



THE  
**INTER  
TWINE**

## Regional Conservation Strategy

FOR THE GREATER  
PORTLAND-VANCOUVER  
REGION

### **Executive Summary**



*I have found that people who feel very strongly about their own landscape are more often than not the same people who are pushing for better comprehensive planning. But it is the landscape that commands their emotions. The landscape element of any long-range regional plan will only be a small part of the total effort, but more than any other element it can enlist a personal involvement. People are stirred by what they can see.*

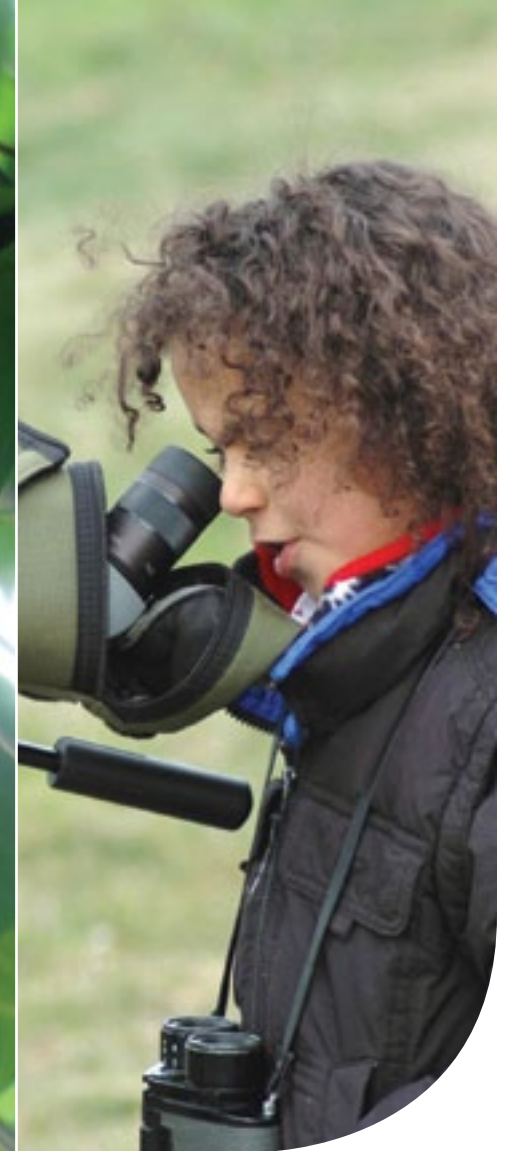
— WILLIAM H. WHYTE  
*The Last Landscape, 1968*



# Imagine

Flocks of tundra swans in the farm fields of rural Washington County. Western bluebirds foraging

for insects on Chehalem Ridge. An elk herd traversing the Tualatin Mountains. Skein after skein of snow geese over Ridgefield National Wildlife Refuge, with snow-clad Mount St. Helens as a backdrop. Peregrine falcons stooping on prey in downtown Portland. An Anna's hummingbird nesting in the backyard. All of these encounters with nature are possible where we live, work, and play—at the confluence of two great rivers in the greater Portland-Vancouver region. ■ More than 2 million of us have the great fortune of living in a species-rich area made up of multiple landscapes—natural and built, urban and rural, working and wild. Coho salmon still spawn here, as they have for thousands of years. Bald eagles and osprey offer spectacular aerial displays from the heart of downtown Vancouver to the Tualatin Valley's rich farmland. Our backyards and neighborhoods host songbirds as they travel migratory routes dating back to time immemorial. ■ How will we ensure that this unique natural legacy remains for future generations? That is the promise of the *Regional Conservation Strategy*.



The *Regional Conservation Strategy's* primary purpose is to describe how we can protect our region's biodiversity for the long term. What is biodiversity? Simply put, it is the vast array of plants and animals that make up our landscape, from the tiniest soil microbes to gigantic Douglas firs—and everything in between. Biodiversity is critical to the health of our region's ecosystems and to our own physical and economic health. Ecosystems that have diverse plant and animal life contribute

## Imagine a region rich with life and access to nature

to our clean air and water, fertile soil, and effective crop pollination. They help reduce industrial waste and put food on the table. Biologically diverse ecosystems are more resilient than simpler, species-poor ecosystems, which means

that they are better able to withstand disturbances, including climate change. Biodiversity supports economic competitiveness by contributing to quality of life and attracting business and tourism.

In addition, the region's residents take pride in knowing that nature—in all its forms—is nearby. They treasure nature for its inherent value and want to protect fish and wildlife habitat to ensure access to nature where they live, work, and play.

## A unique focus on biodiversity



*We envision an exceptional, interconnected system of neighborhood, community, and regional parks, natural areas, trails, open spaces, and recreation opportunities distributed equitably throughout the region. This region-wide system is an essential element of the greater Portland-Vancouver metropolitan area's economic success, ecological health, civic vitality, and overall quality of life.*

—THE INTERTWINE VISION

The *Regional Conservation Strategy* is a product of The Intertwine Alliance—a broad coalition of public, civic, private, and nonprofit organizations dedicated to building a world-class system of parks, trails, and natural areas. The Intertwine Alliance was formed in 2009 to ensure that the region's network of parks, trails, and natural areas is completed and cared for, and to help the region's residents connect with nature and live active, healthy lives.

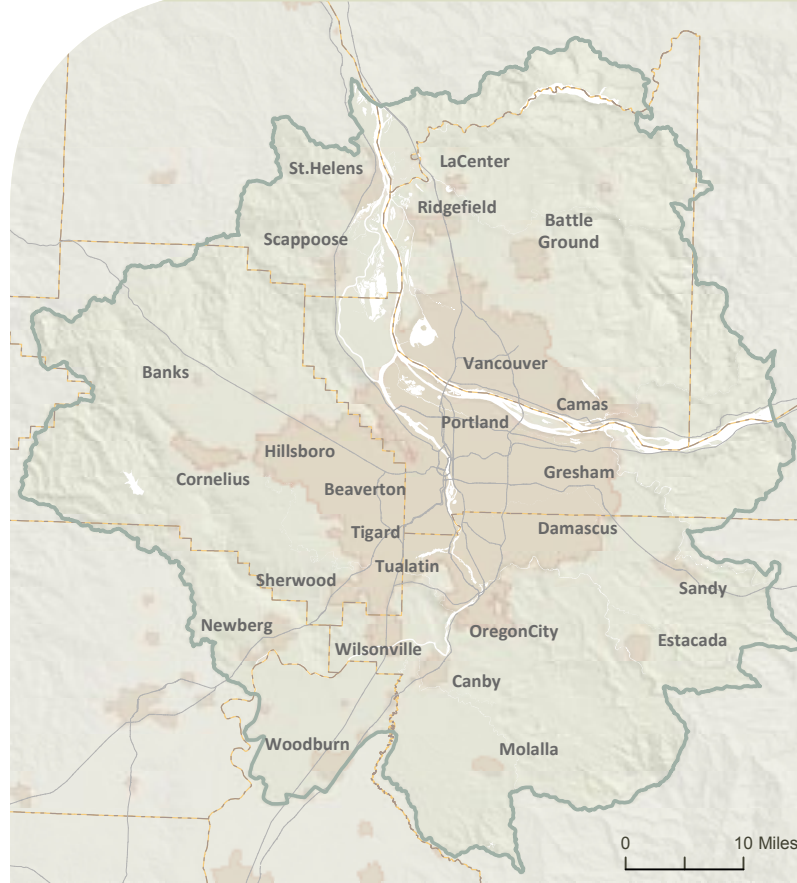
The Intertwine vision calls for the creation of “a bi-state regional biodiversity recovery and management plan that would, among other goals, identify significant natural areas for acquisition and protection, develop innovative strategies to conserve the region's natural resources, and ensure that large and small refugia are interconnected in every neighborhood

and watershed in the region.”

The vision calls for specific outcomes that would result in the

protection of a diversity of habitat types, plants, and animals across the urban and rural landscape; acquisition, restoration, and management of habitat connectivity for fish and wildlife; and long-term protection of the ecological integrity of streams, wetlands, rivers, and floodplains. The Intertwine Alliance launched the *Regional Conservation Strategy* in 2010 as a way to develop strategies to achieve these desired outcomes.

The *Regional Conservation Strategy* builds on an inspiring legacy of past efforts to weave nature into the urban landscape. More than 100 years ago, famed landscape architect John Charles Olmsted's master plan for Portland's park system called for scenic nature preserves to be built around natural landscape features; Olmsted advocated for creative ways



**The Strategy covers 3,000 square miles, from the Lewis River in the north, south to the Molalla and Pudding Rivers and east-west from the Cascades to the coast range.**

to integrate the natural and built environments. In 1971, the Columbia Regional Association of Governments (CRAG) proposed a regional, bi-state system that would “protect, expand, and manage the region's network of parks, trails, natural areas, and fish and wildlife habitats” and provide opportunities for residents to have personal connections to nature. In 1992 Metro, working collaboratively with local park providers, agencies, and citizens on both sides of the Columbia River, adopted the Metropolitan Greenspaces Master Plan, which has resulted in the addition of more than 15,000 acres of publicly owned natural areas on both sides of the Columbia River.

Now it is The Intertwine Alliance's turn to build on this legacy. Representatives from Alliance partner organizations large and small collaborated for 2 years to create the *Regional Conservation Strategy* (with its supporting *Biodiversity Guide for the Greater Portland-Vancouver Region*) as a modern-day “owner's manual” to guide the expansion, restoration, and management of The Intertwine—the region's network of parks, trails, natural areas, and healthy watersheds.

Although we are fortunate to enjoy nature nearby, we face significant challenges to ensuring that that will be the case in the future. The landscape we inherited—a fertile mosaic

## The challenge

of floodplains, wetlands, bottomland hardwood forests, prairie, oak savanna, and forested ridges—has been built on and fragmented. Spotted owls used to live in what are today the West Hills of Portland, and the braided Willamette River was once so shallow you could literally walk across it. Some rivers have been deepened and channelized and their banks hardened. Many habitats are fragmented and isolated, and oak savanna and wetlands have virtually disappeared. Our cities are filled with hazards to wildlife, from domestic animals to windows, wires, and cell towers that precipitate wildlife collisions. And the landscape is made up of myriad small, individually-owned parcels.

These changes to the landscape have affected the region's fish and wildlife species as well. Today, local runs of coho, Chinook, and chum salmon and steelhead trout are listed under the federal Endangered Species Act. One out of every four bird species in the region is experiencing long-term population declines, and many species that used to be common, such as western meadowlarks, common night-hawks, and western bluebirds, are becoming rare. The

*We face the challenge of providing for growing human populations and needs while simultaneously addressing the needs of native fish, wildlife, and plants and protecting important ecosystem services such as water quality and plant pollination. If the predicted influx of people to the region becomes reality, many more native species are likely to decline across the region unless we become better at conserving and enhancing their habitat.*

— BIODIVERSITY GUIDE FOR THE GREATER PORTLAND-VANCOUVER REGION

streaked horned lark is proposed for listing with critical habitat designations under the Endangered Species Act. Amphibian and invertebrate populations—both of which are critical indicators of ecosystem health—demonstrate a significant loss of diversity throughout much of the region.

Far too many people in our region lack access to nature within walking distance of their homes and suffer from what author Richard Louv describes as “nature deficit disorder.” With an additional 1 million people expected to move into the region over the next few decades, the pressures on our natural landscape will grow only more intense. The challenge of global climate change demands that we start now to integrate conservation, adaptation, and mitigation strategies to prepare for the unprecedented changes that lie ahead.





## A strategy to maintain access to nature where we live, work, and play

Although the challenges may be daunting, a combination of providence and planning has resulted in a region that retains much of its natural capital. Unlike much of the rest of the nation, we have managed to contain our urban footprint through regional growth management and good land use planning. We are fortunate to be surrounded by wildlife

refuges, state and national forests, and working forests and farms. Our urban system of parks, trails, and natural areas provides the

framework for creating an interconnected system of wildlife habitats and corridors that link to one another and the greater rural landscape beyond. And, with our vibrant urban forest canopy, ecoroofs, rain gardens, and naturescaped yards, we are recognized as a leader in integrating green infrastructure into our built landscape.

When combined with its companion document, the *Biodiversity Guide for the Greater Portland-Vancouver Region*, the *Regional Conservation Strategy* presents a shared understanding of the nature of our region. It defines the challenges facing local wildlife and ecosystems and offers a vision, framework, and tools for moving forward collaboratively to protect and restore our natural systems.

The *Regional Conservation Strategy* is unique in four ways:

- **It focuses on the urban and urbanizing metropolitan region** that has received too little attention in previous conservation plans.
- **It gives equal attention to urban and rural landscapes** and addresses the connections between them.
- **It covers almost 3,000 square miles on both sides of the Columbia River** and encompasses parts of Clackamas, Columbia, Marion, Multnomah, Tillamook, Washington, and Yamhill counties in Oregon and Clark, Cowlitz, and Skamania counties in Washington.
- **It is paired with the first-ever science-based biodiversity guide for our region**, along with high-resolution, cutting-edge mapping and scientific modeling that incorporate information from scientists and practitioners who have expert knowledge of the region.

*“Our increasingly urban world is searching for new models and innovations that can help lead the way toward sustainable and equitable urban regions. That search is bringing the world to Cascadia, and ultimately right here to Portland’s doorstep. From what I have observed from my funder’s perch, the Cascadia region is positioned strongly to provide leadership for the world; and in turn, Portland is positioned strongly to provide leadership for Cascadia.”*

—STEVE WHITNEY  
Program Officer, The Bullitt Foundation

The *Regional Conservation Strategy* builds on existing local planning and implementation efforts and is consistent with state conservation strategies in Oregon and Washington. It will lead to regional cooperation and more efficient use of increasingly limited financial and human resources. It synthesizes existing scientific information, summarizes current conservation efforts, and will be an important reference for land managers, both public and private. For policy makers, it presents objective, science-based information and summarizes conservation opportunities for policy making.

The *Regional Conservation Strategy* is not a regulatory document or comprehensive plan. Instead, it presents a broad regional view of conservation while highlighting ongoing efforts and potential actions at the local level. It is a starting point for future collaboration, not a substitute for existing planning. It synthesizes and provides a larger context for local efforts and serves as a framework for future strategic conservation actions.

The *Regional Conservation Strategy* spells out how its recommendations can be integrated with myriad local, state, and federal conservation plans, initiatives, and regulations, to avoid competition and redundancy and better leverage resources. It describes options for increased collaboration among cities and counties, regional and federal partners, watershed councils, local conservation districts, and other nonprofit organizations.

Both the current ecological conditions and the desired future conditions of the region’s major habitat types are outlined. Opportunities for future conservation are delineated, and threats to the region’s biodiversity—such as habitat loss,



*Communities strong in their sense of place, proud and aware of local and special qualities, creating to some extent their own cultural forms, are in fact what one healthy side of the original American vision was about. They are also, now, critical to ecological survival.*

— GARY SNYDER, “THE REAL WORK”  
from *Knowing Home: Studies for a Possible Portland*, 1981

degradation, and fragmentation; projected negative impacts of climate change; wildlife hazards; and invasive species—are identified.

The *Regional Conservation Strategy* organizes conservation opportunities by landscape type: natural areas, working lands, and developed areas. Natural areas provide habitat for those species that are most sensitive to human disturbance. Working lands include agricultural land and commercial forests that, in addition to their commodity functions, support many native

species and natural processes. Developed areas, which when properly managed increase the urban landscape’s permeability for wildlife, enhance the ecological function of neighboring natural areas and biodiversity corridors.

The *Regional Conservation Strategy* also explains the importance of biodiversity corridors, of the ecosystem services that nature provides to the region, and of ensuring equitable distribution of and access to natural areas, in the interests of addressing issues of social and environmental justice. Finally, individualized strategies are proposed for species of special concern. These include bald eagles, purple martins, streaked horned larks, migratory birds, salmon, steelhead, coastal cutthroat and bull trout, Pacific lamprey, bats, amphibians, native turtles, and species that depend on prairie and oak habitat.



## Key recommendations

The following strategies are recommended for specific landscapes:

### CONSERVATION IN NATURAL AREAS

- Conserve high-priority land and protect existing natural areas
- Improve regional habitat connectivity
- Restore ecological processes and functions in natural areas
- Monitor changing conditions and conduct appropriate research
- Involve citizens in protecting and managing natural areas
- Remove invasive species and enhance native vegetation

### CONSERVATION IN WORKING LANDS

- Increase financial support for conservation activities on working lands
- Improve management of working lands for habitat value and water quality
- Explore better integration of farming and forestry into natural area management, including on publicly owned lands
- Increase farm and forestland easements to prevent conversion to other uses and support the long-term economic viability of local farm and forestland
- Provide funding and support for new farmers to purchase or lease farms, so that farms are not developed
- Encourage strong land use zoning and right-to-farm ordinances

### CONSERVATION IN DEVELOPED AREAS

- Increase the value of the overall urban landscape for native species
- Reduce hazards to wildlife
- Support equity and community health
- Promote stewardship of wildlife on urban landscapes and reduce human-wildlife conflicts
- Provide a mix of regulatory and incentive-based programs to promote conservation practices
- Encourage low-impact development

Specific recommendations for implementing the *Regional Conservation Strategy* are presented in each chapter in considerable detail. For example, the chapter on current conditions and challenges recommends “an interconnected system of functional natural areas across the urban and rural landscapes that supports—at a minimum—the current level of biodiversity (i.e., the existing range of plants, animals).” The climate change chapter recommends that the region develop and use the best available science; incorporate back-up strategies and redundancy in management because it confers resilience; use adaptive management; and seek solutions—including increased reliance on green infrastructure—that yield multiple benefits.”

To improve biodiversity corridors, the *Regional Conservation Strategy* recommends that physical barriers be removed and that connectivity be considered in urban and transportation planning. The chapter on ecosystem services

*“Marked economy in municipal development may be effected by laying out parkways and parks so as to embrace streams that carry at times more water than can be taken care of by drain pipes of ordinary size. Thus brooks or little rivers which would otherwise become nuisances that would some day have to be put in large underground conduits at enormous expense, may be made the occasion for delightful local pleasure grounds or attractive parkways.”*

— JOHN CHARLES OLMSTED  
*Report of the Park Board, 1903*

recommends creating incentives for the use of green infrastructure in the development of public and private infrastructure, steering mitigation investments toward the best opportunities to enhance and protect ecosystem services, and supporting cities in moving toward policies of no net loss of ecosystem services.

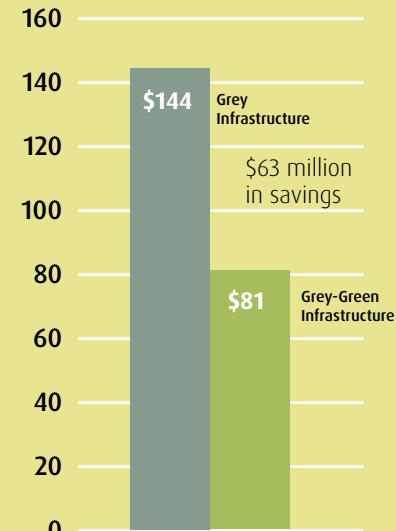
### Green Infrastructure: Efficient, Cost-Effective, and Meets Many Objectives

As John Charles Olmsted advocated in his master plan for Portland Parks more than 100 years ago, there are multiple values associated with the integration of the natural and built landscapes. Using natural systems as green infrastructure that is strategically woven into the urban landscape helps to manage urban stormwater, mitigate flooding, improve air quality and water quality, and promote biodiversity.

At a time when the region’s grey infrastructure is aging and in need of expensive maintenance (and in some cases replacement), we need resilient, affordable green infrastructure solutions that return multiple benefits and leverage additional resources for every dollar spent. Natural systems provide us with multiple social, ecological, and economic benefits for every dollar spent. One goal of the Regional Conservation Strategy is to take a regional approach to identifying natural features that might be better integrated with the built environment and complement more traditional grey infrastructure. The use of green infrastructure will stretch infrastructure dollars further and yield more benefits than engineered, grey infrastructure alone.

As an example, the City of Portland projects that constructing a new separated stormwater system in southeast Portland will save \$63 million compared to using piped solutions alone and will involve an investment of \$11 million in green infrastructure solutions. (See graph at right, in which the gray column represents grey infrastructure costs and the green column represents a mix of grey and green infrastructure.)

Project Costs of Grey vs. Combined Grey and Green Stormwater Infrastructure in Southeast Portland’s Brooklyn Creek Basin (in millions)



Courtesy Portland Bureau of Environmental Services



A BIGGER PIE:  
Building a Case for  
Federal Funding

The *Regional Conservation Strategy* makes the case for “growing the pie,” meaning bringing new financial and agency resources to the expansion and management of the region’s network of parks, trails, and natural areas. Responding to that

need, The Intertwine Alliance has formed a partnership with the Metropolitan Greenspaces Alliance, a national coalition of regionally based alliances that

have developed or are in the process of developing regional approaches to protecting biodiversity in their regions. The Intertwine Alliance is working with Chicago Wilderness, Houston Wilderness, Cleveland’s Lake Erie Allegheny Partnership for Biodiversity, Amigos de los Rios in Los Angeles, the Milwaukee region’s SweetWater, and San Francisco Bay Area Open Space Council to identify ways of engaging the President, Congress, and federal agencies in bringing additional financial and agency resources to metropolitan alliances like The Intertwine Alliance, to assist them in their work.

The U.S. Forest Service has identified The Intertwine Alliance and other members of the Metropolitan Greenspaces Alliance as potential recipients for federal funding, contingent on the adoption of a regional biodiversity plan. *The Regional Conservation Strategy* and *Biodiversity Guide for the Greater Portland-Vancouver Region* will position our region for potential future federal funding.

Our region’s network of parks, trails, and natural areas is key to creating a lasting legacy for our children and future generations. The national “No Child Left Inside” movement has developed out of a recognition that children and adults who have access to nature in their everyday lives are healthier, happier, and better learners than those who do not. In his book *Biophilic Cities*, professor and author Timothy Beatley argues that nature in our cities is not optional; rather, nature is essential to both the physical and mental health of urban dwellers.

Beatley observes that urban nature is not “distant and pristine, defined by how little humans have used or impacted it, but nearby and nuanced; [urban nature] is as much defined

*What is the extinction of the condor to*

*a child who has never known a wren?*

— ROBERT MICHAEL PYLE  
*The Thunder Tree*, 1993

by its resilience and persistence in the face of human pressures. Wildness doesn’t mean untouched or removed, but instead refers to the many

creatures and processes operating among us that are at once fascinating, complex, mysterious, and alive.” What is the “daily minimum requirement” for exposure to nature? Beatley argues that from the time we step out of our homes, we should be exposed to nature.

The Intertwine Alliance agrees. That’s why the *Regional Conservation Strategy* describes how we can better integrate nature into the urban fabric at every scale, from individual backyards to larger, regionally important refuges and publicly owned natural areas. The Intertwine Alliance predicts that, in the future, our region’s children

and adults will continue to have access to nature where they live, work, and play and residents will enjoy better health and a stronger economy and society—if we choose to implement the *Regional Conservation Strategy*.

Choosing our legacy



A SCIENTIFIC  
COMPANION DOCUMENT:  
The Biodiversity Guide

The *Regional Conservation Strategy* is based on a scientific companion document: the *Biodiversity Guide for the Greater Portland-Vancouver Region*. When The Intertwine Alliance launched the effort to develop the *Regional Conservation Strategy*, its partners acknowledged that without a sound scientific underpinning, the strategy would lack credibility and be less useful as a guide to protecting the region’s natural resources. The Intertwine Alliance’s steering committee recognized that if the region is to protect biodiversity, a science-based companion document would be needed—a guide that describes the region’s biodiversity.

The *Biodiversity Guide for the Greater Portland-Vancouver Region*, together with mapping and GIS modeling completed specifically for this project, provides important tools for conservation practitioners and decision makers: a narrative that describes the composition and patterns of biodiversity across the region, a land cover map at a scale suitable for analysis of urban and near-urban areas, and a data-driven GIS model of conservation priority areas. The *Biodiversity Guide* narrative describes the status of the region’s flora, fauna, and natural habitats; changes that have occurred in the regional landscape since 1850; and potential losses the region might experience if appropriate conservation and restoration actions are not taken. Also explained are the importance of fire in managing ecosystems, the ecological significance of floodplains, and challenges that climate change poses for the region’s biota. In addition, the narrative serves as the biological basis for the *Regional Conservation Strategy*’s discussions of issues, current conservation work, and future strategic opportunities. Taken together, the narrative, mapping, and GIS modeling provide the information and spatial context needed to help identify places of high conservation value. They also show how local projects fit within the larger spatial scale and can be used to identify where action is needed to keep habitats within urban areas connected to each other and to areas surrounding the greater Portland-Vancouver region.

Contents of the Companion  
Biodiversity Guide

CHAPTER 1 Current Conditions

Includes statistics on land cover and ownership

CHAPTER 2 Biogeography

Describes changes in the landscape over time

CHAPTER 3 Habitat Types

Summarizes major habitats, their key elements, threats, and opportunities

CHAPTER 4 Flora

Discusses sensitive plant species

CHAPTER 5 Fish and Wildlife

Inventories the region’s fish and wildlife species and their conservation status

CHAPTER 6 Issues and Concepts

Explains ideas helpful in understanding the region’s biogeography

CHAPTER 7 Threats and Challenges

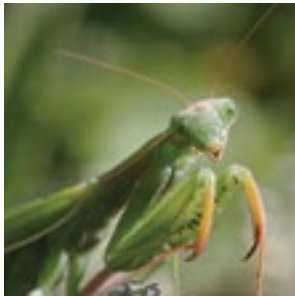
Outlines obstacles to biodiversity conservation

CHAPTER 8 Strategies

Describes how to address threats and challenges

APPENDICES Extensive technical information on mapping, land ownership, habitat types, species and watersheds is detailed in the 10 appendices included in the *Biodiversity Guide*.

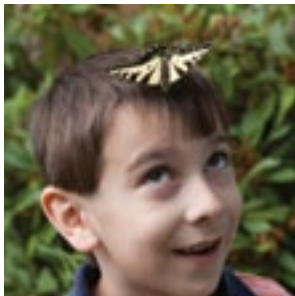




Praying Mantis



Coyote



Swallowtail Butterfly



Peregrine Falcon



Trillium



The *Regional Conservation Strategy* and *Biodiversity Guide* will provide land managers, land use planners, nonprofit organizations, and agencies with the tools to protect, restore and manage natural resources and biodiversity at every scale, from the urban core, neighborhood greenways and forest canopy, individual watersheds, to large rural working and natural landscapes.



Acorn Woodpecker



Checkermallow



Green Heron



Beaver



Flame Skimmer



Western Screech-Owl



Elk



River Otter



Red-Legged Frog



Anna's Hummingbird



Steelhead



# Regional Conservation Modeled Output

## High-Value Lands in the Region

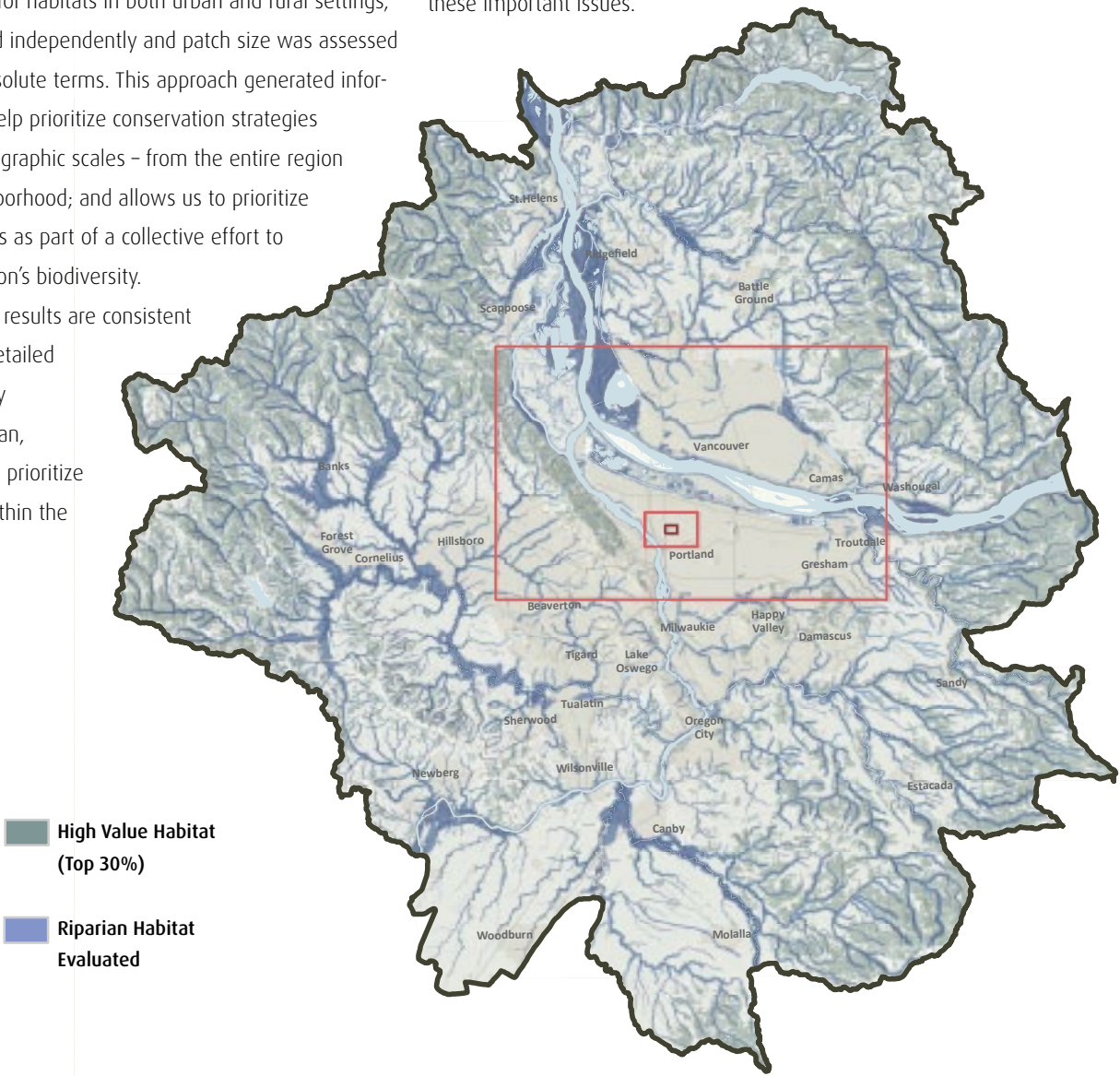
This graphic shows ecologically high-value lands in the greater Portland-Vancouver region, based on The Intertwine Alliance’s conservation priority model. High-value areas on the regional map ranked in the top one-third of all areas because of the type, location, and size of their habitat. In short, these areas represent regional priority lands within our nearly 3,000-square-mile region.

Our scientifically based prioritization model divided the region into 5 meter pixels (5 x 5 meter squares) and analyzed them for a number of features, including: existing vegetation, wetlands, habitat patch size and shape, and the presence of roads. To account for habitats in both urban and rural settings, pixels were scored independently and patch size was assessed in relative and absolute terms. This approach generated information that can help prioritize conservation strategies at a variety of geographic scales – from the entire region to the local neighborhood; and allows us to prioritize urbanized habitats as part of a collective effort to preserve the region’s biodiversity.

In general, the results are consistent with, but more detailed and geographically comprehensive than, previous efforts to prioritize wildlife habitat within the

region. Because the region has both highly developed urban areas and relatively undisturbed landscapes, much of the highest value habitats fall outside the region’s urban growth boundaries. However, more than 19,400 acres of regional high-priority lands occur within and around the region’s cities.

Reliable, region-wide information for some important habitats such as oak woodlands, prairie, rare species and high-quality forests, was not available. For now, their inclusion in planning efforts will continue to require expert knowledge. It’s also important to note that the model addressed biodiversity, not culturally or visually significant landscapes. Future efforts of The Intertwine Alliance will address these important issues.



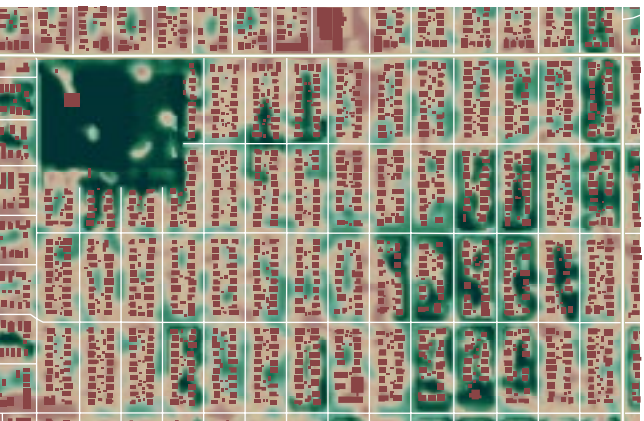
## Understanding Conditions at Multiple Scales



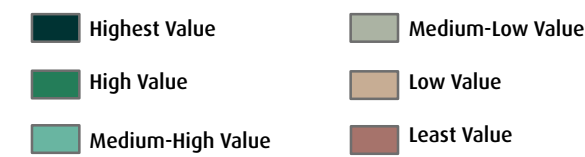
Regional 1"=6.3 MILES, OR 33,333 FEET



Local 1"=0.85 MILES, OR 4,500 FEET



Neighborhood 1"=0.19 MILES, OR 1,000 FEET



An important benefit of our approach is the flexibility to analyze data at any scale, from the 3,000-square-mile region to the local neighborhood. The following examples represent patterns of land cover and relative conservation value as one zooms in from the regional to the neighborhood scale.

### Regional

At the regional geographic scale, most small, local habitats are not apparent. Only the most prominent features stand out, such as rivers and large forest blocks. The highest scoring areas reflect habitats that have significant conservation value within the 3,000-square-mile region. Most highly fragmented urban habitats are not represented at this scale even though these areas are critical to regional biodiversity.

### Local

At this intermediate scale, finer habitat patterns are more apparent while regional elements are still prominent. In this example, blocks of habitat barely visible at the regional scale become more dominant. For example, patterns of street tree density within east Portland become recognizable as a potential regional planning element. Opportunities to create ecological connections between regional sites are suggested. Only the highest scoring areas at this scale are likely to have regional significance.

### Neighborhood

At the local scale, the neighborhood, features that appear less significant at the regional scale are apparent. Habitats barely or not recognizable at larger scales, such as local parks, creeks, vegetated hillsides, or tree patches can be woven into a meaningful framework and incorporated into local habitat conservation planning, neighborhood by neighborhood.





Lacamas Lake, Camas, Washington

The *Regional Conservation Strategy for the Greater Portland-Vancouver Region* and the accompanying *Biodiversity Guide* were made possible thanks to the collaboration of more than one hundred and fifty individuals and organizations.

The complete *Regional Conservation Strategy* and *Biodiversity Guide* are available online at The Intertwine Alliance's website: **[www.theintertwine.org/conservation](http://www.theintertwine.org/conservation)**

**Read more  
online**

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**Photography** COVER: Steve Berliner; PAGE 1, 3, 8, 10 (large photos), AND BACK COVER: Mike Houck; PAGE 5, LEFT TO RIGHT: Steve Berliner; Mace Vaughan, The Xerces Society; Michael Wilhelm; PAGE 9: Richard Wilhelm; PAGE 10 SMALL PHOTOS: Michael Wilhelm: *Coyote, Swallowtail, Butterfly, Trillium, Green Heron*; Bob Sallinger: *Peregrine Falcon*; Matt Benotsch: *Checkermallow*; Steve Berliner: *Acorn Woodpecker*; PAGE 11: Mike Houck (upper), Bob Sallinger (lower); PAGE 11 SMALL PHOTOS: Michael Wilhelm: *Otter, Red-legged Frog, Beaver, Elk, Steelhead*; Steve Berliner: *Owl, Anna's Hummingbird*; PAGE 12 & 13: Metro PRINTED ON RECYCLED STOCK