

II. BIODIVERSITY CONSERVATION

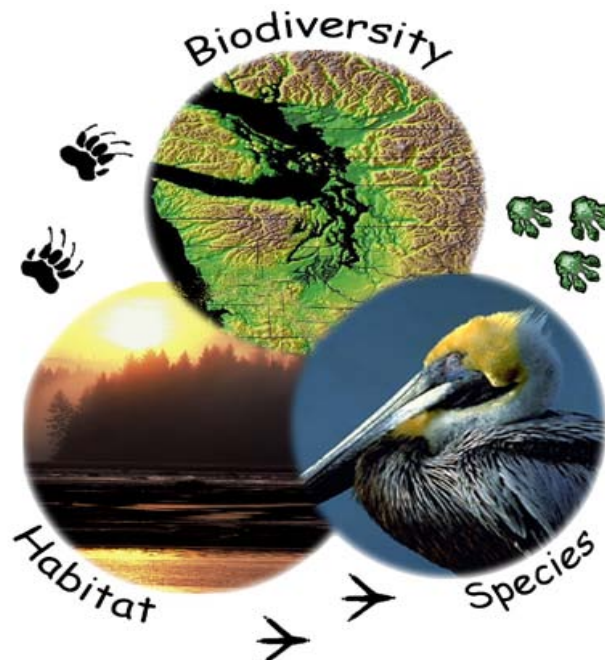
A. The Challenge

Species extinction is occurring at a rate of 100 to 1000 times greater than rates recorded through recent geologic time. The extinction crisis is not happening one species at a time; whole suites of species are placed in jeopardy as entire ecosystems and landscapes are being altered or lost.

The five main questions for wildlife and biodiversity conservation are: 1) what should be conserved, 2) how much should be conserved, 3) how can it be conserved, 4) where should it be conserved, and 5) how can it be measured and monitored? The state of the science and availability of information govern the extent to which these questions are addressed in the CWCS. While science can inform decision-makers, the answers to questions two and four are actually choices that society will make based on values, acceptable risk and opportunity. The CWCS is designed to be a "living" document that will be expanded in scope and updated on a biennial basis; so new information, strategies and priorities will be added with each iteration.

While conservation of Washington's biological diversity is one of the guiding principles of the CWCS, it is ultimately the responsibility of multiple agencies and private conservation organizations. In keeping with WDFW's mission, the CWCS focuses on animal and animal habitat diversity. It does not address rare flora, plant associations or abiotic features that are covered by the Washington Department of Natural Resource's (WDNR) Natural Heritage Plan, nor does it use the larger ecological systems of the ecoregional assessments discussed in Chapter VI and Appendix 12.

At some point in the future, all of these documents may be combined into a coordinated statewide biodiversity conservation strategy, perhaps through the Washington Biodiversity Council. In the meantime, WDFW is fulfilling its role in biodiversity conservation in several ways.



B. What Should Be Conserved?

Much of WDFW's traditional management has been single-species oriented. Statewide species recovery and management plans determine how and where fish and wildlife species should be conserved or managed for sustainable harvest. These plans are listed in Appendix 6 and Appendix 7.

While the single species approach is still needed to recover endangered species and maintain harvestable surplus of game or commercial fish and wildlife, it is impractical for managing thousands of species. Nor is the single species approach sufficient to prevent major losses in biodiversity. Biological diversity occurs at a variety of levels, from genes to species to ecosystems and at multiple spatial scales, from sites to landscapes to biomes. In the 1970s, conservation biologists at The Nature Conservancy realized that a systematic approach was needed and developed the "coarse filter/fine filter" approach that is used by NatureServe and the various state Natural Heritage Programs. Figure 2 below illustrates this coarse filter/fine filter approach:

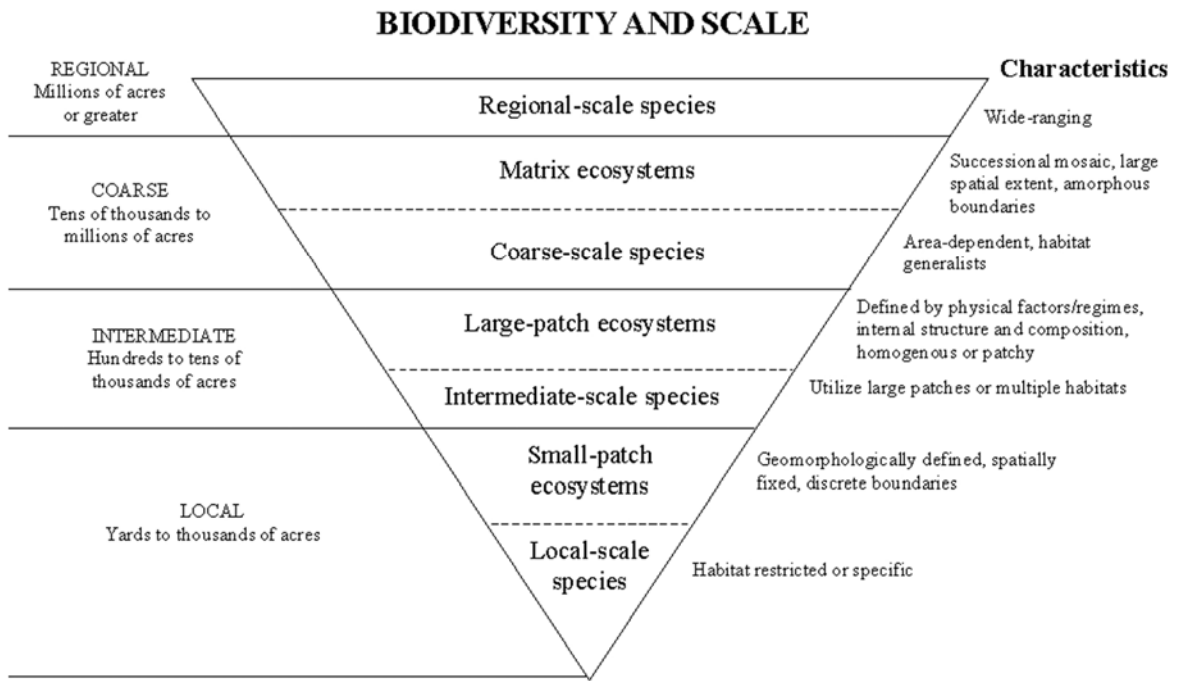


Figure 2. Coarse filter/fine filter assessment approach.

A brief explanation of the coarse filter concept is that by conserving large, representative examples of all of the ecological systems or habitat types in a region, the majority of common species will also be protected. However, a fine filter is needed to address the rare and imperiled species that might otherwise not adequately be protected by the coarse filter. The fine filter also includes wide-ranging species that have special needs for habitat connectivity over large expanses. The coarse filter/fine filter concept has evolved to a continuum approach that results in an assemblage of conservation targets spanning many spatial scales and multiple levels of biological organization. The four main categories of conservation targets are subspecies, species, communities, and ecological systems.

The CWCS uses the coarse/fine approach with respect to wildlife species by addressing both habitats and species of greatest conservation need.

C. How Much and Where Should Biodiversity Be Conserved?

A mix of science and societal values generally shape a conservation vision. Conservation goals or objectives determine where and how limited conservation resources are spent. There are crucial gaps in the science, including limited knowledge of species' distributions and large-scale, long-term dynamics of ecosystems, which must be addressed to improve conservation objectives. Because we cannot afford to wait for perfect knowledge, conservation biologists are exploring various ways to address this question. In 2001, WDFW and WDNR reviewed various biodiversity assessment methods and chose to join The Nature Conservancy in developing ecoregional assessments for the Pacific Northwest. The ecoregional assessment process is well documented, transparent with regard to limitations, and based on the best available science.

The ecoregional assessments attempt to address how much and the best places to conserve the full range of biological diversity. This is done through an iterative computer analysis that uses numeric goals for how much of each conservation target should be represented and a suitability index to select the least-impacted places to conserve biodiversity. Expert review of the computer-generated results is a crucial element to compensate for data errors and data gaps. The result of the process is an efficient portfolio of conservation sites. Alternative portfolios are developed by altering the goals. While the goals are somewhat subjective, they can be updated with new information and the analysis rerun. Regardless of the goal levels, the highest priority sites are always included in the portfolio, and thus part of the portfolio shows the best starting points for allocation of limited conservation resources.

Two products of the ecoregional assessments were used in developing the CWCS. The conservation target lists were used in selecting the Species of Greatest Conservation Need (SGCN). The Conservation Utility Maps, initially displayed for three ecoregional chapters of the CWCS, display the relative conservation value of landscapes/watersheds across each ecoregion. WDFW is using the ecoregional assessments to guide activities that contribute to protecting the full range of biodiversity and to help keep common species common. The agency will also continue to develop species recovery and management plans to maintain viable populations of listed species and surplus population levels of harvested species. These plans include estimates of the amount of habitat and the management actions needed to achieve population goals.

D. How Can Biodiversity Be Conserved?

WDFW began cooperating with other state agencies on biodiversity conservation when the Washington Natural Heritage Advisory Council was formed in the early 1980s. Currently, several state agencies assist the Washington Department of Natural Resources (WDNR) with updating the Washington Natural Heritage Plan. The plan identifies, prioritizes and tracks the elements of biodiversity that are protected in the Washington Natural Area Preserves System. The plan can be accessed at <http://www.dnr.wa.gov/nhp/refdesk/plan/index.html>.

In 2001, WDFW joined with The Nature Conservancy, WDNR's Washington Natural Heritage Program, and other partners to conduct ecoregional assessments that identify and prioritize places for conserving biodiversity at the ecoregional scale. High priority places are identified based on factors such as species rarity, richness, and representation as well as site suitability and overall efficiency. The assessments use the fine/coarse filter concept described above. Information from these technical assessments is included in the CWCS, even though they will not be completed until 2006.

In 2002 the Washington State Legislature passed Engrossed Substitute Senate Bill 6400, which called for the development of a framework for state biodiversity conservation and directed the establishment of a temporary, broad-based, public/private Washington Biodiversity Conservation Committee to assess the state's current efforts at biodiversity conservation and make recommendations for a state biodiversity strategy. The Committee process was facilitated by The Nature Conservancy of Washington and their recommendations were provided to the Governor and Legislature on October 1, 2003. WDFW participated on, and provided major funding for, the Biodiversity Conservation Committee. The Committee's 2003 recommendations are available at: http://www.iac.wa.gov/Documents/IAC/Special_Projects/Biodiversity/BiodiversityStrategyReport.pdf).

In 2004, a new Washington Biodiversity Council was appointed by Governor's Executive Order. The Council was directed to review the recommendations of the earlier Biodiversity Committee and develop a 30-year strategy to protect the full range of Washington's biodiversity. The new Council, which will expire in 2007, is also a broad-based organization that includes participation by WDFW and other public agencies and private stakeholder groups. (<http://www.iac.wa.gov/biodiversity/default.htm>)

As mentioned above, biodiversity occurs at multiple scales and the CWCS attempts to address wildlife conservation at three scales: statewide, ecoregion and local. Chapter III, State Overview, discusses problems and strategies that are common throughout Washington. The preponderance of biological information and conservation problems and actions are presented in the ecoregional chapters. Ecoregions are defined through broad ecological patterns in the landscape and provide a useful framework for cooperating with neighboring states and provinces on conservation planning. Efficient conservation strategies should begin at a regional level, but conservation decisions and actions are increasingly occurring at the local level. Local conservation efforts can be most effective when made within the context of a broader, regional-scale strategy. WDFW staff participate in many local conservation projects, providing both expertise and a state and regional perspective. Descriptions of some local biodiversity conservation projects that attempt to address the questions of what, where and how much to conserve are discussed, with Internet links, in Chapter VII, Monitoring and Adaptive Management.



E. How Can Biodiversity Be Measured and Monitored?

Currently, there is no coordinated effort to monitor or measure changes in biodiversity over time; in fact, there is no agreement yet on how it would be done if we were monitoring biodiversity. However, WDFW is taking a lead role in proposing the development of a Biodiversity Index, which would be used to track and monitor long-term changes in Washington's biodiversity.

One of the ideas being proposed to the Washington Biodiversity Council and other partners, such as WDNR's Washington Natural Heritage Program, is the establishment of a Biodiversity Monitoring Committee to lead the design and implementation of the new Biodiversity Index. This committee, if established, would be responsible for designing scientific protocols and implementing strategies to guide the new biodiversity monitoring program. Measures of biodiversity will include species (plants and animals) and their habitats, and the protocols developed by the Committee will determine which species and habitats will be targeted for long-term biodiversity monitoring. The concept of a Biodiversity Index is discussed again in Chapter VII, Monitoring and Adaptive Management.