

Oak Savannas and Woodlands

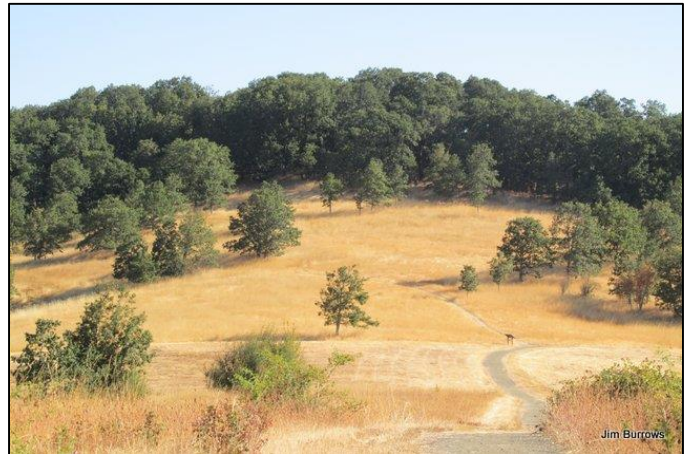
Description

Oak savanna and oak woodland have been identified in the Oregon Conservation Strategy (2006) as of “greatest conservation need” due to the amount of habitat loss and its importance to declining wildlife species. Both vegetation types occur in several regions of the state. Depending on region, there may be up to three native oak species present. Oregon white oak (*Quercus garryana*) is the only oak species on the refuge and in the northern Willamette Valley.

Oak savanna is composed of widely spaced Oregon white oak trees growing in a prairie or upland grass ecosystem. The oaks can be large open grown trees or smaller, younger trees in scattered groves. There are usually only one or two large oak trees per acre. There will be more, smaller trees per acre, but the trees will obscure less than 30% of the sky if you look upward from the ground. Native grasses may include Roemer’s fescue, blue wildrye, and, California oatgrass. Native flowering plants include blue-eyed grass, tiger lily, tarweed, and pearly everlasting.

Oak woodland is characterized as densely spaced trees that can range from all oak to a mixture of oak with conifer and hardwoods species. Snags may be present. A shrub understory may also exist. Tree species include Douglas-fir, bigleaf maple, and cherry. Shrub species include serviceberry, poison oak, beaked hazelnut, and snowberry. Sword fern may be present on moister sites. White oak can be shaded out and eliminated from some sites by Douglas-fir.

Figure 1. Oak savanna (foreground) and oak woodland (background).



History

The Kalapuya were the first inhabitants of the Willamette Valley. At that time the valley floor was a mixture of wet and dry prairie, riparian forests, and oak savannas. During this period, the Kalapuya used fire to control insects, reduce woody plants in grasslands, and improve conditions for deer and elk.

By the 1850’s the valley had been settled by Europeans and the practice of consistent, rotational burning had ceased. As a result, woody plants began to encroach into the grasslands. Other land was converted to towns and croplands, with fire suppressed to protect these areas. As a result, what were once widespread oak dominated ecosystems are now scarce.

Figure 2. Oregon white oaks on Tualatin River NWR.



Distribution and habitat

The range of Oregon white oak extends from British Columbia to southern California, with some of the best development in the Willamette Valley. Baskett Slough National Wildlife Refuge, near Dallas, or, has some of the best quality native prairie/savanna in the valley. On the Tualatin River National Wildlife Refuge, there are 149 acres of oak habitat. The management goal is to enhance and maintain these acres for the benefit species such as western bluebird, white-breasted nuthatch, acorn woodpecker, chipping sparrow, black-tailed deer and coyote. Strategies include: prescribed burning or mowing; planting native trees, grasses, and flowering plants; controlling non-native plant species; and removing encroaching conifers. In addition, the “Oak Savanna” on the

Atfálat’i Unit, is slowly growing into mixed forest. It has too many small oak trees per acre to function as a savanna, woody shrubs from lack of disturbance, and invasive grass species. Finally, the large diameter, mushroomed shaped oaks scattered across the refuge will be retained if possible.

Wildlife Use

A recent study identified 185 vertebrate species that are associated with oak savannas and woodlands. This list includes 21 reptiles and amphibians, 106 birds, and 58 mammals. The large oaks provide key wildlife features in both

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ecosystems: cavities for nesting; acorns as a food source; perches for singing; nesting sites in branches; and, various types of woody and non-woody understory and edge openings. Some example cavity nesters include: American kestrel, western screech owl, acorn woodpecker, white-breasted nuthatch, Bewick's wren, black-capped chickadee, and western bluebird. A sample list of acorn eaters and dispersers contains: jays, woodpeckers, mice, voles, wood duck, band-tailed pigeon, California quail, varied thrush, western scrub jay, Steller's jay, Lewis' woodpeckers, acorn woodpeckers, black bear, western gray squirrel, Douglas tree squirrel, raccoons, black-tailed deer and domestic animals.

Generally, conservation strategies targeted at a particular species will benefit other species as well. For example, favoring large patches of savanna for western meadowlarks will also benefit savannah sparrow, lazuli bunting and western kingbird, and coyote as well. Maintaining canopy edges and openings in oak woodlands will benefit western wood pewee, as well as western tanager, purple finch, and black headed grosbeak. These are just two examples of the benefits of restoring and maintaining these ecosystems.

Conservation status – Willamette Valley

Habitat loss of both oak savanna and oak woodlands has been extremely high (Figure 3). In the Willamette valley, over 99% of oak savanna habitat and 93% of the oak woodlands habitat has been lost since European settlement. Threats to conservation of these habitats include: land use conversion, non-native vegetation, no rotational burning, conifer encroachment, habitat isolation, and loss of large oaks.

Remaining oak ecosystems in the Tualatin and Willamette river valleys have few large oaks and are not contiguous. Both features limit their usefulness as wildlife habitat. As a result, populations of plants and animals dependent on oak habitats have experienced severe declines. Currently, Fender's blue butterfly is endangered and Kincaid's lupine, Willamette daisy, and golden paintbrush are listed under the federal Endangered Species Act. Population surveys have shown several species of birds dependent on oak ecosystems have declined also. Realizing the critical need for this habitat, several organizations are taking steps to conserve and restore these habitat types. While strides are being made, restoration may take up to 100 years before being highly functional.

Figure 3. Grasslands (including oak savanna) (yellow) and oak woodlands (brown) (ODFW).

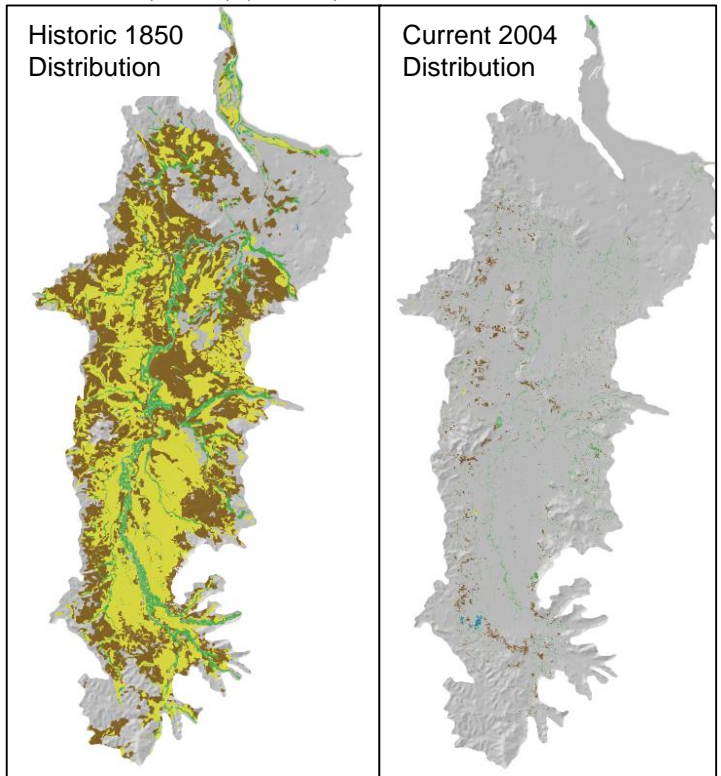


Figure 5. Endangered Fender's blue butterfly.



Fun facts

- The vegetation of the Willamette Valley was first described by explorer/botanist David Douglas in 1826. Native people told him that burning made it easier to get deer, grasshoppers and wild honey.
- A study done in British Columbia identified 800 species of insects associated with Oregon white oak. In spite of those great numbers, loss of trees to insects is rare.
- Hairy mistletoe parasitizes oak trees. It is identified as green clumps at the top of the tree. Robins, bluebirds and other birds eat the fruit.
- Old oak trees are fire resistant, young trees are not. That explains why small trees appeared after burning ceased.
- The prairies at Baskett Slough National Wildlife support the largest

population of endangered Fender's blue butterfly within its range.

- Acorn woodpeckers live in family groups and store acorns in what are called "granary trees." There may be up to 50,000 holes in a tree, each holding one acorn.
- In a study in the western Cascades, a small number of cougar stomachs examined contained Oregon white oak. Researchers could not tell if the consumption of oak was on purpose.

Oak Savannas and Woodlands

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