Fish and Wildlife PLANNER

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Economic value of the natural environment: Understanding Washington's critical areas

By Chris Parsons, Washington Department of Fish and Wildlife

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This article provides a look at the economic and ecological benefits that critical areas[1] provide individual landowners, as well as our society as a whole. Although the benefits of preserving natural areas are often explained in ecological terms, a substantial body of literature has described the economic benefits of preserving critical lands. This piece begins with a short summary of Washington's Growth Management Act (GMA), describing how local governments determine the functions and values of critical areas. Subsequently a brief overview is given, highlighting some of the ecological and economic benefits of preserving important natural features.

Washington neighborhood in close proximity to open space.

History of GMA

When Washington State passed the GMA in 1990, local governments were required to conserve resource lands (e.g., forested areas) and designate and protect critical areas[2]. The GMA encouraged consolidated growth since dispersed development in critical and natural resource areas often put a disproportionate burden on taxpayers to provide public services (e.g., police, 911, utilities, etc.) to distant properties. The GMA was an important first step in separating incompatible land uses. Inventories of critical and resource areas helped local governments identify where to concentrate growth within Urban Growth Areas (UGAs). This legislative authority was also developed to protect citizens from natural events (e.g., flooding) and has preserved irreplaceable natural resources.

The Legislature in 1995 amended the GMA to require the use of Best Available Science to guide local policy decisions[3]. Local governments were also directed to give special consideration to anadromous fisheries within each critical area ordinance. These changes were enacted to ensure that significant adverse environmental impacts would be handled before any project went through a permitting stage.

Economic benefits

Critical areas provide important ecological functions that enable society to enjoy a healthy environment. The protection of critical areas also can provide economic benefits to individuals and communities. For instance, an intact wetland slows floodwaters, filters contaminates, and recharges aquifers. These functions are often lost though soil compaction and wetland filling. Wetlands act as natural sponges, soaking up floodwaters and

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1. Include fish and wildlife habitat, geologically unstable, critical aquifer recharge, wetland, and frequently flooded areas.
2. RCW 36.70A. 060
3. RCW 36.70A. 172 (1)

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releasing them gradually. A single wetland acre, saturated to a depth of one foot, retains enough water to flood 13 average-size homes thigh deep[4]. However, altered wetlands often provide property owners little or no flood protection. Although there is still uncertainty about the total value of wetlands (e.g., monetary flood relief value), the value in the 1980s was estimated at $590 to $10,000 per acre/year[5] using two approaches for measuring monetary value.

Fish and wildlife conservation areas that also are addressed through the GMA carry out important functions that benefit citizens in many ways. For instance, riparian areas along rivers and lakes function as critical habitat for migrating and nesting songbirds, mammals, reptiles, amphibians, and fish. Similar to wetlands, riparian setbacks are used as a planning tool to ensure development impacts are safely set away so wildlife can have the necessary space to carry out important life functions[6]. Conserved fish and wildlife habitat provide all citizens with opportunities for recreation, education, and scientific study, as well as aesthetic appreciation. A national survey completed in 2001 showed that nearly $2.4 billion a year was added to Washington's economy by anglers and hunters and through wildlife viewing (e.g., bird watching)[7].

Floods are a natural part of a healthy river ecosystem and frequently flooded areas are also addressed through the GMA. Once delineated, frequently flooded areas are to be left undeveloped so that seasonal flood events will not harm buildings or human life. Replacement of structures within frequently flooded areas is costly to society and to individuals. For example, in February 1996, 30 inches of persistent rain and melting snow over the Pacific Northwest caused nine deaths and $1.2 billion in damages to structures that included many within flood zones[8].

Courtesy of Washington Dept of Ecology

Chehalis River flood in 1990

Another GMA requirement is for communities to identify lands useful for public purposes and to identify open-space corridors within and between UGAs[9]. In addition to providing space for future parks and connectivity for wildlife migration, preserving open space positively influences property values. In a study conducted in Portland, Ore[10], natural-area parks, on average, were estimated to have a significant positive effect on a home's sale price. In this study, homes located within 1,500 feet of a public park sold for $2,262 (1990 dollars) more than homes located more than 1,500 feet from any open space. Higher assessed property value brings in more property-tax revenue for local governments, benefiting individual property owners and the community.

Overall benefits

All citizens gain from the multitude of economic, environmental, and intrinsic benefits of critical areas. Because these benefits affect our society as a whole, both government and private property owners have shared responsibility to protect important critical area functions for current and future generations. This collective responsibility is especially vital given that critical lands represent finite and often irreplaceable resources.

4. Rob Masonis, American Rivers Northwest
5. The Economic Value of Wetlands Systems, Farber and Costanza, April 1986
6. See Management Recommendations for Washington's Priority Habitat and Species at http://wdfw.wa.gov/hab/phsrecs.htm.
7. See 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation: Washington.
8. Gesource Natural Hazard Pages website
9. RCW 36.70A.160
10. Lutzenhiser and Netusil (2001)

Perspective on habitat fragmentation in developing landscapes

By Jeff Azerrad, Washington Department of Fish and Wildlife

As once-rural areas become developed, native habitat often is relegated to smaller, isolated patches of land. In many parts of Washington, this process has had far-reaching effects on wildlife. These effects are especially serious for species that require large, intact areas of natural vegetation for survival.

Comprehensive approaches are essential to slow the rate at which habitat function is lost to development. Examples of habitats commonly isolated by development in Washington include old-growth forest and Oregon white oak woodland, both of which are identified as Priority Habitats (habitats deemed especially important based on specific criteria by WDFW). Several rapidly growing communities have taken steps that could reduce future habitat fragmentation. This article briefly describes one local community's proactive planning efforts. This article also touches on a few considerations for planning around existing patches of fragmented habitat.

Long-range conservation planning

In Pierce County, a Biodiversity Network was developed in close cooperation with WDFW and the University of Washington (see March 2005 F&W Planner). Pierce County identified landscapes containing high biodiversity (high number of species) called Biodiversity Management Areas (BMAs) and identified linkages so BMAs would not be isolated. The analysis relied on various sources of data and field verification. After identifying 16 BMAs, the county worked with biologists and community members to identify important ecological features and factors that were limiting habitat function within individual BMAs.

Information from this cooperative assessment will guide Pierce County's comprehensive openspace planning. Such efforts can reduce future fragmentation by identifying and planning around valuable habitat before considerable function is lost. Although such inventories might not prevent all future fragmentation, fish and wildlife should benefit from this multifaceted approach.

Off-site mitigation of urban white oak woodlands

By Dave Howe, Clark County Department of Community Development & Jeff Azerrad, WDFW

In Clark County, many stands of remnant Oregon white oak woodlands are found in residential settings. Many of these woodlands meet WDFW's definition of "Priority Habitat." Clark County adopted the PHS list as part of its Habitat Conservation Ordinance.

White oak woodlands in urban areas typically range in age from 30-100 years, are less than an acre in size, and host an array of wildlife species, some not found in surrounding urban areas. These woodlands are rapidly changing due to urban growth.

When an oak patch is proposed for development, staff are faced with the tough task of determining how much can be developed without losing habitat function. Although white oak woodlands have been generally studied, less is known about small urban stands. Additionally, review deadlines often force staff to make quick decisions using best professional judgment. The developer's consultant, who also works with limited scientific

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Considerations for existing habitat fragments

Even though proactive communities are better prepared to avoid future fragmentation, all communities have to decide what to do with small patches of habitat. Decisions of this nature become more difficult when patches of potentially suitable habitat are surrounded by development. Planners might ask, "What is the value of conserving a small patch, even if the site is of high quality?" This question is common since large, connected, less-developed sites tend to be more suitable to wildlife. However, small urban sites should not be discounted as they can retain important wildlife function.

Planners must weigh distance to other habitat patches, connectivity and surrounding landscape context, site condition, habitat rarity, species use, and patch size. Communities that develop criteria using these factors will be better prepared to make informed decisions about the conservation value of such a site. Of course, scientific information will sometimes be incomplete, confounding decisions about how to treat fragmented urban sites. WDFW biologists can assist local jurisdictions in this process.

In cases where there is little doubt that a site retains key wildlife function, it is important to retain important ecological features on the site and its surroundings that make it valuable to wildlife. In urban fragments where value is apt to be limited, a decision must be made about the site's best use. The inset above examines just such a situation encountered by Clark County.

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FRAGMENTATION

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Planning for the future

Reducing the pace of fragmentation is essential for the protection of imperiled species, and for ensuring that today's common species remain common. Although Pierce County's plan only represents a single approach, the county has demonstrated a proactive, rather than reactive, approach to conservation planning. Proactive communities will develop ecological criteria to help assess existing habitat fragments. To aid counties, WDFW is currently writing a publication to provide guidance so developing communities can better address some of these difficult questions.

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information, usually provides site-specific habitat information. Decisions are often made using only this local habitat information and any knowledge acquired from precedents gained by prior projects.

On sites highly constrained by oak habitat, portions of the habitat are often sacrificed to allow some development. The remaining habitat will support species more tolerant to urban development, like scrub jays, but certain sensitive species may vacate the site.

Once we determine how much habitat to protect for urban species, we then must mitigate for the loss of sensitive species. Mitigating the impact of development to mature oak woodlands is not clearly defined by current science. For instance, a tree replacement formula is imperfect since we do not understand how well this addresses the temporal loss of habitat function for more sensitive species. Increasingly, off-site rural mitigation in the form of preservation is used to replace urban habitat. Adoption of the PHS list provides an opportunity for preservation of rural oaks that do not meet the acreage threshold to qualify as Priority Habitat.

Courtesy of Don Baccus

Mature Oregon white oak.

In an actual project, a Clark County developer offered to mitigate the loss of habitat for urban tolerant species by retaining selected oaks, transplanting and planting large oaks, and compensating for the loss of more sensitive species by protecting unregulated mature oaks in an off-site rural location. County staff supported the plan, but the decision was ultimately rejected and only on-site protection was applied. As a result, a small quarter-acre oak stand with native plantings was retained on a site soon to be surrounded by future urban development of adjacent properties.

Over time, the site will need to be monitored to see if its value to wildlife becomes limited. The findings will add to our understanding of the viability of off-site mitigation in rural areas as an alternative to conserving fragmented sites in urban areas.

All questions or comments about this article can be directed to Dave Howe at 360.397.2375 x4598 or by emailing him at David.Howe@clark.wa.gov.

Conferences, workshops, & training

- Washington Planners' Forums:
  - July 19, 2006 – Eastern Washington (Moses Lake: Hallmark Inn)
  - July 20, 2006 – Southwest Washington (Kelso: City Hall)
  - July 26, 2006 – Olympic Peninsula (Silverdale: Silverdale Community Center)
  - July 27, 2006 – Northwest Washington (Mount Vernon: Skagit Station)

  All Forum sessions are 9 am - 3 pm with lunch on your own. Forums include guest presentations, jurisdictional sharing/report on GMA issues and progress, updates from the Growth Management Hearings Boards, and a report from CTED. Information on upcoming forums can be found at CTED's website. Please direct questions to Ted Gage at (360) 725-3049 or tedg@cted.wa.gov.

- American Planning Association Washington Chapter Conference 2006: The APA of Washington invites you to join them for their annual meeting. The conference will be held at the Yakima Conference Center from October 4th to the 6th. Proposed topics include urban design, environment, GMA, a Washington State short course on local planning, as well as much more. Additional information is available on the APA website.
- Keeping Working Forests - The Role of Forests in Preserving Open Space: This two-day conference will explore the loss of PNW forestlands to development through scientific documentation, policy discussions, case histories, and technical sessions on take-home practical tools. Municipal planners, land trusts, rural government leaders, family forest owners, and developers are a few of the intended audience members. The full conference agenda will be posted at www.westernforestry.org. If you would like to receive information on the conference, contact Richard Zabel at (503) 226-4562 or richard@westernforestry.org.

- Short Courses/Planning Education: These free three-hour workshops explain the legal basis of planning in Washington, the basics of comprehensive planning and plan implementation, and the role of the planning commission. The schedule for 2006 is available on CTED's website. Courses are scheduled at the request of local communities and are always open to the public. Everyone who attends receive a copy of the short course manual. Call Ted Gage with questions at (360) 725-3049 or tedg@cted.wa.gov.

Grant opportunities

- Watershed Restoration Funds - Puget Sound Coastal Program (PSCP), Partners for Fish and Wildlife (PFW), and the Chehalis Fisheries Restoration Program (CFRP) are all accepting pre-proposals for funding. The pre-proposal deadline is September 15, 2006. Any private, state, tribal, nonprofit organization or community group, land trust, or individual entity can apply. Applicants are strongly encouraged to contact the program representative before writing a pre-proposal (Ginger Phalen or Rich Carlson for PSCP; Julio Rodriguez for PFW; and Brian Peck for CFRP.

- Federal Cooperative Endangered Species Conservation Fund - Beginning August 1, 2006, proposals will be accepted for land acquisition. This fund is geared towards the acquisition of properties that contain occupied habitat or are adjacent to occupied or suitable habitat for Federally-listed species. Examples of potential acquisitions from the previous funding cycle are on WDFW's web page. For more information about this opportunity go to the web or contact Elizabeth Rodrick at (360) 902-2696 or rodriear@dfw.wa.gov.

- River Restoration Grants - American Rivers, through its partnership with NOAA's Community-Based Restoration Program, provides funding for dam removal or fish passage projects to individuals and organizations such as civic associations and conservation groups; state, local and tribal governments; and other commercial and non-profit organizations. The Partnership funds projects that benefit anadromous fish and support the restoration of anadromous species' habitat. Applicants are encouraged go to the American Rivers website. Questions can be directed to Serena S. McClain at rivergrants@amrivers.org.

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