

A PLACE FOR *N*ATURE



WILLAMETTE

BASIN

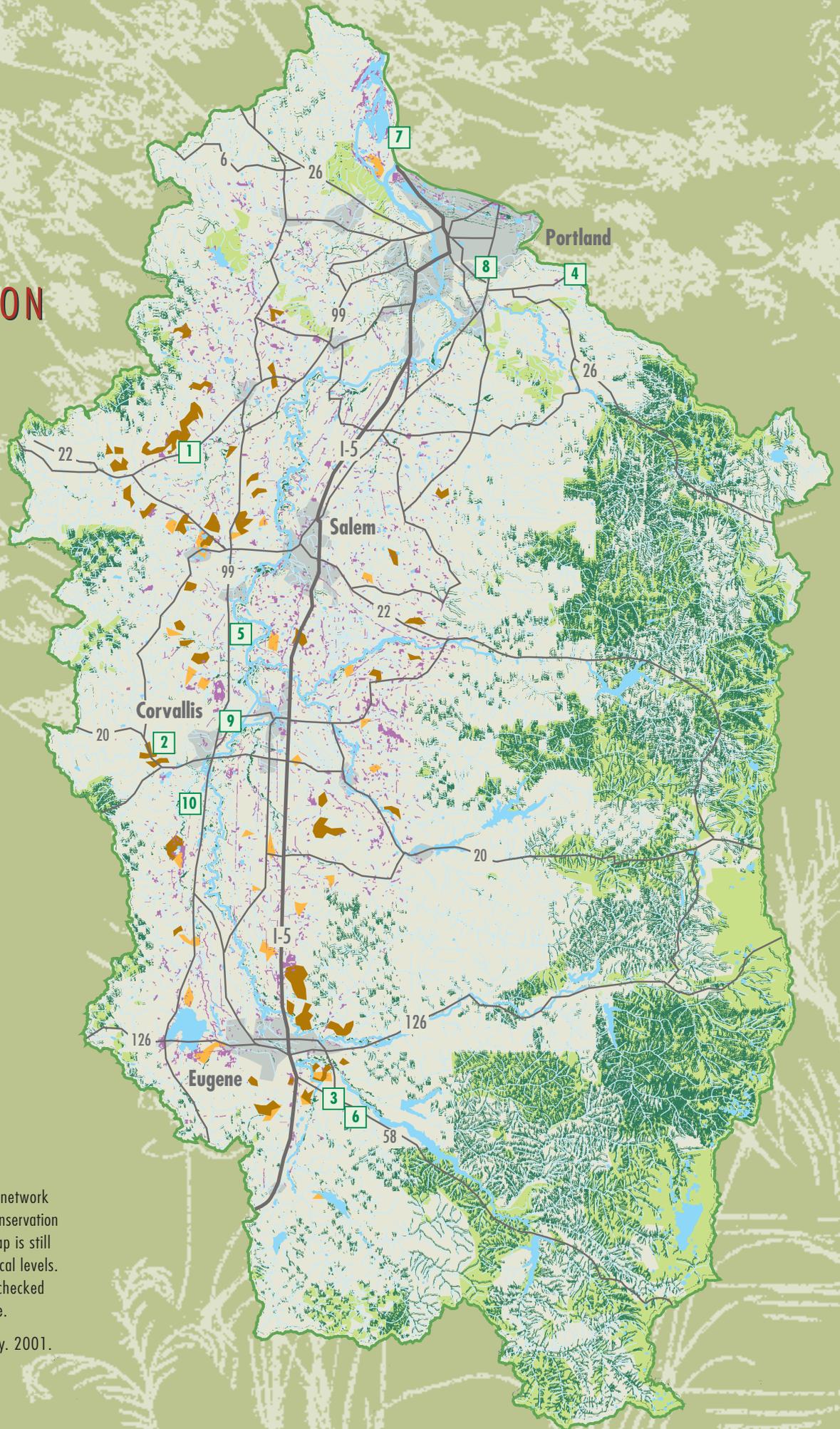
HABITAT

CONSERVATION

PRIORITIES

WILLAMETTE BASIN HABITAT CONSERVATION PRIORITIES

- Upland Forests
- Prairie
- Oak Savanna
- Riparian/Bottomland
- Wetlands
- Cities
- Water



The map represents a first cut at a network of existing and potential areas for conservation in the basin. Information on the map is still in the process of being refined at local levels. As information on the map is field-checked and refined, map details will evolve.

The Willamette Restoration Strategy. 2001.
Willamette Restoration Initiative

Viewed from a bird's perspective,
high above the rivers, cities and farms of the Willamette Valley, the problem is inescapable:
The natural areas that provide habitat for birds, fish and other native wildlife are confined
to small corners and leftover edges of this increasingly crowded landscape.

Conservationists have long been convinced of the need for a network of natural forests,
grasslands, wetlands and river corridors to support native wildlife and sustain the
natural processes that give us clean water and a healthy environment. Hard-nosed
business people and skeptical government leaders understand the concept,
but say: "What does success look like? Where's your plan? Give us a map,
and show us what it looks like on the ground."

Until recently, we didn't have a good answer. But after five years of work by a team of respected scientists, a map has been produced that outlines a plan to conserve the Willamette Basin's most important habitats. A diverse group of citizens, including business people and government leaders, took a long, hard look at it, and then adopted the scientists' "Conservation 2050 Scenario" as the blueprint for a Willamette Basin conservation strategy.

So we now have a map that shows where we need to focus our restoration efforts, and what kinds of habitats we need to address. But what does it look like on the ground, in the real world?

Fortunately, there are still places in the Willamette Valley that retain much of their natural character, including good examples of virtually all of the habitat types that play key roles in this emerging conservation vision. This publication provides an introduction to these remnants of the natural world. Here we highlight opportunities for readers to get out and experience firsthand the look and feel of an oak savanna or a native prairie, a vast

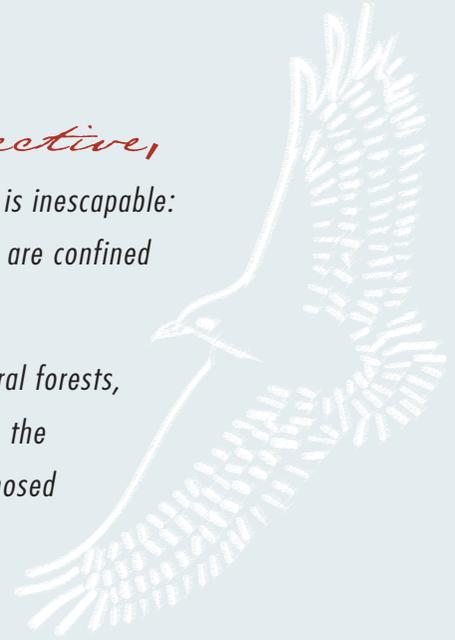
bottomland forest or a teeming marsh. We explore the intersections between landscapes past and present and direct readers to some of the best places to see what this small piece of the world once was, and could be again.

We don't need to return the Willamette Valley to some idealized pre-settlement condition, but to protect its rich biological diversity we do need to devote a portion of the landscape to conservation. Individually, most of us will never be able to protect or restore an important habitat. But collectively we can work to achieve these goals through a variety of public and private institutions.

Acquaint yourself with the natural habitats near your home. Support organizations that reflect your priorities. Tell elected officials that you value wildlife and natural areas, and vote your convictions.

You can start by visiting the places highlighted in the following pages. Open your eyes and ears, and breathe deeply of the natural world. You won't be disappointed.

—Bruce Taylor



Introduction



Endangered Habitats of the Willamette River Basin

Today, 70 percent of Oregonians live in the Willamette River Basin, primarily in the cities and suburbs of the Willamette Valley—communities surrounded by rich farmland framed by the forested mountains of the Coast Range and the Cascades. The basin’s landscape—its wetlands, fertile lowlands, woodlands, upland prairies and forests—drew settlers here in the 19th century as it has throughout Oregon’s history. But the residential, commercial, agricultural and industrial development that expanded along with the basin’s human population has taken a toll on the region’s native plants and animals, and the rich diversity of habitats on which they depend. Projections show the number of people in the basin will reach 4 million by 2050, so the pressure on these remaining natural areas will only grow. We must act now.

When we think about the Willamette River Basin we often think first about the river itself, the basin’s defining feature. Because so much of the Willamette Basin is thoroughly settled and developed, it’s easy to overlook the remaining wetlands, floodplain forests, oak woodlands and savannas, and prairies that make this watershed unique. Unfortunately, these habitats are now so rare that they have become endangered and are in urgent need of conservation and restoration.

Here we aim to introduce readers to these habitats, with the hope that by visiting them—taking in their beauty and delights, learning which species live there and why these places are important—appreciation for them will grow and lead to a future where conservation and restoration ensure that the Willamette Basin continues to be rich in natural areas and wildlife for generations and centuries to come.

What and Where Is the Willamette River Basin?

The headwaters of the Willamette River rise high in the Cascade Mountains where snow lingers well into July, on slopes dense with towering cedar, fir, hemlock and pine. The Willamette's uppermost reaches run through areas of protected wilderness and old-growth forest where huge trees are festooned with great beards of celadon moss. In their shadow sprout trillium, tiny violets and strawberries the sun can barely reach to ripen. Snowmelt runs through meadows of larkspur, lily, twinflower and paintbrush into streams where salmon, steelhead and trout hatch and spawn. Waterfalls tumble down cliffs between rhododendron, wild iris and columbine. Cougar, black bear, deer and elk roam these woods, while hawks, bald eagles, herons, osprey and cormorants sail above the rivers, their surrounding valleys and prairie hillsides.

The Willamette River drains some 11,500 square miles of land—an area about 180 miles long and 100 miles wide. The basin makes up about 12 percent of the state of Oregon, and is bounded on the north by the Columbia River, on the south by the Calapooya Mountains, on the east by the Cascades and on the west by the Coast Range. The thirteen major tributary rivers that flow into the mainstem Willamette make it the 13th largest river in the continental United States in terms of stream flow—creating a watershed with about 16,000 stream miles. Altogether the Willamette flows 187 miles from its headwaters to its mouth at the Columbia River near downtown Portland. The Willamette Valley was reshaped by the Missoula Floods about 15,500 to 13,000 years ago, but the basin's origins date back some 35 million years to the Oligocene epoch. Eons of river floods laid down the rich and fertile soil which prompted pioneers on the Oregon Trail to call the Willamette Valley the "Garden of Eden."

Humans have lived in the Willamette Valley for at least 10,000 years. In recorded history, the basin has been home to the Calapooia, Luckiamute, Yamhill, Clackamas and other Chinookan tribes. Before European and American settlement began in the 1800s, the basin's population was about 15,000. But by the time the communities we know today began to take shape in the 1850s, disease and forced removal had caused a great decline in the basin's Native American population. Today, the Willamette Basin is home to a total population that increased from 1.5 million in 1970 to 2.3 million in 1998. At current rates of growth, the basin's population is projected to grow to 4 million by 2050.

The Willamette Valley has long played a central role in Oregon's economy. Today, the valley supports about half of Oregon's agricultural business and nearly three-quarters of the state's economic activity. Besides agriculture, the Willamette Valley's major industries include lumber, pulp and paper mills, computer software, and silicon chip and high-technology metals manufacturing.

While much of the Willamette Basin is lush and green, population growth and development have greatly altered its physical appearance and ecological characteristics. By the 1850s, intensive trapping had nearly eliminated the beaver, creating long-lasting changes in the watershed's hydrology. Since 1850, nearly all the basin's original grasslands and most of its bottomland forests and wetlands have been lost—much of this converted to farmland that is now being consumed by expanding cities and suburbs. The rivers have also been dramatically changed. There are now 371 dams in the Willamette Basin—built for agriculture, flood control, residential and commercial development, irrigation, navigation and hydropower. However, these dams damage habitat for many of the basin's native fish.

To accommodate human activity, river channels throughout the Willamette Valley have been straightened and riverbanks hardened, eliminating river braids, bends, islands and wetlands that nurture aquatic life and riparian vegetation. The Willamette River is now confined to a fraction of its historical width—a change which brings short-term benefits, but impairs the system's natural ability to nourish and renew itself.

The Willamette River Basin supports a rich diversity of wildlife: 69 mammal species, 154 bird species, 31 fish species and 18 amphibian species are native to the basin. Due to loss and degradation of habitat, more than a third of these species are now listed federally or by the state as endangered, threatened or of conservation concern. This includes salmon—the Willamette's wild spring chinook runs are now only one percent of what they were historically—steelhead, trout and 60 percent of the basin's amphibians.



A New Vision for the Willamette Basin

Since European American settlement of the Willamette River Basin began over 150 years ago, we have unsustainably used its natural resources and imposed human enterprise on the landscape for short-term gain rather than long-term health and prosperity. In recent years, an understanding of our impact on the landscape has prompted us to develop a new vision for the region—one in which there is room for nature.

We now know that a river's natural course and function are essential to the ecological health of its watershed. We know that each of the diverse habitat types and native species are distinctly important. By acting on this knowledge and implementing a strategic plan of restoration and conservation throughout the Willamette Basin we can bring back some of what we have lost. In urban, suburban and rural areas—on both small and large scales—we have opportunities to restore natural habitat and biological integrity to the landscape. This does not mean turning the clock back 150 years, but identifying particular places where restoration and conservation of the basin's diverse habitats will make the greatest positive difference. Thanks to extensive scientific study undertaken by the Pacific Northwest Ecosystem Research Consortium resulting in *Willamette River Basin Planning Atlas: Trajectories of Environmental and Ecological Change*, we now have a thorough understanding of the current state of the Willamette Basin. With this information we can begin the process of restoration.



This process will involve all of us and present many challenges—but it will also offer many delightful discoveries and much satisfaction. Recognizing this, we encourage all who live, work and play here to join us in an ongoing effort to preserve and restore this natural heritage.

Habitat Types

The Willamette River Basin is defined by its flow of water. Snowmelt runs off high slopes and the region's copious rainfall collects in the dense forests and river corridors. In our exploration of the basin's habitats we will follow the water downhill—starting in the mountains and continuing down through the foothills to the upland prairies and oak woodlands, then to the floodplain forests and wetlands that once blanketed the valley floor.

In its historic, unfragmented state, this entire landscape with its mosaic of dry and wet habitats, worked like a sponge, gathering winter water that was slowly released over the summer. The past 150 years of settlement and development of the Willamette Basin have drastically changed how the landscape works. Many of the natural sponges and reservoirs—the wetlands, floodplain forests and wet prairies—are now gone, drained, filled or isolated from the rivers that once replenished them. Much of the old-growth forest that protected upland soils and streams has been cut. And nearly all of the savannas, upland prairies and oak woodlands which provided habitat for grassland species have now been converted to other uses—affecting the fate of the many species that depend on them.

Because of these changes, among the restoration challenges for the Willamette Basin will be not only to set aside open spaces, restore individual species and components of the landscape, but also to restore the natural processes that created and have nourished one of the continent's richest ecosystems. This may mean restoring a small urban wetland, an area of oak woodland on the outskirts of a suburban neighborhood or a stretch of riparian forest nestled between a river and farm fields. This restoration will also take place on a much smaller scale as we learn to select native landscaping plants, and ensure that our homes, workplaces and neighborhoods encourage and enhance the natural ecology of their location within the basin.

Although the past 150 years' development has radically altered—and practically eliminated—some of the Willamette Basin's native plant communities, examples of all habitat types remain. Many such areas are ripe for restoration, or are in the process of being restored, including some of the places described here. These places are scattered throughout the basin and together with others noted on the map as "conservation opportunities," will create a network of conservation and restoration essential to the region's long-term vitality.

You can visit these places, and look for the plants, animals, fish and insects that make them special. Some of these places are in rural areas, some are on the outskirts of city suburbs, and others are nestled within city limits. You may find yourself confronted with an astonishing array of wildflowers, a collection of trees and plants you didn't know existed in one place, or the glimpse of a bird, butterfly or amphibian rarely seen. These places are remnants of the natural landscape that existed before the Willamette Basin became dominated by the current patchwork of cities, suburbs, farms, vineyards, mills, factories and highways. Although imperiled, these habitats continue to enrich the basin and contribute significantly to the greenery, scenery, waterways, fish and wildlife that those who live here depend on and cherish.

- Upland
Forests

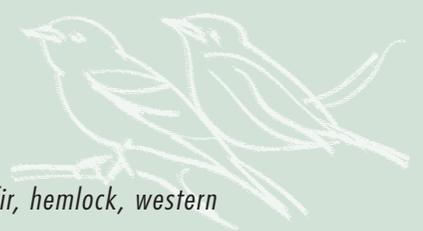
- Upland
and
Wet
Prairies

- Oak
Woodlands
and
Savannas

- Riparian
Habitats
and
Bottomland
Forests

- Wetlands

Upland Forests



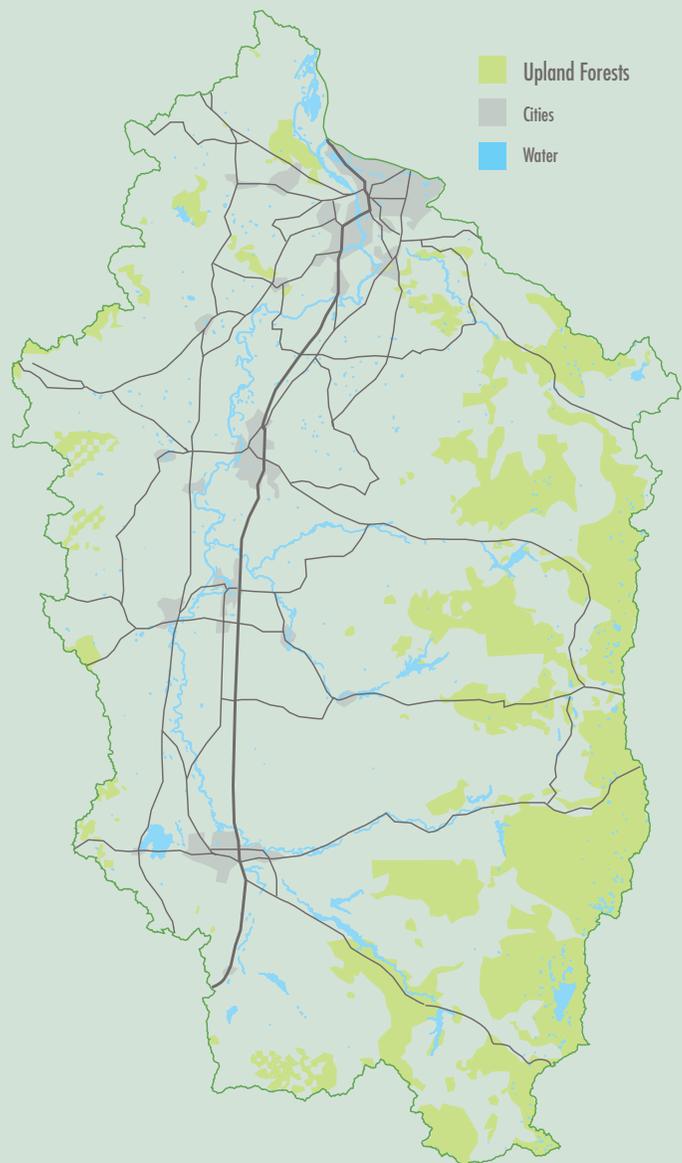
The basin's highest elevations are dominated by conifer forests filled with Douglas fir, hemlock, western redcedar, Pacific yew, noble fir and pine. Before 1850, it's estimated that 60 to 75 percent of these forests were old-growth trees. Today—largely as a result of timber harvest—the Willamette Basin's upland forests contain only one-third old-growth and mature trees (trees 80 years and older).

Mature and old-growth forests retain moisture vital for nourishing plants, animals and people. The thick and varied forest canopy catches rain and snow, and collects mountain fog and dew. Tree roots hold the soil of steep slopes in place, and shelter mosses, lichens and other understory vegetation. Branches shade and cool upland streams essential to the Willamette Basin's native fish—including salmon, steelhead and trout. Western Oregon's mature and old-growth forests provide habitat for hundreds of species—including 82 species of birds, 38 mammals and 17 reptiles and amphibians, over a third of which will only live in this type of forest—some of which are now listed as state and or federal threatened and endangered species.

Most of the Willamette Basin's upland forest is on the western slopes and foothills of the Cascade Mountains, Calapooia and Coast Ranges. There is national forest land here, and nearby, areas of protected wilderness. Although much reduced from their historic extent, the Willamette Basin's upland forests are still extensive enough that they are not considered imperiled. Yet they are so important to the region's ecology that any description of the Willamette Basin would be incomplete without them.

It is here, at the basin's highest elevations—primarily in the foothills of the Cascade Mountains—that the Willamette River Basin's most extensive forest conservation has taken

place. Much of this forest land is federally owned and managed under the Northwest Forest Plan, which provides a relatively high level of habitat protection. No similar conservation strategy exists for the Willamette Valley's low elevation forests, many of which are on private land and in areas long used for agriculture, commercial, industrial and residential development.



Upland and Wet Prairies

When European American settlers first came to the Willamette Basin in the 19th century, they found the hillsides covered in tall grasses—grass so tall, stories say, that it could make cattle disappear from view. To prevent shrubs and small trees from overtaking the prairie, the Calapooia and other Indians who hunted and gathered here burned the prairies seasonally, encouraging new growth of grass and smaller brush favored by deer and other game animals.

Upland Prairies

The upland prairies were filled with bunch grasses, oat grass, wild blue rye, wild strawberries and a profusion of wildflowers including sunflowers, columbine, white-topped aster, golden paintbrush, white rock and Willamette Valley larkspur, Willamette daisy, Kincaid's lupine, camas and brodiaea. Some of these species are now threatened and endangered. These upland prairies are home to the peregrine falcon, Western bluebird, nighthawk, the Oregon vesper sparrow, western meadowlark, streaked horned lark, Fender's blue butterfly, rough skinned newt, alligator lizard and increasingly scarce species of snakes—including the western rattlesnake, gopher snake, sharptailed and racer snakes.

Today, over 97 percent of the Basin's estimated historic extent of prairie has now been eliminated to accommodate farming, grazing, and residential and commercial development, making upland prairies one of the Willamette Basin's rarest habitats. The small remnants of upland prairie plant communities provide essential habitat for what are now rare native species.

One of these remnant habitats, the 128-acre Kingston Prairie Preserve, is tucked between Christmas tree farms and fields of grazing cattle southeast of Stayton. Owned by The Nature Conservancy, the preserve contains both wet and dry prairie



habitats with their native grasses and wildflowers. The preserve is an active restoration area rather than a place that accommodates casual visitors, so one of the best places to experience the Willamette Basin's upland prairie is at **1 Bald Hill Park** in Benton County, just west of downtown Corvallis.

Farm fields and suburban roads surround the park, and Bald Hill rises above Mulkey Creek, which is home to cutthroat trout and sculpin. Rough skinned newts emerge from the stream banks here. Nearby, camas lilies and Oregon irises bloom. Follow the trail from the park entrance to the west and you'll find prairie meadows rising dramatically to oak covered hilltops. Climb the hillside trail through the open grassland in the spring, and you'll see brodiaea, wild onion, asters, wild strawberries, magenta blooms of vetch, white flowering spirea, and a striking little pale lilac and white lily called hairy cat's ear. As spring warms to summer look for lupine, wild rose and small sunflowers. If you are lucky, you may also see the threatened Nelson's checkermallow and endangered Willamette daisy. Keep an eye out on the high trails and you may see evidence of coyote.

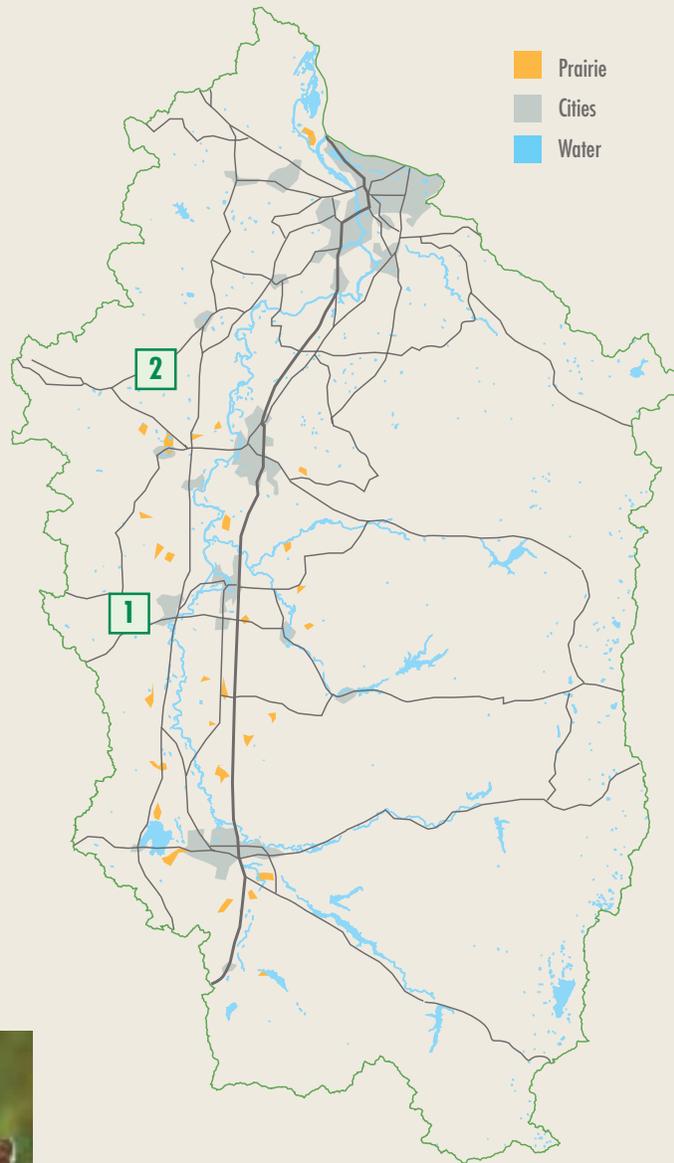
This was once rich habitat for beaver. But even before settlement began in the 1840s and '50s, trapping had nearly eradicated beaver from the Willamette Valley. Beaver have made a comeback since their near extinction.

➔ To reach **Bald Hill Park**, take Harrison Boulevard west through Corvallis, past the intersection of Walnut Boulevard and 53rd Street where Harrison becomes Oak Creek Drive. Less than a mile from this junction is the signed turn-off for Bald Hill Park. Trail maps, history and natural history information are on a signboard just across the creek from the parking area.

Fender's Blue Butterflies

Seven of the Willamette Valley's upland prairie butterfly species are now extinct. The six that remain—Fender's blue butterfly, checkered skipper, Sonora skipper, anise swallowtail, Acmon blue and field crescent—live only in small remnants of upland prairie. One moth, Clark's day sphinx moth, is now only found at two Willamette Valley prairie sites.

Fender's blue butterfly, whose name reflects the male's iridescent blue wings, lives only in the upland prairies of the Willamette Valley where its primary food at the caterpillar stage is Kincaid's lupine. It's estimated that only one-tenth of one percent of the original habitat for Fender's blue butterfly and Kincaid's lupine now remains. In addition to agricultural and urban development, this habitat has been encroached upon and degraded by invasive plants, including Scotch broom and Himalayan blackberry. The numbers of Fender's blue butterfly and Kincaid's lupine are now so small that the butterfly has been designated endangered under the Endangered Species Act, and the lupine as threatened.



Wet Prairies



Like the upland prairies, the Willamette Valley's wetland prairies are a grassland habitat. But unlike the drier upland prairies, the wet prairies collect water and remain saturated through the winter and early spring months, drying during the summer drought. These seasonal wetlands nurture now-rare mosses and are particularly important for amphibians such as the long-toed salamander and Pacific tree frog, and a great diversity of invertebrates. An insect that lives in these wet prairies, the American acetropis grass bug, is native only to the Willamette Basin and to Eurasia, leading scientists to think it may be an indicator of ancient connections between North America and Eurasia.

Wetland prairies are characterized by their grasses and wildflowers. Among the species dependent on the Willamette Valley wetland prairies are camas lily, white-topped aster, golden paintbrush, Willamette Valley and peacock larkspur, Willamette daisy and Nelson's checkermallow. Birds native to these prairies include the American peregrine falcon, western meadowlark, yellow-breasted chat and nighthawk.

These wet prairies can support dense shrubbery and trees—growth that the Calapooia Indians curtailed with fire. Today, nearly 99 percent of the Willamette Valley's wetland prairies are gone, drained for agriculture and other development, or grown over with invasive non-native plants and by shrubs and trees encouraged by the altered hydrology and fire regimes.

A lovely place to see what remains of the Willamette Basin's wet prairies is at **2 Deer Creek County Park**, in Yamhill County, just east of Sheridan. Here old ash trees ring a meadow framed by the foothills of the Coast Range. In the spring, camas lilies bloom in profusion and in June you may be able to catch sight of endangered Kincaid's lupine blooming in the meadow.

→ To reach **Deer Creek County Park**, take Highway 18 west about 7 or 8 miles past McMinnville to Gopher Valley Road, which goes north from the highway opposite the Dairy Queen. Take Gopher Valley Road north about 7.5 miles then turn west at the park sign. The park is less than one-half mile down the gravel road.



Oregon's Giant Worms

The Oregon giant earthworm (*Driloleirus macelfreshi*) was first discovered in 1937 in the Willamette Valley, near Salem. Rarely seen, this earthworm can grow to three feet long and an inch wide. It lives in and feeds on the deep moist soil of undisturbed riparian forests. To escape summer heat, these worms may dig burrows 15 feet deep. The giant earthworm is threatened by destruction of its habitat caused by agricultural, industrial and other development.

Oak Woodlands and Savannas

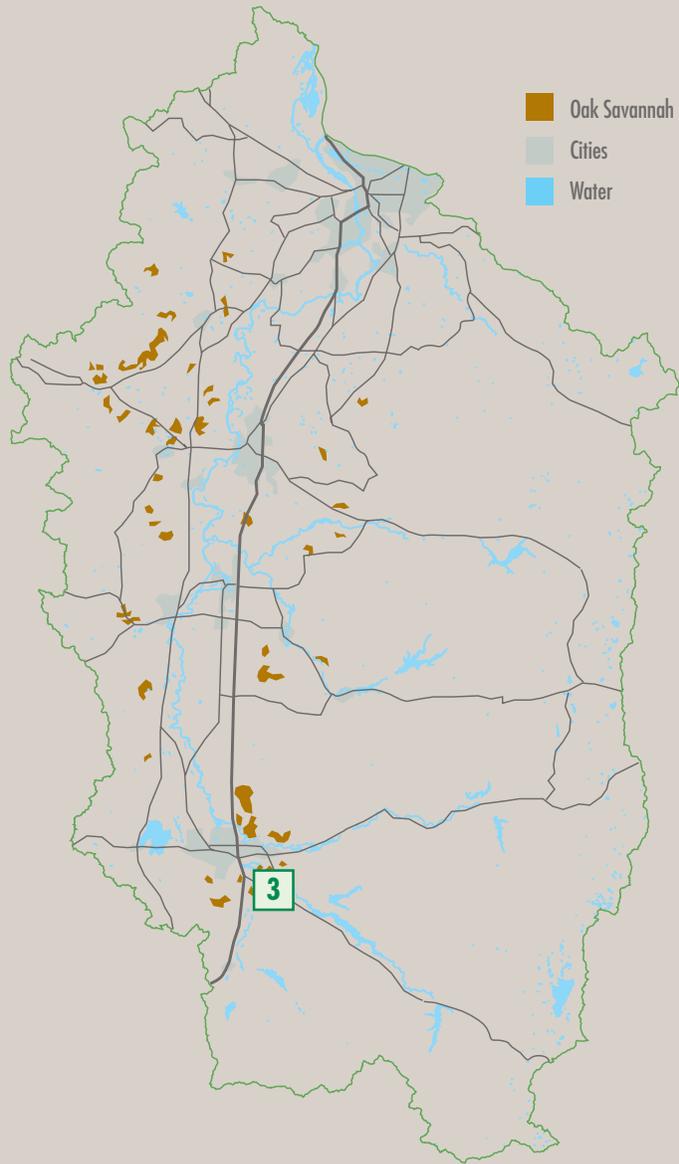
Like the upland and wet prairies, most of the Willamette Valley's original oak habitats have disappeared. In these woodlands and savannas, groves of Oregon white oak (and toward the southern end of the Valley, California black oak) madrone and fir intermingled with lush grasses and wildflowers. As settlers established farms and ranches, and the prairies were no longer deliberately burned, oaks were over-topped and crowded out by conifers in many places, while grazing and other agricultural practices reduced the native understory of grasses, wildflowers and other small green plants.

Most of the Willamette Basin's remaining oak woodlands and savannas rise on bluffs and hillsides above the Willamette River and its tributary rivers and streams. The old oaks have a distinctive profile, with stout gnarled trunks and wide leafy crowns. Look carefully and you can spot the orange bark of a madrone tree. Below, lush grasses that turn almost yellow in high summer cloak wildflower-strewn slopes. Here, near streams you'll see camas lilies, which bloom in April and May. Camas roots were an important food for the Willamette Basin's native people. You may also find the rare white rock larkspur—which grows only in about six places in the world—along with lilies, Oregon irises, asters and buttercups.



The most extensive area of remaining Willamette Basin oak savanna is southeast of Eugene in Lane County in the **3 Howard Buford Recreation Area** where Mount Pisgah rises a little over 1,000 feet above the confluence of the Coast Fork and Middle Fork of the Willamette River. Here, in the lower sheltered areas, camas lilies and larkspurs bloom in a profusion of indigo and violet. Climb the grassy hillsides through groves of oak and fir and you'll see wild rose and Oregon grape, western buttercup, Oregon iris, yellow monkey flower, Willamette Valley bittercress and clarkia. On the drier open hillsides, look for balsamroot, ookow, brodiaea and other wildflowers. Watch and listen for scrub and Steller's jays, lazuli buntings, black-capped and chestnut-back chickadees, red-breasted nuthatches, American goldfinches, northern flickers, barn swallows, American kestrels, bald eagles, red-tailed hawks, acorn woodpeckers and gray squirrels. Looking out over the river you may see great blue heron and osprey.

→ To reach Mount Pisgah and the **Howard Buford Recreation Area**, take the 30th Street-Lane Community College exit off I-5 just south of downtown Eugene. If traveling southbound, follow the exit road south and take the overpass to the east side of the freeway. There is a sign for Seavey Loop Road and the recreation area just past a gas station at the east end of the overpass. Take Seavey Loop Road about 2.25 miles over the one-lane bridge where there's another sign for the recreation area and Mount Pisgah.



The Willamette Valley's savannas are characterized by an understory dominated by grass with widely spaced Oregon white oak trees. Before European settlement, it's estimated that oak savannas covered over 1.5 million acres of the Willamette Valley. Today, only about 200,000 acres of oaks remain. Because of fire suppression, the trees—oaks with some conifers—now grow more densely and the open grassy areas are greatly reduced.

characterized by oaks and scattered Douglas fir with an understory of vine maple and other smaller hardwoods and shrubs. The Willamette Valley's oak savannas and woodlands are important habitat for over 200 bird species including the imperiled western bluebird, grasshopper sparrow and Oregon vesper sparrow, as well as many mammals, amphibians and reptiles.



Riparian Habitats and Bottomland Forests

Before the Willamette Valley was thoroughly settled and developed, dense forests lined the Willamette River and its tributaries. These diverse forests—some dominated by conifers, others by hardwoods—were one to seven miles wide. Today over 80 percent of these riparian, floodplain, bottomland and gallery forests are gone—most converted to agriculture and commercial and residential development. A few—protected in parks—are wider and offer a glimpse of these forests’ amazing richness.

Here grow Douglas fir, western hemlock, Pacific yew, black cottonwood, red alder, big leaf and vine maple, western red cedar, Oregon ash, willow and pine. Several types of ferns curl up from the forest floor. In the cool damp earth bloom violets, trillium, orchids, bleeding heart, oxalis, bunchberry and the calypso orchid. Pileated woodpeckers work the tree trunks, and dippers duck for insects on nearby streams. Salamanders and frogs make their home in the moist stream bank soil. A reliable place to see calypso orchids is near the visitors’ center at Silver Falls State Park, where they grow in an area fenced to protect the rare plants. The orchids bloom in April and are very small, so look closely.

A wonderful place to see a conifer-dominated floodplain forest is at **4 Eagle Fern Park**, in Clackamas County. Here trails lead across Eagle Creek into groves of old-growth Douglas fir and western red cedar and their shady understory of delicate shrubs, ferns and wildflowers. Watching the rushing stream of Eagle Creek—especially at high spring flows—running off the shoulders of Mount Hood, it’s easy to understand the interaction of water and forest.

→ To reach **Eagle Fern Park** take Highway 212/224 east, from Exit 12 on I-205. Follow 212/224 about 3.2 miles to Highway 224 at Rock Creek Junction. Turn south onto Highway 224. At 10.4 miles from Rock Creek Junction turn left onto Wildcat Mountain Road at the sign for Eagle Fern Park. Go two miles to Eagle Fern Park Road and turn right. The park is 2.3 miles on the right.

A good place to see the bottomland hardwood forests that once occupied much of the Willamette Valley’s floodplains is at **5 Elijah Bristow State Park** southeast of Eugene. The 847-acre park stretches three miles along the Middle Fork of the Willamette River just below Dexter Reservoir.

Although the upstream dams have curbed the floods that historically shaped these bottomland forests—and inundated others with their reservoirs—the park itself retains much of its original natural character. A 12-mile network of often soggy trails leads through a diverse forest of hardwoods—bigleaf maple, Oregon ash, black cottonwood, alder, willow, creek and red-osier dogwood, snowberry, Pacific ninebark, Indian plum, vine maple and hazelnut—interspersed with cedar, spruce and other conifers. Old stream channels and slowly trickling sloughs add to the diversity and provide habitat for western pond turtles and other wetland-dependent wildlife.

Among the birds found in Willamette Valley bottomland and riparian forests are red-eyed vireo, yellow warbler, yellow-breasted chat, olive-sided flycatcher, warbling vireo, Bullock’s oriole, robin, willow flycatcher and dipper. Look for downy woodpeckers, black-capped chickadees and tree swallows on tree snags and hunting insects on tree trunks. Around flowering and berry-producing plants and shrubs look for cedar waxwings, Swainson’s thrushes and rufous hummingbirds. The yellow-billed cuckoo lived in Willamette Valley riparian forests but has not been seen here since about 1977; confirmed breeding pairs have not been seen in Oregon since the 1940s.

→ **Elijah Bristow State Park** is off Highway 58, nine miles east of Interstate 5, and 15 miles from Eugene. Signs on Highway 58 lead to the park entrance on Wheeler Road. The trails leave from the picnic area at the end of the main park access road.

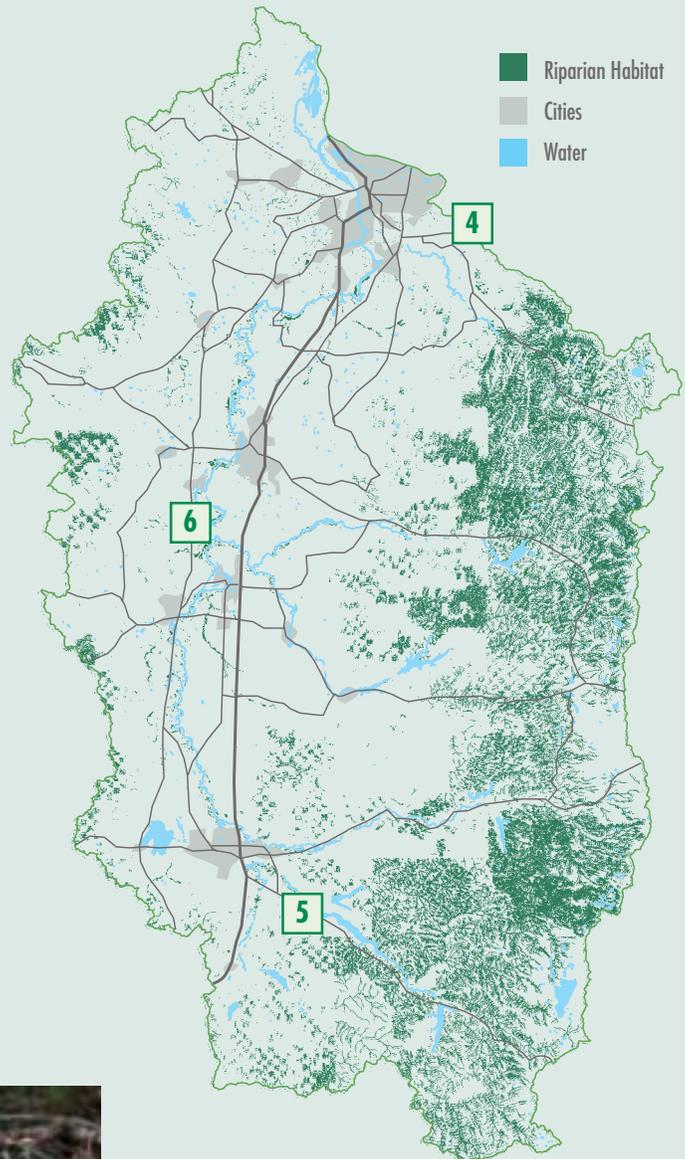




One of the best places to see a Willamette Valley gallery forest is at **6 Luckiamute Landing**, at the confluence of the Luckiamute and Willamette River. Here a small wilderness of towering cottonwoods, big leaf maples and other hardwoods attract a variety of songbirds. This largely undeveloped park on the west side of the Willamette is accessible only from the river or from an unsigned access road off of Buena Vista Road about midway between Albany and Independence. From the gate and parking area, it's about 1.5 miles to the river. In the first half-mile you'll walk through cultivated fields, some of which have been planted with sunflowers and other bird-friendly crops, then through about a mile of deep floodplain forest before reaching some open meadows and the high gravel bank of the Willamette. The Luckiamute, which joins the Willamette just downstream, backs up into this forest at flood stage. When the waters rise, much of this area is under water for days at a time.



The Oregon Department of Parks and Recreation recently acquired over 200 acres of additional floodplain land just south of Luckiamute Landing, and other potential purchases are in the works. Conservationists hope Luckiamute Landing's 500 acres will become the centerpiece of over 1000 acres of protected contiguous Willamette Valley floodplain habitat.



➔ To reach **Luckiamute Landing**, take Highway 20 west from Albany, across the bridge over the Willamette, and take an immediate right turn onto Spring Hill Road. About seven miles north, turn right on Buena Vista. After one mile, turn right just before the bridge over the Luckiamute at a mailbox with the number 8989. This is the entry point for the state park property. Cross a small bridge and continue one mile to the parking area at the end of the partially paved road. To accommodate boaters and hikers, there is a picnic table and portable toilet just inland from the banks of the Willamette.

Wetlands

Wetlands are nature's reservoirs and water filters. They absorb and store water, help control stream flow and thus provide natural flood control. Wetlands are among Oregon's most biologically productive, species-rich habitats, and especially important for nurturing aquatic and terrestrial plants, animals, fish and insects. These wetlands also provide vital habitat for imperiled species like coho salmon, spotted frogs and western pond turtles. They also support migrating birds like sandhill cranes, tundra swans, dusky Canada geese (which winter only in the Willamette Valley), bald eagles, herons and many species of ducks and shorebirds.

For much of this country's history, wetlands have been misunderstood. Often maligned as bogs, marshes and swamps, wetlands were thought to be unhealthy places of no practical use. In the Willamette Valley, settlers drained wetlands to grow crops and accommodate livestock grazing and for residential and commercial development. About half of the Willamette Valley's wetlands are now gone (estimates range from 41 to 87 percent). Recently, remaining wetlands have been disappearing to other uses at a rate of over 500 acres a year. Consequently, many of Oregon's native wetland plant communities are imperiled, as are many of the state's wetland-dependent amphibians.

7 **Sauvie Island**, north of downtown Portland, is a good place to see extensive floodplain wetlands and the resident and migratory birds that flock to this habitat. Bald and golden eagles, osprey, great blue herons, sandhill cranes, western grebes, cormorants, red tail

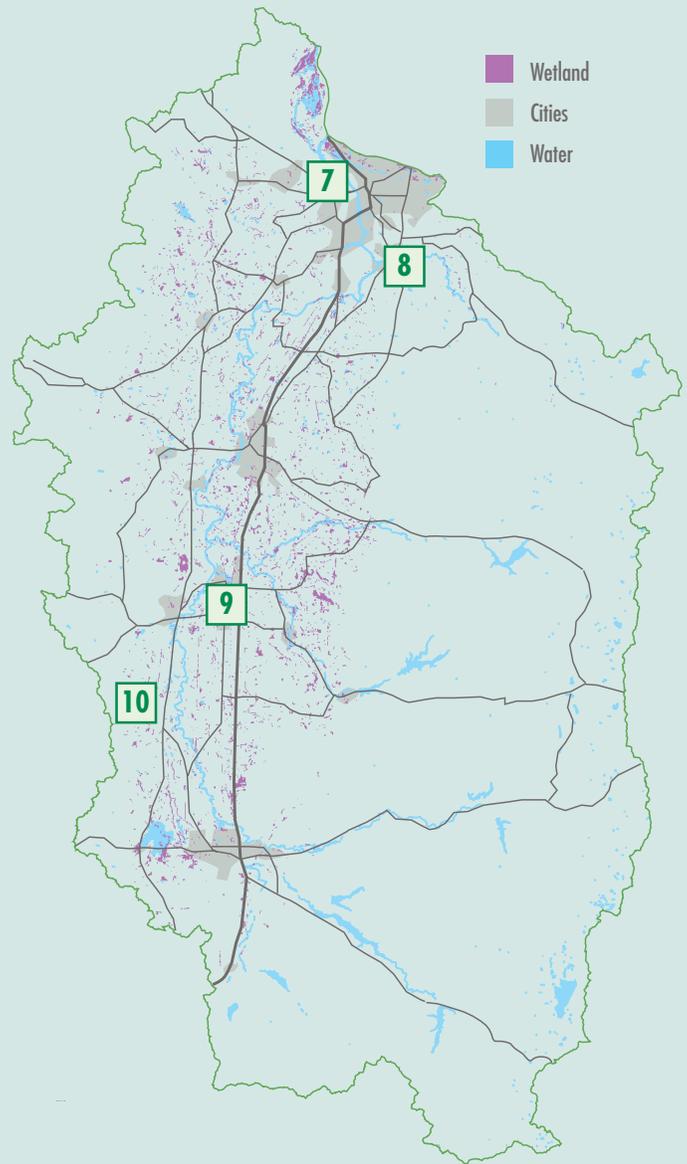
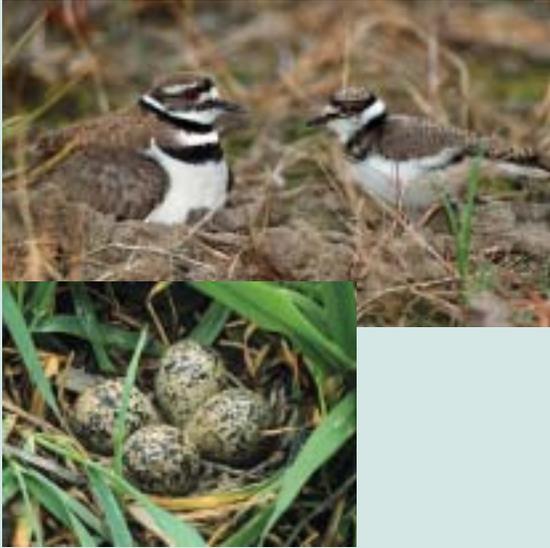


hawks, northern harriers, Canada geese and many duck species are just a few of the birds that can be seen here.

A tiny oasis of urban wetland has been restored at **8** **Beggars Tick Marsh** in southeast Portland, off SE 112th Avenue and Foster Road, near the Springwater Corridor bike trail, which follows Johnson Creek.



One of the few places in the heart of the Willamette Valley to see a diverse natural wetland is at the **9** **Jackson-Frazier Wetland**, in Benton County, north of downtown Corvallis. Bounded by suburban development, the 147-acre Jackson-Frazier Wetland contains forested wetland and wet prairie habitat as well as emergent marsh. A 0.6-mile boardwalk path allows visitors to amble through the cattails, camas lily, cottonwood, red-osier dogwood, big leaf maple, willow, spirea, speedwell, columbine, serviceberry, Oregon grape, brodiaea, Oregon iris and lupine. Over 300 flower plant species are found here, including the endangered Bradshaw's lomatium—a yellow-flowered member of the parsley family which lives only in the Willamette Valley—and threatened Nelson's checkermallow.



➔ *The easiest way to reach the **Jackson-Frazier Wetland** is to take Highway 20 southwest at Exit 234 or 233 off I-5. Follow Highway 20 to Corvallis and take a right on Conifer Boulevard. In about a mile at Lancaster Street there's a sign for the Jackson-Frazier Wetland. A sign for the wetland is also at the intersection of Conifer, 9th Street and Highway 99W.*

South of Corvallis, at **10** **Tyee Wine Cellars** you can see how one family provides an excellent example of how to combine agriculture and habitat conservation. The Buchanan family, owners of Tyee, received the Private Landowner Stewardship award from the Oregon Wildlife Society. The Buchanans have committed 246 acres of their family farm to a 30-year wetland easement. Birdwatchers have spotted 40 different species of birds in the wetland. The winery is also a great place to see bottomland forest, oak savannas and woodlands.

➔ ***Tyee Wine Cellars** is located at 26335 Greenberry Road off Highway 99 south of Corvallis.*



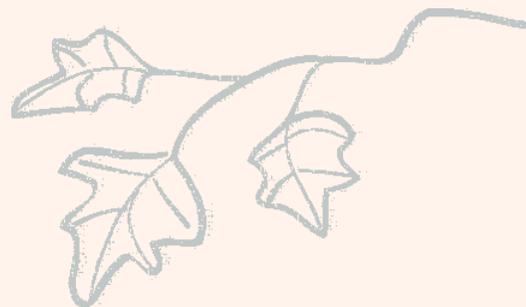
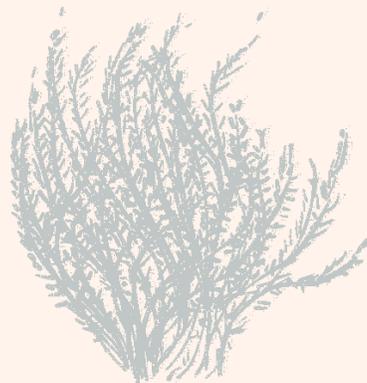
Invasive Species

Invasive species are not new in the Pacific Northwest. Early European explorers and settlers brought plants and animals with them to the New World to replicate the domestic life they had known at home. Other species came as stowaways. Some species quickly naturalized and have become so much a part of the landscape that it's hard to imagine life without them. Some—including forage grasses, soil-stabilizing plants, game fish and other wildlife species—were introduced with constructive intentions but little insight into how they might spread, damage habitat for, or out-compete native species.

The influx of invasive species continues today, the speed of their travel greatly increased by the reach and frequency of modern transportation, trade and travel. Changing ecological conditions—most of them human caused—now often exacerbate the damage done by invasive species.

Some of the Most Troublesome Invasive Species of the Willamette Valley

- **Himalayan blackberry** (*Rubus discolor*). A native of western Europe, these blackberries were probably first introduced to North America around 1885 as a cultivated crop, becoming naturalized along the West Coast by 1945. They thrive in areas with 30 inches or more annual rainfall, and grow aggressively in pastures, forest plantations, along roadsides, fence lines and other open and disturbed areas. They can also become dominant in riparian zones—particularly in urban areas.
- **Scotch broom** (*Cytisus scoparius*). A flowering shrub native to the British Isles, central and southern Europe, Scotch Broom first became naturalized in North America on the East Coast. Sold as an ornamental in California in the 1860s, and probably planted as such throughout the Pacific Northwest by the early 20th century, its spread has been encouraged with frequent planting along road and highway cuts, and in gardens to bind soil. It invades pastures and cultivated fields and, although it does not do well in forests, it invades rapidly after logging, land clearing and burning.
- **English ivy** (*Hedera helix*). Native to Europe, western Asia and northern Africa, English ivy was probably first introduced to North America by European immigrants. Sold as an ornamental landscape plant throughout the United States, this ivy is now on the Oregon Department of Agriculture's list of noxious weeds. An aggressive invader that threatens vegetation in forested and open areas, it grows along the ground and climbs tree trunks to the forest canopy. English ivy is not a food source for any native wildlife and is such an invasive problem in some areas of the Willamette Valley—such as Portland's Forest Park—that an entire organization is devoted to its eradication (see www.noivy.com).

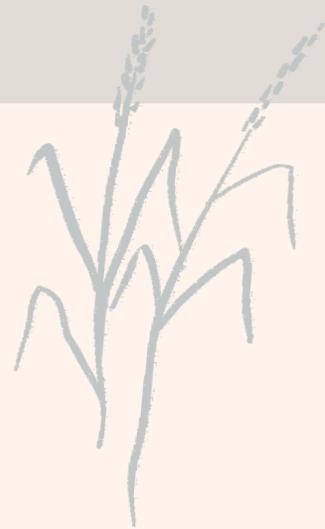


What Is an Invasive Species?

Invasive species are non-native plants and animals—flora and fauna which do not naturally occur in the region—which, once introduced, spread prolifically, usually causing harm to native species and their habitat and often upsetting a region's natural ecological balance. Not all non-natives are invasive, but non-native species can—under certain conditions and over time—become invasive.

For more information, see: <http://www.invasivespecies.gov>.

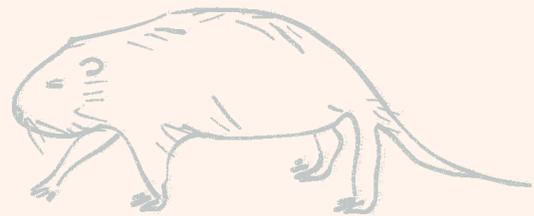
- **Reed canarygrass** (*Phalaris arundinacea*). A grass native to North America and Europe that can reach 3 to 6 feet in height, reed canarygrass has been planted where it does not naturally occur—for forage, erosion control and as an ornamental. It grows aggressively in wetlands creating a monoculture that threatens native vegetation and grows too densely to provide cover for small mammals or waterfowl. Irrigation ditches and canal banks seem to encourage its spread. Now also found in shallow marshes, meadows and wet prairies, it is of little food value to wildlife.



- **Bullfrog** (*Rana catesbiana*). Native to eastern North America and the largest frog on the continent, bullfrogs were introduced to Oregon in the 1920s for the delicacy of frogs legs—a market which declined in the 1930s. Highly adaptable and with an enormous appetite, bullfrogs will eat anything they can catch and swallow. Bullfrogs have proven detrimental to native species, including the spotted frog, Western pond turtle and Oregon chub.



- **Nutria** (*Myocastor coypus*). Native to South America, nutria were introduced to Oregon for fur farming. They first escaped in western Oregon during a 1937 flood in Tillamook County, and are now found on the Oregon coast and in interior valleys throughout much of the state. Herbivores that compete with native muskrats for food and habitat, nutria can eat enough to eliminate some species of native aquatic plants. Their burrowing damages plantings, crops, dams and dikes.



- **Largemouth bass** (*Micropterus salmoides*). A warm water game fish first introduced to the Willamette Basin in the 1880s, this bass is known to prey on the native western pond turtle and red legged frog—both species which now have dangerously low local populations.





Wolves, Grizzlies and Condors

Before settlement tamed the Willamette Valley, wolves and grizzly bears roamed the basin. In the fall, California condors were seen hunting salmon along riverbanks.

Historically, the gray wolf lived throughout the Willamette Valley—from the west slopes of Cascades to the coast. In the 1830s and 1840s, Willamette Valley settlers remarked on the great numbers of wolves and several kinds of bears, including grizzlies. The wolves provoked one of the first organized political events in Oregon: the 1843 Champoeg “wolf” meeting at which a public vote established a \$5 levy to pay for bounties on wolves and other predators.

By the 1930s, settlement, agriculture, hunting practices and aggressive predator eradication had virtually extirpated wolves from Oregon. The last official state wolf bounty paid was in the 1940s, but wolves and grizzlies had disappeared from the Willamette Valley many years before. The dense forests of Clackamas, Linn and Lane counties were among the last strongholds for the gray wolf in western Oregon.

Lewis and Clark and other nineteenth century explorers of the region saw California condors on the lower Columbia River, and evidence of giant prehistoric condors has been found in the Willamette Valley. The last Oregon sighting of a condor was in 1904 at Drain in Douglas County, near the southern end of the Willamette Basin. While there are currently no plans to naturalize them here, condors will be returning to the Willamette Valley in a captive breeding program at the Oregon Zoo.

Conclusion



The landscape that made the Willamette Valley a “Garden of Eden” for early settlers and enabled its original inhabitants to thrive depended on the diverse habitats that make this basin unique. Remnants of these wetlands, floodplain forests, oak woodlands, savannas, prairies and forests nourish a delicate web of life vital to the health of the entire watershed. Together, they provide us with clean drinking water, fertile farmland, rivers running with native fish and a healthy place

for all of us to live, work and play. Yet our past 150 years’ eager and industrious use of the Willamette Valley has damaged its biological integrity, and made many of these habitats and their native species nearly as rare as buried treasure.

Now that we understand the importance of a fully functioning ecosystem and of protecting a region’s biodiversity, we must act decisively and strategically to protect the Willamette Valley’s remaining native habitats. These places are nestled between farms, behind quiet neighborhoods and busy city streets, and along creeks and riverbanks. They support a diversity of native flora and fauna—some that live nowhere else in the world. Thanks to work begun under the Willamette Restoration Initiative we have identified places where such conservation and restoration will make the biggest difference and contribute most to the long-term health of the basin. To preserve an environment in which we all can flourish, we must continue the conservation work that has begun. We must put our knowledge to work, by setting aside areas for preservation, and by restoring the natural systems on which all living things depend.



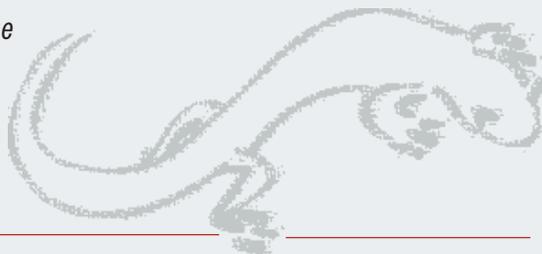
What you can do. . .

Conservation can take many forms, and restoring native habitats is a long, complex and often challenging process. We can all make small changes in our daily lives that can help improve environmental quality—conserve water and electricity, use native species in our landscaping, reduce use of pesticides and fertilizers. Some of us may protect or restore native habitats on a small scale on our own land or in our neighborhoods. But most people don't have those kinds of opportunities in their backyards. For most of us, it comes down to politics—the values we hold, and the means we use to express them.

Individually or collectively, it's important to speak out on behalf of wildlife and habitat conservation. Find a special place of your own, and make it part of your life. Even places that are already "protected" need advocates to make sure they stay that way. "Friends" groups provide support for a variety of special places throughout the Willamette Basin. Local land trusts can provide innovative approaches to long-term protection of natural and restored habitats. All depend heavily on the support of citizens and volunteers from the local community.

Habitat conservation strategies in the Willamette Basin will also require broader public support for government action to protect and restore important places, both on publicly owned lands and through cooperative efforts with private landowners. This is one of the aims of the Willamette Restoration Strategy—a recommended reading for those interested in the details of Willamette Basin conservation. In rural areas, landowners have informally protected some of the most important habitats through decades of good stewardship. But development pressures and economic demands may make it impossible for some landowners to sustain these habitats without financial incentives and other assistance. Elected officials won't promote habitat conservation programs of any kind unless voters make it a priority.*

Learning about the basin's imperiled native habitats, their unique plants and animals, and their vital contribution to the region's ecological health is the first step. By protecting and restoring these wetlands, riparian forests, oak woodlands, savannas and prairies we can enhance and protect the Willamette Valley's quality of life for generations to come.



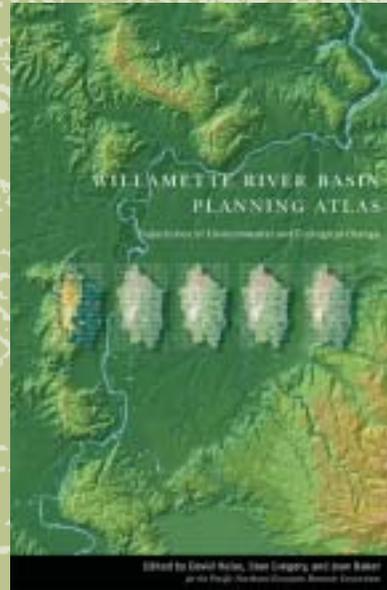
*www.oregonwri.org

Environmental and Ecological Change

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Oregon State University Press, 2002

The *Willamette River Basin Planning Atlas* offers a valuable resource for anyone interested in the region's past, present, and future. Using a dazzling variety of color maps, charts, and photographs, the Atlas presents a vast amount of information intended to provide a long-term, large-scale view of changes in human and natural systems within the Willamette River basin. It provides an essential resource to help local residents, policymakers, and scientists make better decisions about the basin and its future.

To order, please call 1-800-426-3797 or visit <http://oregonstate.edu/dept/press>



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About Defenders of Wildlife

Defenders of Wildlife is a leading nonprofit conservation organization recognized as one of the nation's most progressive advocates for wildlife and biodiversity conservation. The West Coast Office emphasizes alternative approaches to environmental decision-making through partnerships that engage a broad spectrum of participants to help find common ground and constructive solutions.

To order additional copies of this publication, contact the West Coast Office or visit our website. Copies of *Oregon's Living Landscape* and the *Willamette Restoration Strategy* booklet and CD are also available through Defenders' office.

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