivity)

* *Conservation Anchors* are areas that are currently being managed primarily for habitat conservation and restoration.
** Additional restoration projects underway in the basin are not displayed.

0 2.5 5 Miles
Scale
One Square Mile = Square Mile

N W E S

Figure 6

December 2013

The Nature Conservancy
Protecting nature. Preserving life.

Map prepared by
Jeff Krueger Environments LLC

The *Conservation Strategy* depicted on this map was developed by the *Umpqua Prairie and Oak Partnership* and refined through GIS analysis, field surveys, and aerial photo interpretation. The *Conservation Strategy* is non-regulatory and subject to voluntary land owner participation.