



Photo © Mark Wilson, Portland Parks and Recreation

## A Place for People and Wildlife: Conservation in Urban Areas

Across the United States, about 80 percent of people live in cities. If all of Oregon's urban areas were placed together, they would cover approximately 6 percent of the state's land area. In 2000, 73.1 percent of Oregon's population lived in metropolitan areas, according to the U.S. Census Bureau. Portland is the largest urban center in the state, and has been recognized as a national model for urban natural resource planning. Many towns and cities across the state are expanding to respond to the needs of a growing population, and rural farms and forests have been converted to urban and industrial uses. These trends are expected to continue, presenting both challenges and opportunities in natural resource management.

Urban areas are characterized by the prevalence of built structures and impervious surfaces, which alter surfaces and water flow, degrade water quality, reduce vegetation cover and diversity, and cause habitat loss, fragmentation and degradation. Urban areas are also centers of human activities that can displace sensitive fish and wildlife; introduce and spread invasive species; generate pollutants, noise, heat and artificial lighting that can disturb wildlife; and pose hazards to wildlife from people, roads, pets, buildings and other factors.

Conversely, urbanizing areas can be designed to contribute to conservation goals by setting aside ecologically important natural areas inside of urban growth boundaries, and containing and directing growth in ways that protect habitat in more rural areas. In addition, because the majority of the population lives in cities, urban areas provide tremendous opportunities for reaching and engaging the public in wildlife conservation efforts both within and beyond their local communities.

### **Conservation Overview**

Rivers and waterways tend to attract human settlements. They also are hot spots for fish and wildlife species diversity. This provides both a challenge – to sustain fish and wildlife species and habitats under conditions of increasing development – and an opportunity – to create cities where people can benefit from and enjoy nature. While urbanized lands

already have impacted today's conservation opportunities, and future urbanization likely will present further challenges, some of Oregon's urban areas have made impressive efforts to contribute toward fish and wildlife conservation. For example, significant habitats have been set aside through parks and greenspaces in the Portland Metro region, Eugene metropolitan area, and elsewhere.

A full array of Oregon's valuable aquatic and terrestrial habitats are found in urban areas, including oak woodlands and savannas, native grasslands and sagebrush, bottomland hardwood forests, coniferous forests, and other important habitats. Urban streams and riparian areas support salmon and trout, as well as other native fish, and a host of amphibians, reptiles, mammals, birds and invertebrates. Protecting and restoring these important habitats and species will not only help to conserve Oregon's natural heritage, but will also provide valued ecosystem services for the public. For example, riparian areas are critical for protecting water quality and reducing flood hazards, while also providing complex and highly productive in- and near-stream habitat for fish and wildlife.

Human-created habitats can also be significant contribution to wildlife habitat in urban areas. For example, native plant gardens and native landscaping, backyard ponds, and bat and bird roost and nest sites on buildings, bridges, and utility poles can provide places for some wildlife species to feed and rest. ODFW's *Naturescaping* book has information on providing habitat in urban areas. Creating backyard habitats and building habitat features into existing structures are excellent approaches for supplementing natural habitats in urbanized areas. In addition, setting aside functional habitats and enabling the use of that habitat by incorporating design features such as wildlife corridors and safe road crossings, can help to accommodate the needs of fish and wildlife within the built environment.

While scientific guidance is available for incorporating conservation into urban land use planning, much is still unknown. Fortunately, the study

of “urban ecology” is rapidly advancing and receiving recognition, both by urban planners and by traditional ecologists. For example, in 1997, the U.S. National Science Foundation added Baltimore and Phoenix to its list of sites for studying ecosystems over time, called the “Long Term Ecological Research Network.” Ecological research has been primarily



*Bald eagles: Greenspaces set aside in urban areas have been important components of bald eagle recovery, as the eagles have recolonized some of their historical habitats. This example shows that urban areas can play a role in supporting fish and wildlife populations.*

focused on “pristine” ecosystems and rural areas, but biologists, planners, and policy makers recognize the need to understand the ecological issues related to urbanization. Now, there are several university-based institutes for urban ecology, city-based nature organizations, and urban-focused projects and programs currently being implemented by the National Park Service, U.S. Forest Service, and U.S. Geological Survey. Many of

these organizations and programs focus on both conserving urban fish and wildlife and restoring urban ecosystems.

### Urban Conservation Issues and Approaches

**Issue: Limited natural areas.** Buildings and paved surfaces fragment and reduce the extent of wildlife habitats in urban areas. Open space is often limited and isolated, and many areas that are de-

veloped do not retain enough native vegetation and other natural features to provide wildlife with adequate food, water, cover and mobility.

**Approach:** Plan growth and development that incorporates the protection of large, functional and connected habitats as “green infrastructure”, providing interconnected networks of protected natural areas designed to support native species, maintain natural ecological processes, sustain air and water resources, and contribute to the health and quality of life. Encourage “Naturescaping.” When planning redevelopment projects, look for opportunities to restore habitats, increase connectivity and improve floodplain function.

Park and greenspace programs provide excellent opportunities for building fish and wildlife habitat into urban areas, while contributing to people’s recreational opportunities and quality of life. For example, The Metropolitan Greenspaces Master Plan, adopted by the Metro Council in 1992, describes a vision for a regional system of parks, natural areas, greenways and trails for fish, wildlife and people. The plan identifies 57 urban natural areas and 34 trail and greenway corridors that define green infrastructure for the Portland metropolitan region. The plan is being implemented by local park providers, schools, businesses and citizen groups through a combination of open space acquisition, land-use standards, incentives and stewardship. Eugene and other cities are also incorporating greenspaces into their park programs.

**Issue: Need to integrate social and ecological concerns:** There is a tremendous need to study and address the social (e.g., environ-

## Salmon Conservation in Urban Areas

Oregon’s Independent Multidisciplinary Science Team, the statewide team of scientists charged with infusing sound science into the application of the Oregon Plan, is working on a project focused on land use in urban and rural residential areas. The project recognizes that native salmon rely on some urban streams and rivers for spawning, rearing



and traveling. The project will determine how urban areas and their management can contribute to healthy salmon and watersheds, and

recognizes the emerging field of urban ecology. The project will result in a technical report and specific recommendations to state agencies involved in salmonid recovery and land management.

mental education and stewardship, environmental economics, etc.) and ecological aspects of conservation in and around urbanizing areas. There are few studies designed to understand urban ecology and social systems and how they can contribute to fish and wildlife conservation.

**Approach:** Increased recognition of the significance of the fields of urban ecology and environmental social sciences will attract research and monitoring attention to studying these issues in and around urban systems. Build partnerships between researchers and data users, and seek resources for research that will increase understanding of how urban systems can be designed to help sustain fish and wildlife populations with a high level of public support and involvement. As the fields of urban ecology and environmental social sciences become more established, more sources of funding can be identified. Applying this information to open space acquisitions, habitat restoration, regional and local land use planning, environmental education, public outreach and other aspects of conservation is critical for building effective conservation strategies and public support now and into the future.

**Issue: Education and outreach:** Urban areas are where most people live, presenting an unparalleled opportunity to reach, serve and support a large segment of Oregon's population. Education has tremendous value as a means of informing landowners, voters, visitors, politicians and other decision-makers and stakeholders about ways they can contribute toward fish and wildlife conservation.

**Approach:** Direct resources at populated areas to educate Oregonians about Oregon's natural heritage, show people real-world examples

of important habitats and projects, and build an appreciation that will lead to citizen actions and support for conservation. Stewardship, involvement in restoration projects, and opportunities to view fish and wildlife and experience nature can have high value when experienced as part of peoples' daily lives. Additionally, protecting nature in cities provides opportunities for education and outreach close to home that may not otherwise be available to the general public. (For more information the Conservation Strategy's priorities for outreach and education, see pages 90 to 93).

**Issue: Paved surfaces alter hydrology and prevent filtering of pollutants.** In cities, large expanses of landscape are covered by paved impervious surfaces, creating challenges for managing stormwater runoff in ways that protect watershed and stream health. Resulting hydrological alterations can have significant impacts on the surrounding landscapes. Development also tends to encroach into riparian areas and floodplains that are known to provide critical functions for maintaining healthy streams and key fish and wildlife habitats.

**Approach:** Seek ways to incorporate ecological considerations into development activities. Work with partners (U.S. Environmental Protection Agency; Oregon Department of Environmental Quality; Watershed Management Institute; others) to further understand and learn about effects of urbanization on watersheds, to test management actions, and to consider and use new information as it becomes available. To minimize pollution and the adverse affects of altered hydrology, promote programs designed to manage stormwater so it closely mimics natural flow patterns, cleanse

## Willamette River Renaissance

"Renaissance" means "renew," and a true renaissance is underway along the Willamette River in Oregon. The River Renaissance program is working to connect Oregonians to the river, a vital driving force in local economies and visions and the key interface between fish, wildlife and people. In Portland, the program is well underway, working to expand parks and natural areas along the river while reconnecting with Oregon's history and heritage. The vision is of a vibrant waterfront providing cultural events and housing while supporting the regional economy and sustainable business practices. River Renaissance views the Portland Harbor Superfund listing, and Portland Harbor project, as an

opportunity to identify and work with industrial district partners, and to identify new partners in enhancing the harbor. Private property owners, schools and other community groups are all encouraged to participate in various programs. River Renaissance provides vital connection and coordination among many ongoing activities related to the Willamette and its watersheds, with a focus on those in the Portland area. The goals of River Renaissance may have broad appeal to other Willamette corridor cities including Salem, Corvallis and Eugene as many Oregonians increasingly recognize both the value of their local waterfront and the value of healthy watersheds, and work to connect the two.

runoff before it is released to natural water bodies and discourage dumping into storm drains.

**Issue: Stakeholder involvement:** There is enormous potential to reach many new stakeholders in urban areas from the private sector (for example, landowners, businesses and the industrial community) that have not yet become involved in fish and wildlife conservation efforts.

**Approach:** Encourage stakeholder involvement and concern for conservation issues by recognizing the positive contributions that individuals, businesses and industry have made locally, by informing them of conservation opportunities, and by involving them at the table in decision-making. Directly engage them in projects and in developing conservation approaches. Retain focus on local issues to keep people engaged, but link to larger landscapes when there is interest and opportunity. Work with business councils on conservation and fish and wildlife issues.

**Issue: Multiple jurisdictions:** Fish and wildlife conservation issues cross land ownerships and jurisdictional boundaries (cities, counties, agencies), presenting challenges to conservation because landowners, government entities, and local and regional groups do not always coordinate to address issues that may be ecologically connected, but politically or programmatically separate.

**Approach:** Recognizing the uniqueness of each local community and the needs of various landowners, seek methods to achieve cooperation and coordination. Promote the exchange of information and provide guidance to landowners and local communities that can be used in their efforts to protect and restore habitat, set aside green infrastructure systems and plan urban growth strategies that can help sustain fish and wildlife populations and ecological function across the landscape. Create cost-share funding opportunities for conservation planning and project implementation.

**Issue: Need for innovative restoration techniques:** The types of on-the-ground projects needed to improve habitat in urban areas

## Some Priority Actions, Resources, and Ongoing Efforts in Oregon’s Urban Areas

Action	Habitat	Source document
Retain large connected areas with natural habitats	All	City of Portland Framework for Integrated Management of Watershed Health 2004; Portland Parks and Recreation Department; Lane Council of Governments Rivers to Ridges Vision 2003
Protect off-channel, shallow water and in-stream habitat while providing recreation opportunities	Waterfront and large rivers	City of Portland Framework for Integrated Management of Watershed Health 2004; Lane Council of Governments Rivers to Ridges Vision 2003
Integrate fish and wildlife habitat conservation into other related natural resource protection efforts including planning, regulations, acquisitions, on-the-ground actions and monitoring (for example, water quality programs, open space acquisitions)	All	City of Portland Framework for Integrated Management of Watershed Health 2004; Portland Parks and Recreation Department; City of Portland Bureau of Environmental Services and Clean Water Services Watershed Management Plans; Lane Council of Governments Rivers to Ridges Vision 2003
Control invasive species and minimize the introduction of invasive species. Use native species for landscaping and restoration.	All	City of Portland Framework for Integrated management of watershed health 2004
Incorporate habitat features and functions into the built environment (wildlife road crossings; rooftop gardens and nests; artificial habitat structures)	Developed	City of Portland Framework for Integrated Management of Watershed Health 2004
Consider a range of program options and tradeoffs for habitat and urban development, incorporating economic, social, environmental and energy criteria [tools can include restoration, acquisition, grants, education/information, property tax reduction programs, technical assistance, volunteer programs, and recognition programs].	Upland and aquatic	Portland Metro (Title 3; Nature in Neighborhoods; other programs); Lane Council of Governments Rivers to Ridges Vision 2003
Monitor change in urban ecosystems using broad-scale indicators in urban settings	All	Portland Metro; Urban Ecosystem Research Consortium
Integrate information about habitats and species from state and federal natural resource agencies and conservation groups into local and regional planning efforts.	All habitat types	Multiple local, state and federal agencies, universities and non-profit organizations



include, but often go beyond, the traditional suite of restoration practices that are most commonly supported by existing funding sources.

**Approach:** Support habitat improvement projects geared toward the needs, opportunities and high level of public interest in carrying out environmentally beneficial projects in urban areas. Provide technical and financial support for projects such as managing stormwater to more closely mimic natural hydrology, landscaping with native plants, restoring historically important habitats when sites are redeveloped, environmental education and outreach, and other conservation actions. These activities can provide significant opportunities for habitat protection and improvement, and are important for engaging and serving the public.

**Issue: People-wildlife conflicts:** Wildlife species that do adapt to living in a human-dominated environment frequently can become a nuisance due to noise, defecation and other messes, property damage, or unwanted encounters with domestic pets. These

conflicts can result in unnecessary wildlife deaths and lower public support for wildlife conservation.

**Approach:** Support and expand existing programs to provide information on preventing and resolving conflicts with wildlife. In particular, provide proactive, seasonally appropriate advice. Because human-wildlife conflict issues often are biologically and socially complex, create multi-stakeholder/interagency tasks force to address major issues.



## Wild in the City – Lessons from Chicago Wilderness

In 1996, a coalition of diverse organizations launched Chicago Wilderness to restore, protect, and manage the thriving mosaic of natural areas embedded in the nation's third largest metropolitan area. Over 170 private and public organizations now belong to the coalition, pooling their resources and expertise. The consortium's mission is to restore the region's natural communities to long-term viability, enrich local residents' quality of life, and contribute to the preservation of global biodiversity. The consortium created a Biodiversity Recovery Plan to help guide its work toward these goals. The plan is intended to complement the other planning and guides the consortium's work on projects in the areas of science, land management, sustainability, education and communication.

In addition to being a model for collaborative conservation, the Chicago Wilderness Coalition also demonstrates tremendous business involvement in the major regional habitat effort. Business partners provide habitat or other natural functions on their property, give in-kind contributions to local agencies or organizations, support fundraising efforts, and provide volunteer employees. In addition, a core group of businesses has founded the Chicago Wilderness Corporate Council. By joining the Corporate Council and paying the annual corporate

membership fee (\$2,500 to \$10,000), local businesses are making a significant commitment to improving the local environment.

In Portland and Eugene, Oregonians are exploring ways to emulate the Chicago Wilderness' success. In 2004, representatives from Chicago Wilderness shared their experiences with people working on conservation issues in both the Portland-Vancouver and Eugene-Springfield metropolitan areas. The gatherings brought community members together to reflect on the local conservation history, celebrate successes, and ponder future directions. In Eugene-Springfield, a fledgling Emerald Biodiversity Council is being developed around the conceptual goals of promoting education about, and stewardship of, the southern Willamette Valley's rich natural heritage; promoting information sharing; fostering collaboration and networking on projects; and providing expertise and technical guidance.

For more information see:

- Chicago Wilderness  
[www.chicagowilderness.org/coalition/ccouncil](http://www.chicagowilderness.org/coalition/ccouncil)
- Emerald Biodiversity Council  
<http://camasnet.org/ebc>