PART II

The Case for Conservation Action

WASHINGTON HAS A RICH NATURAL HERITAGE

Washington has a tremendous diversity of landscapes, ecosystems, and species. We have the marine waters of the outer coast and Puget Sound, volcanic peaks rising up out of the Cascade Mountains, the broad Columbia Plateau formed by unbelievable outpourings of lava millions of years ago, the rolling Palouse hills, one of the world's great rivers in the Columbia River, as well as extensions of the Rocky Mountains.

The diversity of landscapes supports a wealth of ecosystems: marine waters, tidepools, estuaries, rainforests, expansive coniferous forests, subalpine and alpine meadows and parklands, shrub-steppe, grasslands, prairies, sand dunes, riparian areas, and a variety of freshwater wetland types.

The ecosystems are home to a richness of species, from whales and sea anemones to jumping slugs, giant Douglas-fir trees and prickly pear cacti. There are more than 3,100 vascular plant species, 140 mammals, 470 freshwater and marine fishes, 341 birds, 25 amphibians, 21 reptiles, thousands of mosses, lichens, liverworts, and fungi, and tens of thousands of invertebrates.

Continued on next page

KAREN GRAY

JIM RILEY

Top: Asotin milkvetch (*Astragalus asotinensis*) is a newly described species from Asotin County, Washington.

Below: Washington's lichen diversity is still being catalogued. *Vulpicida canadensis*, shown here, is known from nine counties.

Some of the species are unique to Washington, occurring nowhere else on Earth. There are 49 plant species that are endemic to the state. The Olympic and Wenatchee mountains, the Columbia River Gorge, and the Columbia Plateau are all rich in species that are unique to those areas. Yet other species are common. And some species are yet to be discovered, or rediscovered. A new species of milkvetch (*Astragalus asotinensis*) was first described in 2006 from the southeast corner of the state.[1] And in the Palouse, a giant earthworm that had not been seen in decades was found accidentally as a graduate student was doing soils research near Pullman.

OUR ECOSYSTEMS AND SPECIES MATTER

The beauty and diversity of Washington is important because it makes us who we are. We identify with Mount Rainier, killer whales, salmon, old growth forests, the Columbia River, the basalt-walled coulees carved by epoch floods. But our biodiversity provides much more than simply aesthetic or spiritual value.

- Our native species and ecosystems contribute billions of dollars annually to Washington's economy, from fisheries, to timber production, to outdoor recreational pursuits. Natural resource based businesses contribute approximately 13% of our state's annual economic output (Policy Brief from the Office of Governor Chris Gregoire).

Our native species and ecosystems contribute billions of dollars annually to Washington's economy.

- Healthy ecosystems provide us with clean water and clean air. Maintaining our landscapes and ecosystems in a healthy condition provides tremendous savings when it comes to providing clean air and water.
- Intact ecosystems provide land managers and students of all ages with outdoor laboratories from which to learn about the environment and how it functions.
- Our species and ecosystems provide us with a foundation for our cultural and spiritual values.
- Native species are critical in the development of medicines and food crops.

OUR ECOSYSTEMS AND SPECIES ARE UNDER SIEGE

Although we are still rich, we cannot take the continued existence of our biodiversity for granted. A number of factors threaten the very existence of many of our species and have negative impacts on the health and functioning of our ecosystems.

Population growth and our current rate of resource consumption are major drivers of threats to Washington's biodiversity. Our population is currently more than 6 million, having doubled in the last 40 years.[2] By 2030, Washington is expected to have more than 8 million residents.[3] Growth is expected to be the greatest in the Puget Sound region and in Clark and Spokane counties.[4] New homes, commercial buildings, roads, sewers, and water supply systems will be needed. All of these developments will add to the pressures on our species and ecosystems. Those pressures are exacerbated by our collective personal resource consumption: bigger cars, bigger houses, bigger storage units, faster foods.

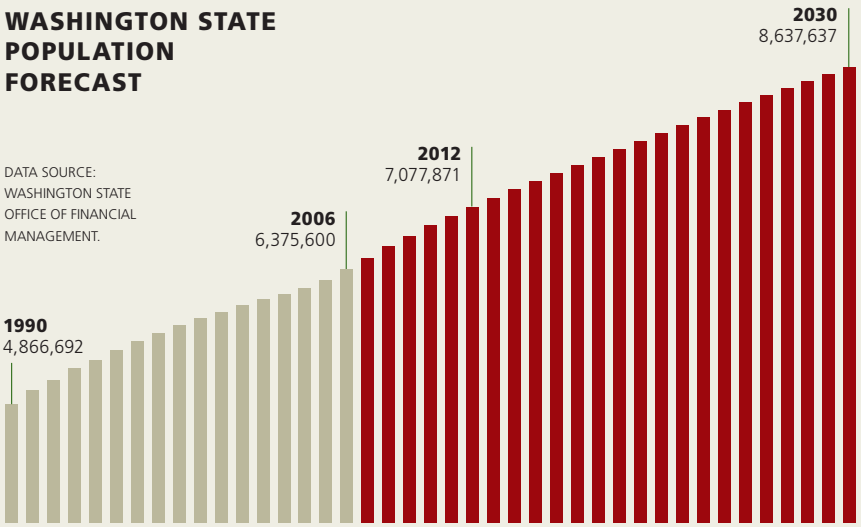
Conversion of land for agricultural, residential and commercial uses continues. We are losing low elevation forests in western Washington as a result of the expansion of cities and suburbs. By 2030, Washington and Oregon are projected to see 1.9 million net acres of forest converted.[5] Lands in eastern Washington continue to be converted to orchards, vineyards, organic farms, golf courses and other recreational developments. And those lands remaining in a natural or semi-natural state are increasingly fragmented and isolated.

The impacts of dam construction on riparian species and ecosystems are still being felt today. Construction of dams, while providing flood control and electricity and water for irrigation, has resulted in significant declines in riparian ecosystems and the species dependent upon those systems. These impacts continue today.

DNR PHOTO

Population growth is often accompanied by conversion of natural landscapes to residential development.

WASHINGTON STATE POPULATION FORECAST



DATA SOURCE: WASHINGTON STATE OFFICE OF FINANCIAL MANAGEMENT.

THREATS TO WASHINGTON'S BIODIVERSITY

- Population growth and personal consumption
- Conversion of habitat to:
  - Agriculture
  - Residential
  - Commercial / industrial
- Dams and other changes to hydrologic systems
- Invasive species
- Pollution / contamination
- Overexploitation
- Climate Change
- Meeting water storage needs
- Pursuit of renewable energy
- Fragmentation and isolation / loss of ecological function

CHARLES AND GRETCHEN LAMBERT

DNR PHOTO

Top: Non-native tunicates (also known as sea-squirts) are a significant threat to Puget Sound's biodiversity. Pictured here is the transparent Ciona tunicate.

Above: Wind farm in Eastern Washington. There can be significant, site-specific ecological cost to pursuit of alternative energy.

Population growth and our current rate of resource consumption are major drivers of threats to Washington's biodiversity.

Invasive species will likely increase in number and in economic and environmental impact. Non-native invasive plant and animal species cause significant economic impact to property owners, farmers and ranchers, people involved in aquaculture and fisheries, and others as a result of reduced yields and the cost of control/eradication efforts. There are also tremendous environmental impacts. Invasive species have been identified as a threat to more than 25% of the state's plant species that are of conservation concern.[6] Aquatic nuisance species, such as the non-native tunicate pictured at left, have been identified as the second leading threat to diversity within Puget Sound.[7]

Pollution and environmental contamination will likely accompany the projected growth in the population of the state. This issue has been highlighted recently for Puget Sound's species and ecosystems. One suspected cause of the explosive increase in non-native tunicates (mentioned above) is the dumping of raw sewage into Puget Sound and Hood Canal. Pollution and contamination are of concern for aquatic and terrestrial ecosystems across the entire state, as wastewater and stormwater runoff and atmospheric pollutants, such as those in automobile emissions, increase. This problem is exacerbated by the concurrent loss of natural environments that help to filter our air and water.

Climate change will likely reshape our ecosystems and alter the mix of species that live within Washington. Rising sea level will impact nearshore habitats (beaches, tidepools, etc.) and estuaries. Changing temperature and precipitation patterns will alter patterns of wildfire frequency and severity, resulting in changes in the species composition and structure of our forests. The flow of water through watersheds will change, altering riparian ecosystems and isolated wetlands. Successful conservation will depend on gaining a better understanding of the impacts of climate change on our species and ecosystems.

Meeting the water storage needs for a growing population, particularly in light of climate change projections, may pose additional risks for species and ecosystems. Our reliance on snow-pack as the primary means of water storage will be tested, resulting in the need to look for alternatives, such as building new reservoirs. The placement of new reservoirs, or increasing the storage capacity of existing reservoirs, will place some components of biodiversity at increased risk.

Pursuit of less expensive, even renewable, energy sources has an environmental cost. As we seek cheaper energy sources, whether it be wind energy or growing crops for biofuels, the components of biodiversity in the effected places may be at increased risk.

Fragmentation, isolation, and loss of ecological function will be increasingly difficult to address. The combination of population growth, conversion of habitat, pollution, invasive species and climate change will further isolate parcels in good ecological condition from the natural ecological processes that are necessary for ecosystem viability. In turn, this makes successful long-term conservation more challenging to achieve.

WE CAN MAKE A DIFFERENCE

In spite of all of the change that has occurred in Washington, and in the face of all of the on-going threats to our biodiversity, we are still rich. There are, and have been, impressive efforts underway to conserve Washington's biodiversity. These efforts are making a difference. A sampling of these efforts includes:

Washington Biodiversity Council Created by an executive order from the Governor's office, the Council is developing a 30-year strategy for the conservation of Washington's biodiversity. The strategy is expected to emphasize landowner incentives and increased efficiency of conservation effort, in particular with regard to government actions.

Puget Sound Partnership Governor Gregoire has made this public/private partnership to restore the Puget Sound ecosystem to health by 2020 a priority for her administration.

The Cascade Agenda This cooperative effort, led by the Cascade Land Conservancy, resulted in the creation of a 100-year vision for King, Pierce, Snohomish and Kittitas counties for sustainable economies and ecosystems.

Comprehensive Wildlife Conservation Strategy Completed by the Washington Department of Fish and Wildlife in 2005, this document provides a strategic framework for the conservation of Washington's wildlife species and their habitats. WDFW is currently engaged in developing action plans for each of Washington's nine ecoregions to implement this strategy.

Ecoregional Assessments The Nature Conservancy, Washington Department of Fish and Wildlife, the Natural Heritage Program and many others have undertaken conservation assessments for each of Washington's nine ecoregions. The assessments are designed to identify the priority areas for conservation of all components of each ecoregion's biodiversity.

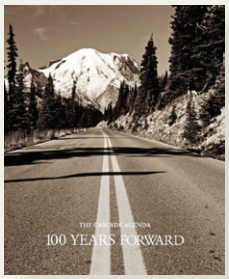
Increasing number of land trusts in Washington The Land Trust Alliance currently lists more than 30 land trusts that operate at the local or regional level within Washington. [8]

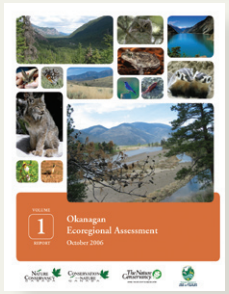
Washington Wildlife and Recreation Program (WWRP) Since 1990, more than 125,000 acres have been acquired for habitat conservation and recreation purposes. Additionally, more than 14,000 acres have been acquired for salmon recovery purposes.[9] Many of the WWRP acquisitions have been for Natural Area Preserves and Natural Resources Conservation Areas.

Forests and Fish Law Enacted in 1999 by the State Legislature, this law increases the protection along 60,000 miles of streams on 9.3 million acres of forest in Washington.

Cooperative Endangered Species Conservation Fund (administered by the U.S. Fish and Wildlife Service to promote conservation and recovery of species on the federal endangered species list) During 2006, the State of Washington received more than $20 million in grants for land acquisition and planning assistance, representing almost 30% of the total for the nation.

The Forest Legacy Program (administered by the U.S. Forest Service to protect forestlands from conversion to non-forest uses) Washington was one of the first states to participate in this grant program, and has used it successfully to reduce urban sprawl and protect forestlands in key locations since 1993.





Top: The Cascade Agenda 100 Years Forward.

Bottom: Okanogan Ecoregional Assessment.

[1] Bjork, Curtis R. and M. Fishbein. Astragalus asotinensis (Fabaceae), a newly discovered species from Washington and Idaho, United States. Novon 16:299-303. November 2006.

[2] Washington State Office of Financial Management. 2005 Data Book.

[3] Washington State Office of Financial Management. Http://www.ofm.wa.gov/pop/gma/projections.asp

[4] Washington State Office of Financial Management, Washington State County Growth Management Population Projections: 2000 to 2005.

[5] Washington State Department of Natural Resources website (Overview of Washington's Forest Legacy Program): http://www.dnr.wa.gov/htdocs/amp/forest_legacy/intro.html.

[6] Bishop, A. A. Dotolo, M. Grady, A. Lillenthal, J. Panza, A. Varlamov and C. Wilson. 2005. Threats to Biodiversity in Washington: A Report Prepared for the Washington Biodiversity Council.

[7] Puget Sound Action Team website—Puget Sound Online (http://www.psat.wa.gov/Programs/Aquatic.htm)—Accessed on March 4, 2007.

[8] LTA website accessed on February 21, 2007: http://www.ltanet.org/findlandtrust/alpha.tcl?state_id=washington53#statewide.

[9] Interagency Committee for Outdoor Recreation. 2005. Toward a Coordination Strategy for Habitat and Recreation Land Acquisitions in Washington State. Submitted to the Washington State Legislature. 39 pp. + appendices.

OBJECTIVE, SCIENTIFIC INFORMATION IS NEEDED

These efforts, and many others, have made and continue to make a difference. They are evidence of a high level of interest and energy dedicated to conserving Washington's species and ecosystems. But given the magnitude of population growth and the reality of climate change, we have a decreasing margin of error when it comes to decisions that will affect the future of biodiversity in Washington. The decisions that are made, whether by state agencies, county planning departments, or conservation organizations, need to be informed decisions. They will require objective information regarding what features are in need of special conservation attention, where those features are found on the landscape, and how best to manage the land for the conservation of those features.

WE'VE GOT THE TOOLS

Enter the Washington Natural Heritage Program. It was created specifically to provide an objective basis for establishing conservation priorities and to inform policy makers and land managers. Which species need conservation attention? What ecosystems are being lost to development or undergoing degradation from other human activities? Where are the best places to conserve rare species and ecosystems? Natural Heritage Programs and the methodology they employ were developed to help answer these questions.

In passing the Natural Area Preserves Act, the Legislature recognized the need for a systematic and objective approach to guide inventory and protection efforts. The Legislature was interested in both effectiveness (protecting those features most at risk) and efficiency (avoiding unnecessary duplication of protection effort). The Natural Heritage Program was established to provide the systematic and objective approach.

The Natural Heritage Program was created specifically to provide an objective basis for establishing conservation priorities.

The Natural Heritage Program's mandate, from the Legislature, was essentially to:

- Identify which species and ecosystems are priorities for conservation effort,
- Build and maintain a database for priority species and ecosystems, including information about known locations and about their ecological requirements, and
- Share the information with others so that it can be used for environmental assessments and conservation planning purposes.