



WATERSHED EVENTS



The Importance of Oregon White Oaks and Native Willamette Valley Prairies

For the past 20+ years, the Glenn and Gibson Creeks Watershed Council (GGWC) has worked to establish an Oregon White Oak (*Quercus garryana*) / Native Willamette Valley Prairie ecosystem on a 14 - acre parcel of land off Orchard Heights Road south of Fire Station #11. We call it the Orchard Heights Oak Savanna.

Restoration of this City of Salem owned property has come with challenges. Neighbors worry about fire danger. Encroachment happens. Armenian Blackberry threatens to take over the entire project. Yet, we persist because this habitat is so important and is in severe decline. At one time, this habitat type dominated the Willamette Valley. Currently, less than 3% is left. Most of this 3% is privately owned. There are no legal protections for native Oak habitat in Oregon. The City of Salem regulates Oregon White Oak trees greater than 24" Diameter at Breast Height (DBH) but regulation is not the same as protection. Native Willamette Valley prairie is completely unregulated.

Why do we care about this loss? The importance of Oak Savanna / Prairie Habitat lies in the amount and diversity of life that it supports. Oregon White Oak trees and prairies are important habitat for over 200 bird species. Studies show that the genus *Quercus* hosts more caterpillars and other insect life than any other genus in the northern hemisphere. Many amphibians, reptiles and mammals also depend upon Oak / grassland habitat. The ecosystem surrounding native oaks provides a range of environmental benefits from preventing soil erosion to promoting water infiltration.



Orchard Heights Oak Savanna Grassland

In this issue, focus is on the importance of Oak Savanna / native prairie habitat. We cover some history, the natural values these habitats provide, why they are in decline, where to find remaining examples, and how to create this habitat on your own property.

The Western bluebird is one imperiled bird species that depends upon Oak / prairie habitat

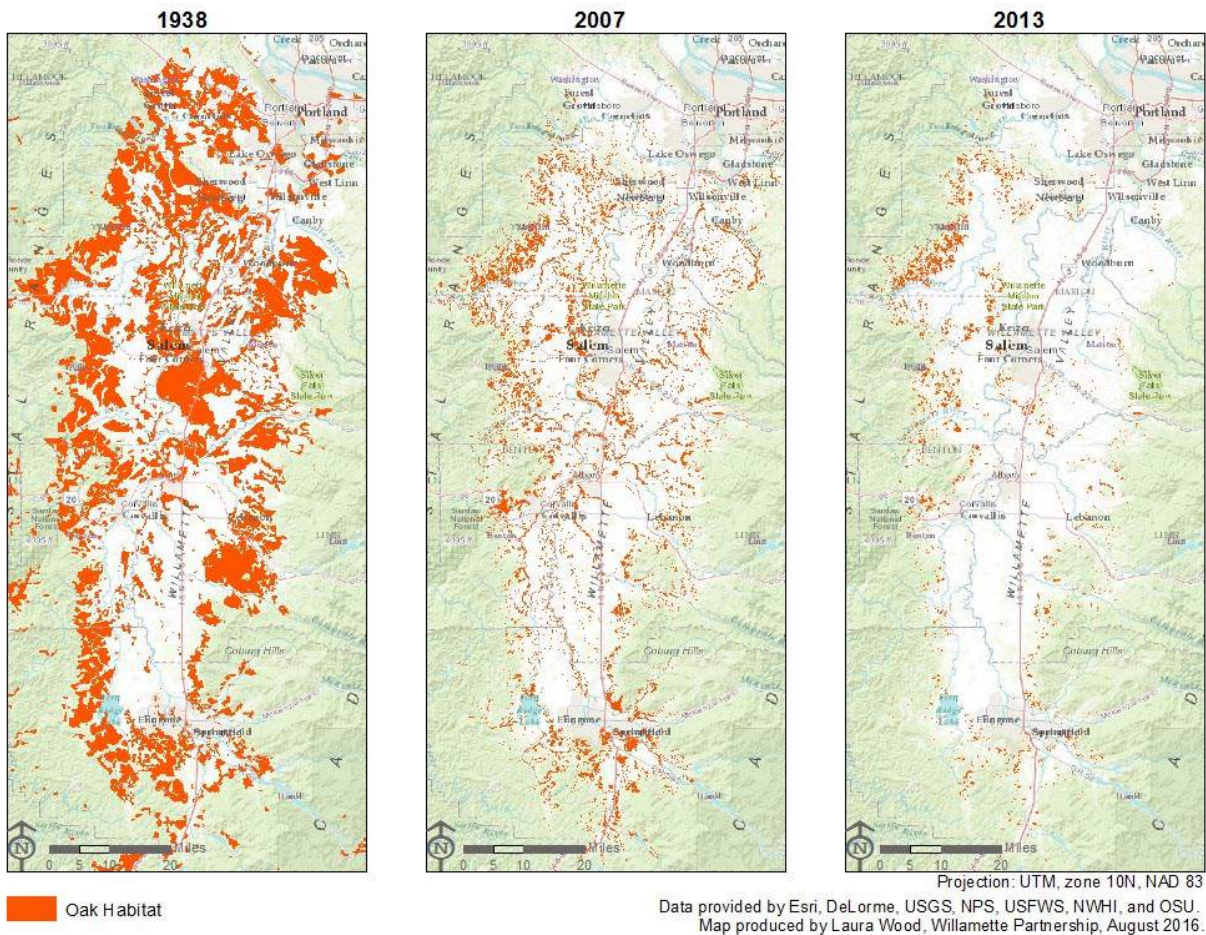


Acorn woodpecker



Owl photo courtesy of Maureen Foelkl

Willamette Valley Oak Habitat, 1938-2013



Critical habitat shrinking

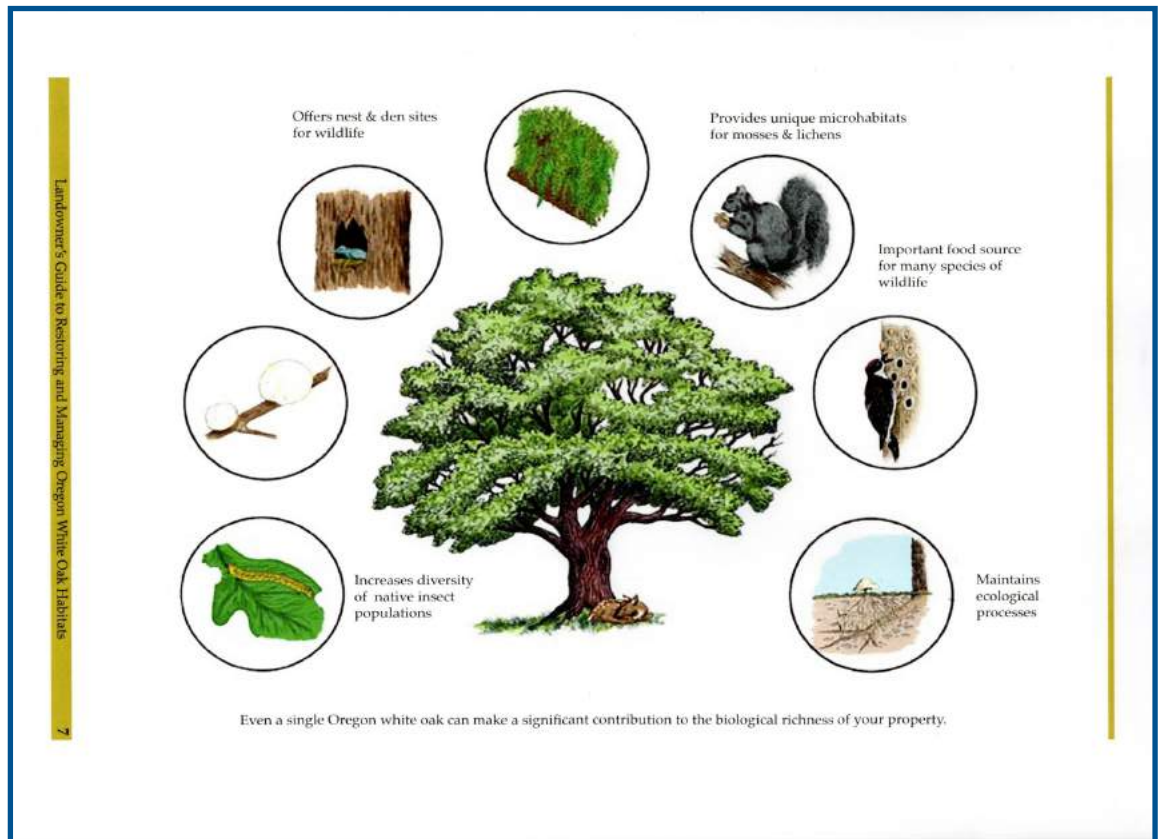
Oak Savanna and Woodlands and the native prairie associated with them once covered 400,000 acres in the Willamette Valley. Today less than 3% of historic oak habitat remains due to fire suppression, development, and conversion to agricultural land. Vineyards are commonly situated in oak habitat because grapes grow well in the soil. Currently, there are no legal protections for native oak habitat in Oregon.

For millennia, native peoples managed the Willamette Valley with fire to maintain Oak Savanna, characterized by open prairies and scattered oak groves. European colonists brought change through fire suppression and agriculture. With fire suppression, Oak Savanna gave way to a greater percentage of Oak Woodland. Agriculture brought monoculture and pesticides, converting diverse native habitats to specialized crops. Rivers and streams were channelized causing the loss of wet meadows and prairies. These trends continue today. Population growth in the Willamette Valley has led to urban sprawl, replacing native trees and vegetation with hard surfaces and non-native landscaping.

The result is a catastrophic loss of habitat and drastic decline in a wide swath of non-human species including plants, insects, birds and mammals. The loss of terrestrial species is mirrored in aquatic life. The incidence of macroinvertebrates, fish and other aquatic species has narrowed both in range and population numbers. Pollinators that specialize and depend upon a single plant species such as Fender's Blue and Western Monarch butterflies are in even more severe decline, to the point that we are threatened with species loss.

Recovering these important habitats is difficult and will require recognition at all levels, on both public and private lands, of their importance as well as willingness to work toward recovery.

This illustration from the **Landowner's Guide to Oregon white Oak Habitats** demonstrates the wide variety of ecological niches available in even one Oregon White Oak tree. Property owners often hesitate to plant Oregon White Oak because of the size of the mature tree and the slow growth rate. This illustration helps us understand why these trees are worth the wait and the space.



Importance of Habitat - Who uses and How Oregon white oak peacefully regulates ecosystem processes like nutrient cycling and energy flow, creating benefits to wildlife (and the rest of us) that seem endless. Besides the obvious shade, beauty, and exchange of oxygen and carbon dioxide these trees offer, inconspicuous flowers – which typically bloom in late spring – provide for pollinators like native bees, while the buds of forthcoming rounded, deeply lobed leaves play host to the larvae of Gray Hairstreak, California Sister, and Propertius Duskywing butterflies. Studies show that the genus *Quercus* hosts more caterpillars and other insect life than any other genus in the northern hemisphere. This proficiency is especially important during breeding season, when the vast majority of land birds consume, and feed their young, highly nutritious larvae, adult insects, and spiders – not seeds or fruit. Other studies show a higher diversity of bird species in oak forests than in nearby conifer forests.

In addition, cover, perches, and nesting habitat go to birds such as woodpeckers and vireos, as well as native squirrels. Oaks' acorns sustain squirrels and other mammals, as well as many bird species. Fallen leaves, which might provide habitat for amphibians and reptiles, slowly break down into a rich, particularly nutritious leaf mold that supports soil-dwelling invertebrates and numerous fungi that allow neighboring plants to thrive. Sugars and carbon are provided for mycorrhizae, which reciprocate with nutrients for the trees. Intact bark creates microhabitat for mosses, as well as lichens that supply food, shelter, and nesting material, while loose bark (and twigs) contribute to nest building as well as browse for deer, which in turn feed carnivores like cougars.

And as oaks deteriorate with advanced age (which can be 500+ years), they continue to deliver. Dead trees can last many years as snags, which provide food, nesting material, and housing to cavity nesters like owls, kestrels, and chickadees, as well as bats that may roost in old holes or under loose bark.¹

Importance of Grasslands Oak Savanna ecosystem is largely grassland. Grasslands support a diverse ecosystem of insects, amphibians, reptiles and birds. Their deep root systems store carbon that won't go up in smoke during a wildfire. Healthy grassland prairie offers both varied structure and a variety of plant species to support this diversity. *Oregon Sensitive species that depend upon prairies include the Western meadowlark, Streaked horned lark, Horned lark, Western bluebird, Yellow-breasted chat, Oregon vesper sparrow, Western pond turtle, Sharptailed snake. Federally listed threatened and endangered species include Fender's blue butterfly.*²

1. Prairie Ecosystems of the Pacific Northwest Eileen Stark

2. Restoring Rare Native Habitats in the Willamette Valley Bruce H. Campbell

Making a Difference

In our own backyards: One change that could provide more habitat, conserve water, and lower pesticide usage is conversion of lawns to native flowering plants and shrubs. According to a recent article in Vox magazine <https://www.vox.com/down-to-earth/22662490/grasslands-better-than-lawns-yard> ,each year American lawns use



3 trillion gallons of water and 59 million pounds of pesticides. The article also points out the carbon pumped into the air by gasoline powered lawn equipment. If you have lawn space that can be converted to native plants, Fall is a great time to plant. Native plants provide beauty as well as habitat for pollinators, and require less water and no pesticides or herbicides. OSU Extension Service offers several guides for planting native gardens at <https://extension.oregonstate.edu/collection/native-plant-gardening>

Another beneficial change is to plant an Oregon White Oak tree. A backyard Oak tree provides a significant amount of habitat for many species, helps carbon capture, improves the soil and aids in reducing stormwater runoff. The tree provides these benefits even when it is a small, young tree and continues throughout its very long life.

In our City: City parks and roadsides could make these types of landscaping conversions as well. Other than sports fields, play areas and event space, there is no reason to maintain vast swaths of lawn and bark dust. Native landscaping would increase beauty, cut maintenance costs, require less water and provide habitat . Planting more native plants and Oak trees in parks and roadsides means lowering fire risk and increasing the myriad benefits provided by natives. Groups working with the **City of Salem** toward this type of change include the **Mission Street Conservancy**, who recently completed a study of the Oregon White Oak trees in Bush’s Pasture Park and successfully worked to change park maintenance policy as a part of the management plan update for the Oak trees in the park. The City also works with **Friends of Trees** to provide tree planting projects to increase the tree canopy within the City. The City has supported and partnered with the **Glenn and Gibson Creeks Watershed Council** on the Orchard Heights Oak Savanna project and pollinator gardens in some City parks. Some stormwater retention basins are being landscaped with native plants and trees.

In our region: Regional efforts are underway to save remnants of Oregon White Oak Savanna and Woodlands. According to the USFWS website https://www.fws.gov/refuge/baskett_slough/ , 300 acres of forest and 550 acres of grasslands at National Wildlife Refuge Baskett Slough is managed by the **U.S. Fish and Wildlife Service** (USFWS) for habitat. Next to the refuge, **landowner Bill Wainwright** has partnered with the **Polk Soil and Water Conservation District**, **USFWS Partners for Fish and Wildlife Program**, the **USDA Natural Resources Conservation Service (NRCS)**, and the **Oregon Watershed Enhancement Board (OWEB)** to protect 183 acres adjacent to the refuge. The **Willamette Valley Oak and Prairie Cooperative** works to conserve and maintain prairie and oak habitats withing the Willamette Valley ecoregion. <https://willamettepartnership.org/wvopc/>

Smithfield Oaks in Polk County is adjacent to Baskett Slough Wildlife Refuge



For more about Oregon White Oak ecosystems:

<https://www.ecolandscaping.org/05/designing-ecological-landscapes/trees/prairie-oak-ecosystems-pacific-northwest/>

https://www.blm.gov/or/districts/salem/files/white_oak_guide.pdf

<http://www.oregonwildlife.org/wildlife-response-to-restoration/issssp-wildlife-research-synthesis>

<https://pacificbirds.org/our-priorities/oak-and-prairie/>