

The 1999 Public and Tribal Lands Inventory



FINAL REPORT December 2001



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Map of Washington State, 1895



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The 1999 Public and Tribal Lands Inventory

FINAL REPORT

In 1997, the Washington State Legislature directed the Interagency Committee for Outdoor Recreation (IAC) to develop a statewide inventory of the amount, specific ownership, general location, and principal use of lands owned by federal, state, and local governments, and by Native American tribes. The legislature also asked for resource-based information on state and federally owned recreation and habitat lands. This work has become known as the Public and Tribal Lands Inventory Project, or the “1999 Inventory.”

The IAC is a state agency that administers grants to federal, tribal, state, and local governments for the acquisition and development of recreation and habitat sites. The IAC also engages in

statewide planning and policy development for recreation and habitat lands. With guidance from advisory committees made up of federal, state, and local government representatives, IAC conducted the inventory and prepared this report of the project’s major findings.



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In this Inventory, land is called “public” if it is owned by federal, state, or local government entities and managed for the public.¹ Lands are called “tribal” if they fit into one of two categories: (1) “tribal trust lands” for which the federal government holds title either for tribes or for individuals, or (2) lands owned by tribal governments.

¹ It should be noted, however, that some of these lands do not authorize public use (e.g., military lands).



Introduction

Legislative Direction

The legislature directed the IAC to:²

- Inventory all lands in Washington owned by federal, state, and local governments, and by Native American tribes;
- Collect information about the ownership, location, acreage, and principal use of these lands;
- Store this inventory in a computer database to facilitate the sharing, reporting, and updating of data; and
- Collect resource-based information about state and federal recreation and habitat lands.

Limitations of the Inventory

This Inventory was based on responses to landowner surveys, and on existing central data sources when landowner information was not available.

It was not possible to verify the accuracy of the information provided by landowners through independent means, other than to compare it with existing centralized data sources. When such comparisons revealed discrepancies, the project team used landowner-provided information under the assumption that landowners had better information about their properties than third parties.

The Inventory also does not show property boundaries. Showing boundary or ownership information would have required geographically referenced ownership data that were generally not available from landowners. Even if such data had been available, the resources required to resolve the likely discrepancies among ownership boundaries were not. Thus, the Inventory is only as accurate as the information provided by landowners or central data sources, and the location of public and tribal lands is referenced only by county.³

² "Up to \$400,000 of the reappropriations in this section is provided to develop an inventory of all lands in the state owned by federal agencies, state agencies, local governments, and Indian tribes. The committee shall develop the inventory in a computer database format that will facilitate the sharing and reporting of inventory data and provide options for future updates. The inventory shall include, at a minimum, the following information: owner, location, acreage, and principal use. The inventory shall also include resource-based information for state and federally owned recreation and habitat lands. The committee shall submit a status report on the inventory to the appropriate committees of the legislature by January 1, 1999, and a final report by January 1, 2000." Sec. 329(7), Chapter 235, Laws of 1997.

³ For more discussion of these issues, see p. 8.

Previous Inventory

A previous public lands inventory was conducted by Washington State University in 1983.⁴ The 1983 Inventory covered federal, state, and some local government (i.e., county) lands, as well as lands held in trust for, or owned by, Native American Tribes. The 1983 Inventory did not, however, explicitly record lands owned by cities or special purpose districts, nor did it record state-owned aquatic lands. As with this 1999 Inventory, the 1983 Inventory relied on landowner data. The university contacted federal

and state agencies for information, and asked county officials to complete a questionnaire concerning the quantity and use of local government-owned land. The 1983 Inventory was designed to reflect the acreage of public lands in parcels covering one or more acres in unincorporated areas. Although less complete than the 1999 Inventory, the 1983 Inventory compiled information that had previously not been readily accessible, and it has been a widely quoted source of Washington public lands ownership data for nearly 20 years.



Introduction

⁴ Dunford, Richard W. and Zander, David. 1983. Public Lands in Washington: Statistical Summary, Research Bulletin XB 0931, Agricultural Research Center, Washington State University.



A Brief History

A Brief History

Publicly owned lands have been a part of Washington State's fabric since statehood. Most of what is currently government-owned land in Washington was acquired before, or within the first 20 years of, statehood.

While there were a few sizable government land acquisitions in the first half of the twentieth century, for example, state forest board lands acquired during the Great Depression and federal lands needed for military purposes during World War II, the largest government landholdings were in place decades before. This section explores how certain land areas in Washington became what we now call "tribal" and "public" lands.

Tribal Lands

Explorers, fur traders, missionaries, and eventually homesteaders and other settlers arrived in the Pacific Northwest to find Native American tribes living and thriving on the bounty of resources in the region. While Spanish, Russian, British, and American explorers periodically claimed the region for their respective countries, the tribes retained their right of continued occupation even as settlers moved onto traditional tribal lands.

While the federal government wanted to reduce the potential for conflicts between settlers and tribes, it also wanted to open additional lands for settlement and encourage the assimilation of Native Americans into the non-Indian society. To help accomplish these goals, Washington Territorial Governor Isaac Stevens undertook a series of meetings with tribes in various parts of Washington Territory to negotiate for the ceding of tribal lands. Between the signing of the first of the Stevens Treaties in December 1854, and the signing of the last one in January 1856, Northwest tribes ceded to the federal government over half of the land

base in what is now the State of Washington. Certain tracts of land were designated as reservations by these treaties, while other reservations were established later by executive order (Appendix A).

Federal Lands

With the sovereignty of the United States extended to the Pacific coast, the federal government acquired custodial responsibilities for an expanded public domain. Through various laws and programs, the federal government endeavored to distribute these public lands to stimulate settlement and economic development of the west. In Washington's earliest years as a territory and then a state, the federal government provided land grants to the new state of Washington, settlers, parties who took advantage of the land laws, and most particularly the railroad companies, which received more than 9.6 million acres in federal land grants to finance the development of transcontinental railroads.

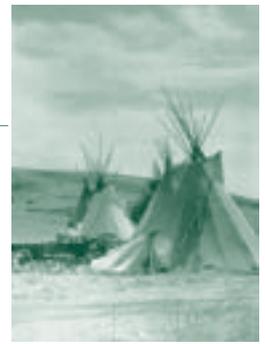
The federal government still owns an array of lands in the state, from wildlife refuges and fish hatcheries to office buildings and post offices. However, the largest federal landholdings in the state derive from the original forest reserves and the acquisition of property for military purposes.

Forest Reserves

As logging and forest clearing became widespread in the late nineteenth century, a new movement – whose rallying cry was “conservation” – gained momentum across the country and in the nation’s capital. Advocates of the movement, such as Gifford Pinchot, promoted utilitarianism, scientific management, and keeping some of the public domain in public ownership rather than transferring all of it into private hands. One manifestation of the conservation movement was the passage in 1891 of the Forest Reserve Act. This act allowed the President of the United States to set aside and retain forested public lands, called “forest reserves.” Between 1893 and 1907, various presidents designated more than 12 million acres in Washington as forest reserves. From the forest reserves would come the national forests and the state’s three large national parks: Mount Rainier in 1899, Olympic in 1938, and North Cascades in 1968.

Military Land

Another long-tenured federal landowner in the state is the United States military and its branches. The Army established its first post in the region near Vancouver in 1848. The Navy, too, established an early presence, with a base near what is now Bremerton in 1891. Army acreage expanded in 1917 when Pierce County residents donated some 70,000 acres of property to the Army for the establishment of Camp Lewis, later Fort Lewis. The military presence in the state expanded significantly during World War II, with the establishment of the Yakima Training Center, the Hanford Reservation, Navy bases at Whidbey Island and Bangor, and Army Air Corps fields near Fort Lewis and Spokane. The military continues its interest in Washington as a strategic location, most recently with the establishment of a new Navy base in Everett in 1994.



A Brief History



Washington State Historical Society



A Brief History

State Lands

The federal government granted public lands to Washington at its inception, and the State of Washington has acquired other lands since for various purposes.

Trust Lands

As part of the 1889 Enabling Act admitting it to the Union, the State of Washington received federal land grants of more than three million acres from the public domain (Table 1)⁵. These grants by the federal government were part of a national policy of providing new states with a source of financial support for needed institutions, such as schools, colleges, and universities.

to provide income for the support of the trust beneficiaries. In 1990, the state invested in additional trust forestlands to provide support for the state's community and technical colleges. State trust lands form the largest block of state-owned lands in Washington.

Aquatic Lands

Aquatic lands are defined as tidelands, shorelands, and bedlands lying below the ordinary high water mark or mean high tide on lakes, rivers, and marine waters (Appendix B). Public ownership of aquatic lands dates back to English common law and, following a long tradition, the new State of

Table 1. Federal Land Grants to the State of Washington upon Statehood

Acres Granted	Purpose of Grant
2,400,000	Common schools
200,000	State charitable, educational, penal, and reformatory institutions (CEP&RI)
132,000	Public buildings at the state capital
100,000	Scientific school
100,000	State normal schools
90,000	Agricultural college

Source: Enabling Act (25 US Statutes at Large, c 180, p. 676)

In accepting these federal land grants, the state government also accepted the responsibility to manage the lands in trust. Unlike some states, Washington has retained much of its original land grants, and these lands continue

Washington claimed title in its constitution to its aquatic lands.⁶ In Washington State, the bedlands of navigable marine and freshwater systems are still entirely publicly owned,⁷ but many of the tidelands and shorelands have been

⁵ In addition, two townships were reserved in 1850 for university purposes. These lands, comprising 46,080 acres, were recognized as a grant in the Enabling Act. Later, in 1893, half of the CEP&RI grant lands were designated for the benefit of the University of Washington.

⁶ "The state of Washington asserts its ownership to the beds and shores of all navigable waters in the state up to and including the line of ordinary high tide, in waters where the tide ebbs and flows, and up to and including the line of ordinary high water within the banks of all navigable waters and lakes..." Article XVII, Section 1, Washington State Constitution.

sold and are now in private ownership. In 1971, the Legislature decided that the state would retain its remaining aquatic lands in public ownership. The state currently owns some 2.4 million acres of aquatic lands out of a total state-wide aquatic acreage estimated at 2.58 million acres.

Forest Board Lands

The state acquired additional forestlands as various interests grew concerned about the rate of timber depletion in the 1920s. Instead of reforestation, many private landowners harvested the timber and then abandoned the lands, often to avoid paying property taxes and other assessments. By the Depression years of the early 1930s, tax foreclosure put thousands of acres of cut-over lands into county ownership. In 1935, the legislature took steps to transfer management of these lands to the state as part of a long-term reforestation effort.⁸ Now comprising 623,558 acres, these “forest board lands” form the second largest block of state-owned lands after the trust lands and aquatic lands acquired at statehood. Proceeds from resource management on these lands accrue to the counties in which the lands are located.

Other Lands

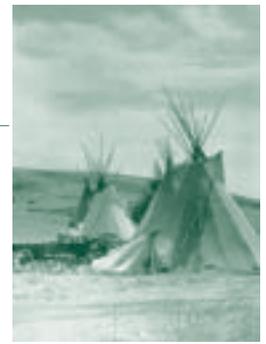
In addition to the lands granted or claimed at statehood, the state has acquired lands for various other purposes. One of the earliest purposes, even before the territory became a state, was for the construction of roads to encourage settlement

and stimulate economic development. In the early 1900s, a state park system was created, spurred on, in part, by citizen demands and donations of land for parks.⁹ Public land acquisition also was prompted by the conflict between elk and farms in Eastern Washington, and by the availability of federal funds for such acquisitions. The State of Washington first began acquiring land specifically for wildlife purposes (i.e., primarily hunted species) in the early 1940s. By 1970, the Department of Game owned approximately 317,000 acres. Over the past 110 years, the state has also embarked on the establishment of penal facilities, public health institutions, and colleges and universities.

Local Government Lands

Like other states, Washington’s local governments include general-purpose city and county governments and special districts devoted to schools, ports, and a variety of other purposes. The number of counties in the state (39) has not increased since 1911, but the number of cities (279) continues to grow.

Washington’s legislature and voters have authorized the creation of a whole host of special-purpose local government entities. More than 70 different kinds of special-purpose districts, represented by more than 1,100 actual districts, exist in the state and most of these are authorized to own land. Examples include fire districts, library districts, school districts, and port and cemetery districts.



A Brief History

⁷ Whether a body of water was navigable at the time of statehood is a matter for courts to determine. This determination has not been made for a majority of the rivers and lakes of the state.

⁸ Grays Harbor County chose to retain its forest lands in county ownership.

⁹ Early park land donations include parcels creating Larrabee State Park (Whatcom County), Moran State Park (San Juan County), and Jackson House (Lewis County).



Development

Development of the 1999 Inventory

Developing an inventory of all public lands in Washington required a rigorous methodology for collecting and storing the resulting vast and complex body of information.¹⁰ A Steering Committee and a Technical Advisory Committee were used to provide general direction and guide the technical aspects of the Inventory (Appendix C). These two advisory bodies were invaluable to the success of the project.

Survey Questionnaire

A questionnaire, called a “Request for Information” (RFI), was sent to all major public landowners in July 1998. A separate, but similar questionnaire was developed for tribes. Government agencies were asked to report lands owned in fee simple,¹¹ including aquatic lands, as well as easements held for public roadway rights-of-way. State trust lands, forest board lands, and state-owned aquatic lands were reported by the Department of Natural Resources (DNR).

Tribes were asked to report tribal trust lands assigned to the tribe or to individual tribal members, and other lands owned by the tribes. These lands are not synonymous with “reservations.” Although the majority of tribal lands lie within reservation boundaries, some tribal lands may lie outside these boundaries, and, in many cases, a significant portion of

land within reservations has been sold to non-tribal members and is no longer tribally owned.

Project managers mailed RFIs to 29 federal agencies, 32 state agencies, 907 local agencies, and the 27 federally recognized tribes¹² in Washington, for a total of 995 questionnaires. Six hundred and eighty (680) agencies and tribes responded, including the vast majority of large federal, state, and local agencies. Of the 680 respondents, 45 reported they owned no land.

Principal Uses

Uses of public land are determined by law, policy and regulation. As a result, public landowning entities often classify their land uses in different ways (Appendix D). To facilitate reporting, IAC grouped permutations of similar land use

¹⁰ This Report includes summary inventory information only. For detailed inventory data and a more thorough description of the methodology used to develop this inventory, please refer to the “Inventory Data Report” under separate cover.

¹¹ Absolute total interest in real property; the maximum possible estate or right of ownership of real property.

¹² As of May 2001, one additional tribe (the Snoqualmie Tribe) had received federal recognition, and three others had applications pending. Their lands, if any, are not included in this study.

classifications into four general categories, and asked landowners to use these categories for reporting principal use. Principal use does not mean exclusive use, and in many cases, an area of land supports different kinds of uses: for example, municipal watersheds and wildlife habitat, or transportation and recreation. After extensive consultation with the Steering Committee and Technical Advisory Committee, the following four principal use categories were identified:

- Outdoor recreation, habitat, or environmental protection;
- Resource production or extraction;
- Transportation or utilities infrastructure; and
- Other government services or facilities.

Lands for which a principal use was not reported were recorded as “unknown use.”

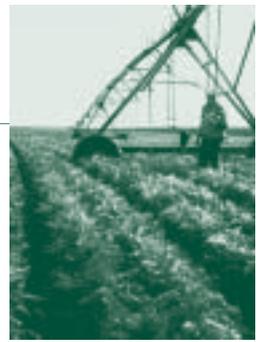
Currency of the Data

The deadline for returning the completed questionnaire was August 7, 1998. After this deadline, agencies that had not responded were contacted both by

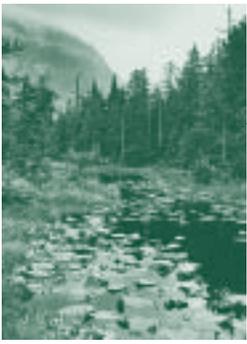
postcard and by telephone. In some cases, questionnaires had to be re-sent. In the fall of 1999, project staff conducted a data verification process to ensure the accuracy of the information that had been reported. Over 100 agencies responded with minor changes in their land ownership information, as it existed in September of 1998. Therefore, the 1999 Inventory reflects the most accurate reported information for public and tribal land ownership, as that ownership existed in September of 1998.

LANDS Database

A database was developed to store the data from the surveys and to serve as a repository for future updates. The Land Acreage Database System (LANDS) incorporates features such as searching, browsing and reporting. It includes data fields such as public entity and contact information, land ownership, aquatic lands and public roadway right-of-way easement acreage, land use, and location by county. The database is designed to be easily updated and maintained. The user can generate reports directly from the database or download data into other programs for further analysis and reporting. LANDS is maintained by the IAC.



Development



Overview of Findings

Overview of Findings

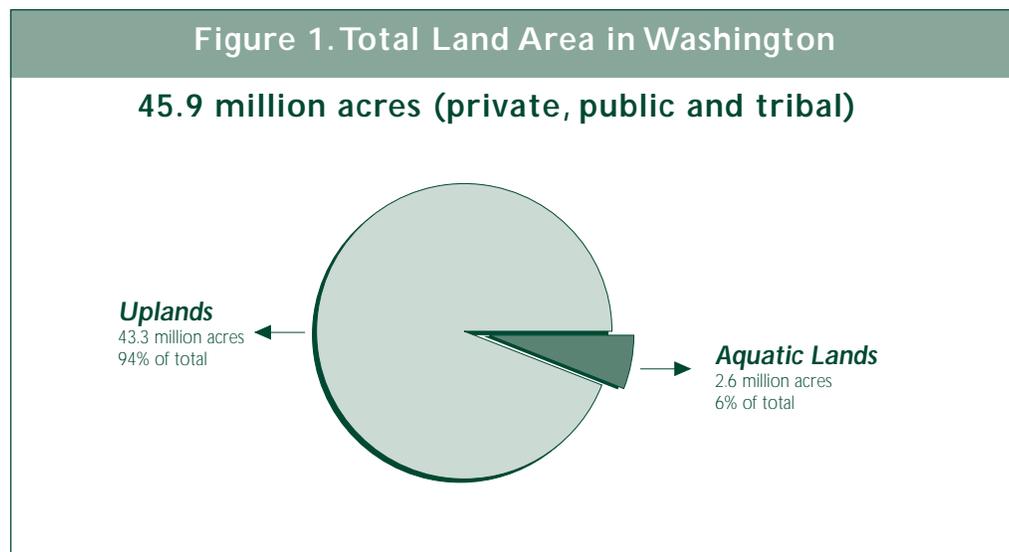
The following section describes summary information for:

- Public and tribal land acreage;
- Ownership of public and tribal land;
- Location of public and tribal land; and
- Principal use of public and tribal land.

Additional summary data are provided in Appendix E. Detailed information about the amount and principal use of public and tribal land within each of the state's 39 counties is provided in the Inventory

Data Report, a companion to this Final Report.

The first step in analyzing the data was to determine the area of the state as a whole. This figure has relevance when estimating the percentages of land owned by the public or tribes. At IAC's request, DNR recalculated the state's upland area with the use of more accurate methods than had been available in 1983.¹³ DNR now estimates the state's upland area to be 43,270,280 acres (versus the 42,606,080 acres reported in the 1983 Inventory), and estimates the state's aquatic area at 2,577,100 acres, for a total area of 45,847,380 acres (Figure 1).



Source: Department of Natural Resources

¹³ DNR summed the areas of polygons in its Geographic Information System (GIS) "state" layer to produce the result.



Overview of Findings

In general, acreages cited in this report refer to uplands only. Aquatic lands are generally excluded from the acreage figures cited because areas for uplands and aquatic lands were derived in different ways,¹⁴ and because uplands and aquatic lands, particularly bedlands, are sufficiently different in character and potential to warrant separate accounting. In addition, the Inventory tracks roadway right-of-way easements separately from other uplands data, except where specifically noted. A notation to tables and figures indicates whether aquatic lands and roadway right-of-way easements are included in acreage totals.

Roadway Right-of-Way Easement Acres

The 1999 Inventory requested roadway right-of-way easement data because local government roads can be located on land either owned in fee simple or for which an easement has been obtained. In either case, the use is the same; very few right-of-way easement acres are un-roaded. These easements were considered important to report because, unlike other kinds of easements, roadway right-of-way easements are generally perpetual and do not allow other uses to co-exist. Reported road easement data total 190,510 acres, with local governments reporting the vast majority (181,645) of those acres.

Public and Tribal Land Acreage

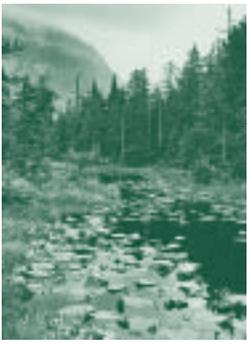
Upland Acreage

Of the state's 43.3 million upland acres, federal, state, and local entities own 17,247,392 acres, or 40 percent. Land owned by Native Americans comprises 2,677,281 acres or 6 percent of the state's total upland area. Taken together, 19,924,673 upland acres, or 46 percent of the land in Washington, are owned by the public and tribes (Figure 2). This compares to 44.5 percent identified as owned by the public and tribes in 1983.



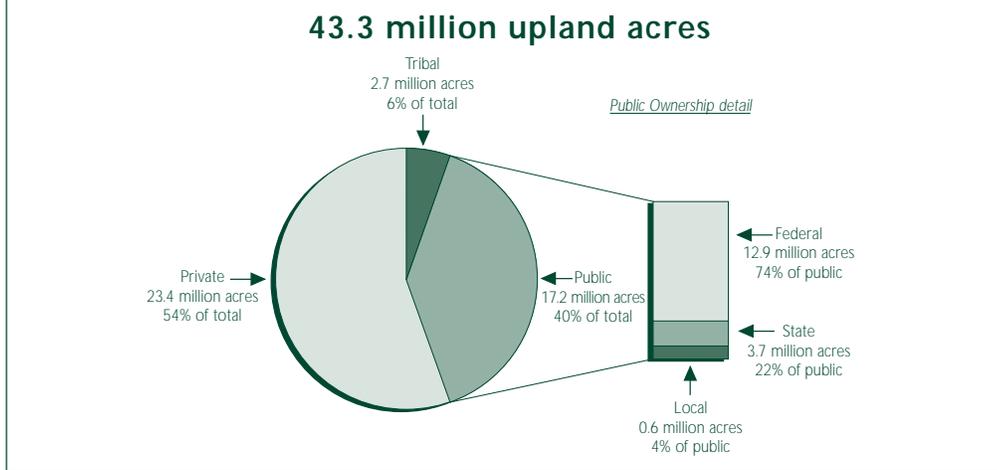
Washington State Department of Transportation

¹⁴ DNR's marine and estuarine habitat GIS layers were overlaid with county boundary data to produce acreage estimates for subtidal (bedland) and intertidal (tideland) areas of the state. Acreages were also estimated for freshwater rivers and lakes considered either "probably" or "definitely" navigable (see Inventory Data Report for details).



Overview of Findings

Figure 2. Ownership of Washington's Uplands



Source: 1999 Public Lands Inventory

Ownership of Public and Tribal Uplands

Public landowners own 40 percent of all uplands in the State of Washington. Of this amount, the federal government owns 12.9 million acres (74 percent of all public land, or 30 percent of the state); state government owns 3.7 million acres (22 percent of all public land, or 9 percent of the state); and local government owns 632,365 acres (4 percent of all public land, or 0.2 percent of the state). Tribes own 2.7 million acres, or 6.2 percent of the state. Further ownership detail is provided in Appendix E and in the Inventory Data Report.

Public landowners fall into the familiar federal, state, and local categories, and within these categories, ownership can be sorted by public entity. If the data are ranked by size of landholding, twenty public

entities account for 16.9 million acres – or 98 percent – of the public land ownership in Washington (Appendix F). Three entities alone account for 81 percent of the total public land ownership in Washington: the USDA Forest Service (over nine million acres); the Washington Department of Natural Resources (almost three million acres); and the National Park Service (close to two million acres). Although it provides the best-known recreational opportunities of any state agency, the Washington State Parks & Recreation Commission ranks twelfth and reports owning only 107,608 acres of recreational land.¹⁵

Counties reporting the largest amount of county-owned land were Grays Harbor, Spokane, King, Pierce, and Lincoln, each reporting between 15,000 and

¹⁵ Although the State Parks and Recreation Commission reports managing 260,000 acres, only 107,608 acres are owned by the agency; the rest are leased from the federal government.

42,000 acres. The cities of Seattle and Tacoma are the top two land owning cities in Washington, with 128,055 and 58,505 acres, respectively.

Tribes reporting the most land include the Yakama Nation (over 1.1 million acres); the Colville Confederated Tribes (over 1.1 million acres); the Quinault Nation (181,488 acres); and the Spokane Tribe (131,787 acres).

Location of Public and Tribal Land

The majority of state and federal lands is located in large blocks in the state's mountainous regions, including the Olympics, the Cascades, the Okanogan Highlands, and the Blue Mountains. Two major blocks are also located in the central part of the state – the Yakima Training Center and the Hanford Reservation (Appendix G).

Some federal and state lands are configured in a “checkerboard” pattern across the state. For example, the central portion of the Cascades is comprised of a checkerboard of federal and private ownership, due primarily to the legacy of the original railroad grants coupled with subsequent forest reserve designations. Also, in eastern Washington, a large number of non-contiguous state trust land sections represents the remnants of unconsolidated

land grants made to the state by the federal government. In addition, many of the more recently acquired federal and state lands are scattered throughout the state.

Tribal reservations are configured in two large blocks (the Colville and Yakama Indian Reservations) and in two smaller blocks (the Quinault and Spokane Indian Reservations). Smaller reservations are distributed primarily along the coast of Puget Sound. Again, reservations are not synonymous with tribal ownership in every case, but provide an indication of where tribal lands are concentrated.

Elevation

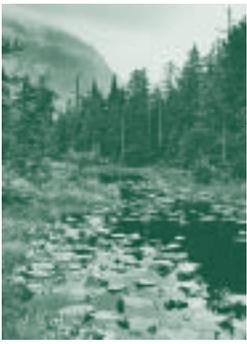
Of interest is the location of public lands along an elevation gradient because elevation can have a direct bearing on land productivity and accessibility.¹⁶ As part of this 1999 Inventory, USGS-based elevation contour lines were superimposed on public lands data included within DNR's “Major Public Lands” GIS data layers. This elevation analysis did not produce parcel or county specific data, but offers a state-wide perspective relative to the elevation of the state's major public and tribal lands.

The elevation analysis shows that approximately 72 percent of the state's total upland land area is found within the sea level-to-3000 foot elevation range. Of this amount, 70



Overview of Findings

¹⁶ E.g., Brockway, D.G. 1998. “Forest Plant Diversity at Local and Landscape Scales in the Cascade Mountains of Southwestern Washington.” *Forest Ecology and Management* 10(1-3):323-341.



Overview of Findings

percent is owned by the private sector, 23 percent is owned by public entities, and 7 percent is contained within tribal reservation boundaries. Conversely, 28 percent of the state is estimated to be located above 3000 feet of elevation. Of this amount, only 15 percent is owned by the private sector, 77 percent is owned by public entities, and 8 percent is contained within reservation boundaries (Appendix H). This distribution reflects early state settlement patterns and government decisions about public and tribal lands, and has implications for habitat and outdoor recreation.

Public Land Ownership by County

Over half of all public uplands reported in this Inventory are located in just eight counties: Chelan, Jefferson, Kittitas, Okanogan, Skamania, Snohomish, Whatcom, and Yakima counties. Other counties with large amounts of public uplands include Clallam, Grant, King, Lewis, Skagit, Pend Oreille, and Ferry counties. Okanogan County contains the largest amount of public land, with over 1.9 million acres, or 11 percent of the state total. Chelan County follows with over 1.5

million acres of public land. However, Skamania County contains the greatest percentage of public lands within its borders: 86 percent, while Okanogan County contains 57 percent of its area under public ownership.

Principal Uses of Public and Tribal Uplands

As discussed earlier, the questionnaire requested that landowners report the principal use of their lands using four general land management categories. Most federal land (over nine million acres) was reported in the Outdoor Recreation, Habitat or Environmental Protection category. Of the more than 10 million acres of land reported in this category, 91 percent is federally owned (Appendix I). In contrast, state agencies reported only 648,498 acres of public lands in this category (Table 2).

State agencies (with close to three million acres) and federal agencies (with over two million acres) accounted for most of the 5.3 million acres of land in the Resource Production and Extraction category. Of the

Table 2. Acreage of Public Uplands reported within Four Principal Use Categories

Principal Use Landowner	Outdoor Recreation, Habitat, Environmental Protection (acres)	Resource Production and Extraction (acres)	Transportation and Utilities Infrastructure (acres)*	Other Government Services and Facilities (acres)
Federal	9,143,462	2,435,550	656,165	640,358
State	648,498	2,836,694	168,876	34,806
Local	237,038	65,903	424,580	67,259
TOTAL PUBLIC	10,028,998	5,338,147	1,249,621	742,423

Source: 1999 Public Lands Inventory. *Includes roadway right-of-way easement acres.

total state-owned public uplands (over 3.7 million acres), the majority was reported in the Resource Production and Extraction category by the Washington Department of Natural Resources. These lands are used primarily for timber and agricultural production for the benefit of schools, other public institutions, and certain counties.

Of the more than one million acres reported in the Transportation and Utilities Infrastructure category, more than half was reported by federal agencies, particularly the US Bureau of Reclamation, which is responsible for providing irrigation water and hydroelectric power. Local governments reported over 433,000 acres in this category, when roadway right-of-way easements are included.

Local government lands (with 67,259 upland acres) and federal lands (over 640,000 acres) make up the majority of uplands reported in the Other Government Services and Facilities category.

Information on land uses was not reported by the larger tribes; therefore, tribal lands comprise most of the land reported under Unknown Uses, with over 2.4 million upland acres in this category.

It is important to emphasize that the principal land uses reported in this 1999 Inventory are subject to change. Although land may be publicly owned for many years, its owners, managers, and uses may change significantly over time. A forest

reserve becomes a national forest, which in turn becomes a national park. A coastal fort becomes a state park. A county road becomes a city road as the area incorporates. In addition to ownership changes, land management regimes and land uses also have changed because of increased population, developing knowledge, or changes in societal needs and values. This public lands inventory captures only a snapshot of an ever-changing picture.



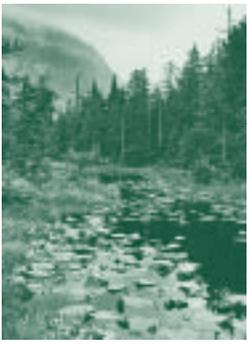
Overview of Findings



U.S. Army Corps of Engineers

Aquatic Land Acreage

Total statewide aquatic land acreage is estimated by DNR at just under 2.6 million acres. Of this, the area of marine bedlands (an area measured from the boundary of extreme low tide extending outward from the coast to the three-mile limit and including all of Puget Sound) represents 85 percent; the area of marine tidelands (the intertidal portion of aquatic lands) represents 9 percent; the area of freshwater bedlands for navigable waters represents 5 percent; and the area of freshwater



Overview of Findings

shorelands (the area between the ordinary high water line and the line of navigability) represents about 1 percent (Table 3). The Department of Natural Resources manages 100 percent of the state’s marine and freshwater bedlands, an estimated 29 percent of the state’s tidelands, and an estimated 80 percent of the state’s shorelands.

Table 3. Estimated Acreage of Statewide and DNR-Managed Aquatic Land in Washington

Aquatic Lands	Total Acres in State	DNR-Managed Acres
Marine Bedlands	2,195,200	2,195,200
Tidelands	232,200	68,100
Freshwater Bedlands	119,300	119,300
Shorelands	30,400	24,400
Total	2,577,100	2,407,000

Source: Department of Natural Resources.

Agencies and government entities other than DNR also report owning aquatic acres. The total amount of aquatic lands reported by all three categories of public landowner is 2,554,126 acres (Table 4). Because aquatic land ownership records are generally less complete than upland records, however, the reliability of reported aquatic acres is questionable.¹⁷ The research that would be necessary to confirm the ownership of aquatic lands was beyond the scope of this project.

Table 4. Estimated Acreage of Aquatic Land by Public Landowner Category

Landowner Category	Aquatic Land Acres
Federal	108,317
State [DNR and other]	2,419,229
Local	26,580
Total	2,554,126

Source: 1999 Public Lands Inventory. The state acreage figure includes 12,229 acres of aquatic lands owned by state agencies other than DNR. Aquatic acreage information was not requested from Native American tribes.

¹⁷ For example, the reported public acres are not consistent with past DNR estimates that about 40 percent of the state’s tidelands are state-owned, and 60 percent are privately owned.



Overview of Findings

Comparison to the 1983 Inventory

The 1999 Inventory used a more precise estimate of total state land area and identified 760,104 more acres of land in public ownership than were identified in the 1983 Inventory (Table 5).

Table 5. Comparison of 1983 and 1999 Inventories

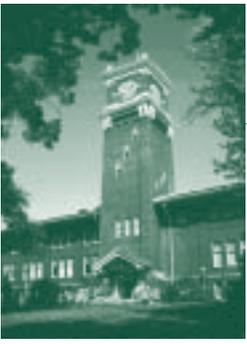
Total State Land Area	1983 acres	1999 acres	Difference
Uplands	42,606,080	43,270,278	664,198
Aquatic Lands	N/A	2,577,100	N/A

Owner	1983 acres	1999 acres	Difference
Total public land	16,487,296	17,247,400	760,104
Local government	343,561	632,365	288,804
State government	3,461,850	3,729,614	267,764
Federal government	12,681,885	12,885,421	203,536
Native American Tribes	2,504,716	2,677,281	172,565
Total public and tribal land	18,992,012	19,924,681	932,669

Source: 1999 Public Lands Inventory. Does not include aquatic lands or roadway right-of-way easement acres.

The apparent increase in public land ownership reflected in the 1999 Inventory may be attributed to several factors, including greater survey coverage of public land owning entities, especially cities and special purpose districts, and improvements in record keeping. Differences may also reflect a number of public land acquisitions in recent years for habitat and recreation and other purposes. For example, the Washington Wildlife and Recreation Program, administered by the IAC, provided grants to public agencies which acquired approximately 83,146 acres of land between 1990 and 1999.

Public-private land exchanges also may result in net increases in public land ownership if the private land being acquired is less valuable (for example, harvested land) than the public land being divested (for example, timbered land). In this case, value would be equalized by including more private acreage in the exchange. Other lands have also been acquired (or surplused or repositioned) through legislative actions, for example, the Trust Land Transfer program and acquisition of land for branch university campuses.



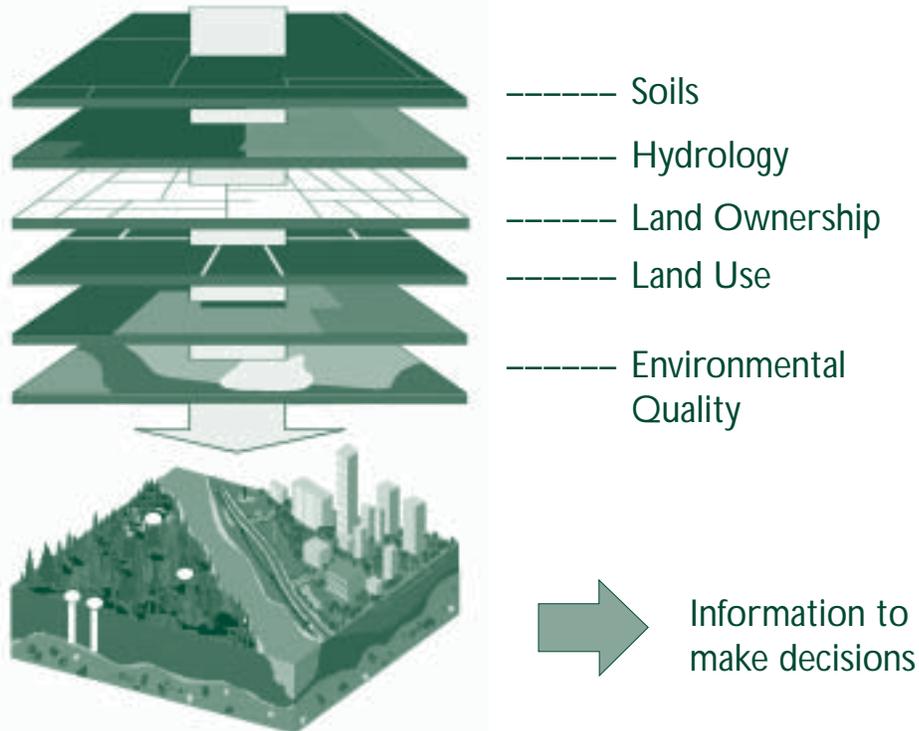
Information Management

Recommendations on Information Management

This project presented several challenging tasks, including inventory design and data collection. While the 1999 Inventory has compiled the most complete information on public land ownership in Washington to date, there are limitations on the usefulness of the information. The major limitation is that this is simply a tabular compilation of acreage totals on a county-by-county basis, and not a site-based representation of ownership boundaries.

To provide more complete and accurate information, we recommend that future public lands inventories or reports use Geographic Information System methodologies, if possible (Figure 3). This map-based approach for ownership information initially would require a major investment of time and resources. Geographic data would have to be converted to a standard format, and ownership and boundary discrepancies would need to be resolved.

Figure 3. Conceptual Geographic Information System

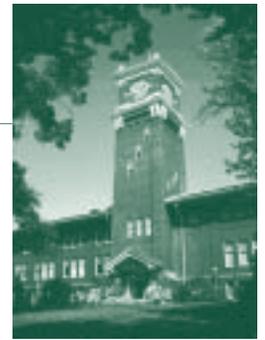


Once established, however, map-based ownership information would provide greater accuracy, be easier to update, and show relationships between land ownerships, as well as between land ownerships and geographic features.

IAC found that ownership (“cadastral”) data held by government agencies is in various states of order, accuracy and completeness. To enhance the orderly management of these datasets, a concerted effort would be required across the state, including the adoption of a single set of standards for describing ownership data. One way to begin this

process is by reviewing and updating state ownership information. For example, state aquatic lands ownership data could be collected on the basis of actual field surveys, rather than estimated.

It is also possible to update this inventory by using the same methods that were used to develop this 1999 Inventory. Future updates using this system would need to rely on a new landowner survey. Using the Request-For-Information survey forms prepared for this project would allow the same database architecture to be used and for the comparison of inventory results.



Information Management



Lands Comparison

Western States Public and Tribal Lands Comparison

Many other western states also have large tracts of state, federal, and tribal lands. To provide a context for the new inventory results and a basis for comparison, information was collected on the current amount of federal lands, major state lands, and tribal lands in other Western States (Appendix J). “Major state lands” include state trust lands, state fish and wildlife lands, and state park lands only. Eleven western states were studied: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Because the information needed for this comparison was not available in one place, information was combined from the following sources:

- Federal General Services Agency data for federal lands;
- Bureau of Indian Affairs (BIA) data for tribal lands;
- Individual state data for state lands, supplemented by other published sources.

To ensure comparability across the western states, only information on surface lands owned in fee simple was compiled. Tribal land data were limited to trust lands administered by the BIA. When discrepancies existed between data sources for state lands, landowner data were used.

Western States

- On average, almost 59 percent of the 11 western states are publicly and tribally owned, compared to 45 percent of Washington.
- Federal lands account for the vast majority (80 percent) of

public and tribal lands in the western states. Major state and tribal lands each account for about 10 percent of these lands.

- Arizona and Nevada have the largest amount of public and tribal lands among the 11 western states both in terms of amount (about 60 million acres each) and percentage of state land area (over 80 percent). Washington has the smallest amount, while Montana (with twice the amount of public and tribal land as Washington, but a much larger state area) has the smallest percentage.
- The federal agency owning the largest amount of land in the West is the Bureau of Land Management (BLM), accounting for over half of all federal lands. The Forest Service owns 40 percent of federal land in western states, the National Park Service owns 5 percent, and all other federal agencies own the remaining 5 percent.
- State trust lands account for 90 percent of the major state lands in western states.

- Over three-fourths of all tribal lands in the 11 western states are found in three states: Arizona, Montana, and New Mexico. Of these, Arizona alone accounts for almost half of all tribal lands in the West.
- California and Washington have the smallest amount of federal and major state lands per person. Montana and Nevada have over 10 times the amount of these lands per person. Because of its sparse population and large land area, Montana also has a large amount of private land per person.

Washington

- Washington is the smallest western state. Its land area of 43.3 million acres is 37 percent smaller than the average western state area of 68.3 million acres.
- As described above, Washington has the smallest amount of public and tribal lands of the 11 western states. Its 19.3 million acres of federal, tribal, and major state uplands is over 50 percent smaller than the average western state acreage in these categories(40.2 million acres).
- Washington is among the lower ranking western states in terms of amount of public and tribal lands measured as a percentage of total state land area. On average, almost 59 percent of western states are publicly and tribally owned, in comparison to Washington's 45 percent.¹⁸ Only Montana (39 percent) and

Colorado (43 percent) have proportionately less public land than Washington.

- As in other western states, federal lands make up the vast majority of public and tribal lands in Washington – about two-thirds. Compared to other western states, however, the majority of Washington's federal lands are managed by the Forest Service (70 percent), rather than the BLM (3 percent).
- Washington's tribal lands are roughly comparable to other western states', as a percentage of total state land area.
- Washington has the second lowest amount of federal and major state lands per person among the western states; less than one-half of the per capita average. This low per capita acreage reflects both Washington's relatively high population (second highest among the western states), as well as its relatively small land area.



Lands Comparison



Washington State Department of Natural Resources

¹⁸ This percentage does not include local government lands. Hence, the percentage is smaller than the 46 percent cited on p.11.



Costs and Benefits

Costs and Benefits Associated with Public Lands

The need for current data about the amount, location and use of public land often reflects policy and philosophical debates over the appropriate role of government as a landowner. Often these debates are couched in terms of the perceived costs or benefits of public land ownership. For example, some citizens believe that it is not the role of government to own land for the purposes of providing open space, recreational opportunities, or conservation of natural resources, including wildlife habitat. They believe that the greatest economic benefits accruing from land ownership result from private ownership and that any lands that are publicly held should be available for economic activities, such as timber harvest, grazing, and mining.

Conversely, other citizens believe that an appropriate and important role of government is to protect the “commons” for overall public benefit, in order that private property may continue to be used in the pursuit of private goals. This role includes conservation of resources for current and future generations and providing for recreational opportunities. In this view, the overall benefits – economic and non-economic – of public land ownership outweigh the costs.

It is not the purpose of this inventory to resolve these philosophical and policy debates, but rather to provide basic data on public land ownership and on the types of costs and benefits that may result.

Costs and benefits associated with public land ownership can be classified as non-economic (e.g., social and cultural) and direct and indirect economic. These costs and benefits affect the agencies owning the land, other governmental agencies, individuals, and the public in general. Many cost-benefit studies have been done for specific public lands in specific locations around the country. The results of these studies cannot be applied universally, however, as they depend on land use, location, and the social, cultural, and economic context of the area. In addition, the non-economic costs and benefits of public land are difficult to quantify and compare to those that can be directly measured in dollars and cents.

Public lands incur costs to the economy as a whole, including costs to government agencies that own land, and costs to other agencies in terms of management expenses and reduced tax revenues. In addition, public lands may create costs for individuals and costs

to communities (e.g., the loss of employment and of rural economic activity after a change in public management direction).

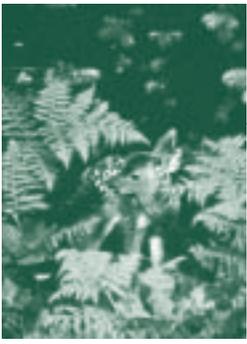
Public lands also provide benefits to the economy as a whole, including environmental services (e.g., water filtration, wildlife habitat), natural resource production (e.g., timber, mining), and recreation. Public lands may provide economic benefits to individuals, such as increased private property values or busi-

ness opportunities related to hunting, fishing, tourism, or to natural resource extraction. Many people also derive a great deal of satisfaction from any of a number of recreational or cultural pursuits on public lands. These experiences can also be attributed economic value.

Examples of potential benefits and costs associated with public lands are provided in Appendix K.



Costs and Benefits



Habitat and Public Lands

Habitat and Public Lands

As part of the 1999 Inventory project, the Legislature directed the IAC to include “resource-based information for state and federally owned habitat lands”.

Conducting this habitat assessment has been a challenge for several reasons. First, much of the existing information that we would like to have relied upon is incomplete and outdated, simply because inventories or databases are not regularly maintained. For example, the National Wetlands Inventory is more than two decades old and lacks information on the current status and quality of remaining wetlands. Yet, this inventory continues to be cited as the best available information on the amount and location of wetlands in Washington.

Second, a habitat “standard” against which to evaluate the contribution of state and federal public lands does not exist. Biologists describe “habitat” as the physical and biological elements of a place that provide food, shelter, and for the other needs of a species. Each species responds in unique ways to elements of the environment – what constitutes ideal habitat for one species may not support another closely related species. By definition, therefore, habitat is not generic and should only be discussed in terms of the species it supports.

Third, the correlation between land ownership and habitat

value is not straightforward. Habitat value depends less on ownership than it does on how land is managed. Functional as well as degraded habitat can be found on all kinds of land, regardless of ownership.

Finally, numbers of acres do not convey much information about the value of that habitat. Because direct measurement of habitat value is difficult and costly to carry out, scientists and planners often use indirect measures, such as land cover, particularly for broad-scale assessments.

Given these factors, we approached the assessment in three ways. First, we review how much state and federal public land is legally or formally designated as habitat. Second, we assess habitat value and condition by reviewing briefly some of the ways in which scientists study habitat and determine its condition. Finally, we provide examples of specific habitat types and species, and their relationships to public and private lands.

Designated Habitat on Public Lands

IAC reviewed available data to determine what formal habitat classifications have been made for lands by public landowners, as defined by statute, administrative policy, or case law, and as influenced by federal and/or

state regulatory programs. We were able to identify at least three distinct land classification categories.¹⁹

Public lands designated exclusively for habitat protection.

These are public lands on which habitat protection is the only purpose and has priority over other land uses. Species protected on these lands are often highly endangered. Public lands in this category are generally in a natural and undeveloped state and have limited public access and use. Some lands that allow limited non-consumptive recreational activities are also included in this category when statutes or administrative rules clearly state that such recreation is subordinate to habitat protection. Principal examples of such designations include:

- Federal: USDA Forest Service (“Research Natural Areas”); Bureau of Land Management (“Areas of Critical Environmental Concern”). We estimate these designations apply to approximately 155,000 acres statewide.
- State: DNR (“Natural Area Preserves”); State Parks (“Natural Areas”); University of Washington (“Biological Study Areas”). We estimate these designations apply to approximately 34,500 acres statewide.

Some local governments also have areas designated under similar restrictions (e.g., Spokane’s Dishman Hills preserve), but no statewide compilation of local designations, or land areas covered by such local designations, currently exists.

Public lands designated for purposes that include habitat protection.

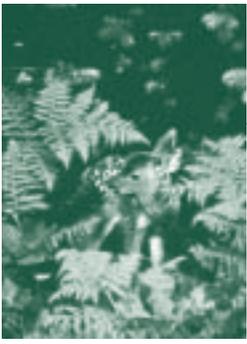
These are lands managed for habitat along with other purposes. A common mix of uses on these lands includes habitat and consumptive and/or non-consumptive outdoor recreation. Examples of such designations include:

- Federal: USDA Forest Service (“National Forests”); National Park Service (“National Parks”); Bureau of Land Management (“Public Lands”); and US Fish & Wildlife Service (“National Wildlife Refuges”). These lands comprise about 12 million acres in Washington. Within this portion of the federal land base, “wilderness” designations cover about 4.2 million acres.
- State: WDFW (“State Wildlife Areas”); Parks and Recreation Commission (“State Parks”); Natural Resources (“Natural Resource Conservation Areas”). Within the overall state-owned upland base of about 3.5 million acres, we estimate these designations apply to approximately 600,000 acres.



Habitat and Public Lands

¹⁹ The information in this portion of the analysis does not correspond directly with the data collected through the 1999 Inventory. In order to preclude double-counting lands, the Inventory required agencies to report each tract of land under a single principal land use, even when those lands are managed for multiple purposes.



Habitat and Public Lands

Federal wilderness designations constitute by far the largest amount of land designated for primarily non-consumptive uses. Wilderness Areas are designated by Congress under the 1964 Wilderness Act to preserve undeveloped federal land for recreation, education, historic, scenic, and scientific purposes. Activities such as logging and dam construction are prohibited in wilderness areas. Mining and grazing activities that existed prior to a wilderness area designation are permitted to continue. There are 30 designated Wilderness Areas covering 4.2 million acres in Washington, including 2.5 million acres within National Forests (about 27 percent of total Forest acreage) and 1.7 million acres within National Parks (about 90 percent of total Park acreage).

Some local governments own areas, often large regional parks, which are administered under similar non-consumptive multiple-use considerations. For example, Clark County's Brush Prairie Regional Park was designed to include areas specifically used for active recreation, as well as areas for preservation in their natural state.

Public lands formally designated for purposes other than habitat protection. These are lands designated for purposes unrelated to or not including habitat protection. However, exceptional habitat values may

be found on some of these lands despite formal designation for other purposes. Principal examples of such designations include:

- Federal: Bureau of Reclamation and US Army Corps of Engineers (dam and irrigation impoundments and facilities); Armed Forces²⁰ (Ft. Lewis and other bases); Yakima Firing Range; Department of Energy (portions of the Hanford Reservation).
- State: Department of Natural Resources (State Trust Lands, Forest Board Lands); Department of Transportation (transportation lands and facilities); university campuses.

As with any process of classifying land designations and uses, these categories represent only a snapshot in time. Congressional, legislative, administrative, and court decisions in the years to come will undoubtedly continue to shape how federal and state lands are managed and used in relation to habitat.

Habitat Function and Value

Whether an area is large enough to provide habitat depends upon the needs of a given species. For example, the debate continues over how much older forest is necessary

²⁰ The two largest military reservations in Washington include Fort Lewis (84,000 acres) and the Yakima Training Center (317,000 acres). A small amount of military land is formally designated for habitat purposes (12,900 acres, as federal Research Natural Areas).

to support a breeding pair of spotted owls. Area is not the only determinant of habitat function or value, however. The configuration of habitat patches (shape, location, isolation) also determines the utility of habitat.

A significant factor in habitat function and value is fragmentation. Fragmentation occurs when some lands are converted to other uses, and formerly contiguous habitat is broken up into smaller patches. Some patches of land that appear to provide habitat may be too small to support some organisms or self-sustaining populations.

In forest habitats, another factor identified by biologists as affecting habitat quality, is called the “edge effect.” Edges of forest stands are exposed to higher wind speed, hotter temperatures, and different predators than the interior of those patches. For these reasons, edge areas may constitute different habitat than the interior forest for a particular species. Some species, such as deer, have been found to benefit from edge effects and clearings. Others, such as the northern spotted owl and marbled murrelet, are adversely affected

Another factor in assessing habitat quantity and quality is isolation of patches from each other. Isolation may make some otherwise good habitat inaccessible to a species. Isolation has been implicated in the decline of many wildlife species, and is

one of the most active areas of research in conservation biology today.

Assessing Habitat Condition

Scientists have developed indicators or surrogate measures for determining the status of fish and wildlife populations across the state. For example, 30 Washington fish and wildlife species are listed as threatened and endangered under the Federal Endangered Species Act. The State of Washington lists 117 species as endangered, threatened or sensitive. Habitat conversion and degradation is often identified as a significant cause of species decline. Therefore, under some circumstances, the number of listed species can be viewed as an indicator of the condition of habitat.

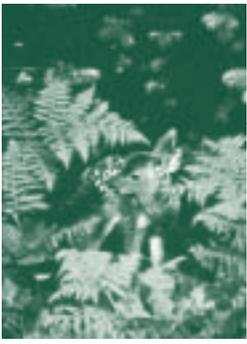
As another indicator of habitat condition, biologists have noted the alteration of habitat for other uses. For example, resource agencies estimate that 50 to 90 percent of riparian areas have been converted to other uses or extensively modified since 1880.²¹

Another approach to habitat assessment has been to divide the state into 31 major vegetation zones, which are areas that have similar climatic and geologic histories. The hypothesis is that each zone provides habitat for some species or assemblage of species, and that conservation of land within each



Habitat and Public Lands

²¹ This Inventory did not determine land conversion estimates. More extensive discussion can be found in publications such as *Our Changing Nature* (DNR 1998).



Habitat and Public Lands

zone will provide for the conservation of the widest range of existing species within the state. Extensive work on this hypothesis has been undertaken in the Gap Analysis Program by researchers at the University of Washington. The GAP program is part of a national effort to identify areas of high biological diversity and gaps in existing conservation efforts. Although the Washington GAP program has provided a great deal of information on the distribution, abundance and diversity of species, some scientists have expressed concerns about the limitations of GAP data.

In assessing the management status of habitat lands in Washington's vegetation zones, researchers found that the percentage of lands dedicated solely to conservation was 12.2 percent (primarily public lands), but that these lands were unevenly distributed among the 31 zones. Less than 6 percent of the grasslands and forests in the Puget Trough were dedicated to habitat conservation. High elevation permanent ice and snow zones had the highest percentage of dedicated conservation lands (97 percent).²²

Habitat Protection and Restoration

Our review of habitat in relation to public lands also identified a number of management tools being applied to address habitat protection and restoration issues

on both public and private land. Such tools contribute to habitat conservation²³ and are important to recognize. Examples include:

- Environmental regulations and environmentally sensitive management practices. In regard to riparian habitats, the on-going implementation of the "Forests and Fish" Program is often cited as an example.
- Mitigation programs, including extensive work by the Washington Department of Transportation, or made possible through Federal Energy Regulatory Commission dam re-licensing procedures.
- Acquisition of additional lands or conservation easements for targeted species protection.
- In agricultural areas, application of programs such as the Conservation Reserve Enhancement Program, use of no-till practices, or landowner cooperative agreements for wildlife protection.
- Financial assistance programs, such as grant funds for fish passage barrier removal.
- Large-scale habitat measures, such as preparation of "habitat conservation plans" by some landowners, including the City of Seattle and private timberland owners.

²² Cassidy, K. M., et al. 1997. "Gap Analysis of Washington State: An evaluation of the protection of biodiversity." Volume 5 in Washington State Gap Analysis – Final Report (K. M. Cassidy, et al., eds.). Washington Cooperative Fish and Wildlife Research Unit (Seattle: University of Washington), 192 pp.

²³ Emerging policy direction to help address environmental investment measures and outcomes should be noted; see, e.g., ESHB 1785 and SSB 5637 (Laws of 2001).

- Voluntary placement of lands on the Washington Register of Natural Areas.
- Landowner participation in Backyard Wildlife Sanctuary programs, such as those administered by the Washington Department of Fish and Wildlife.

Examples of Specific Habitat Types and Species

Another indicator of the relative contribution of public lands to providing habitat for the state's fish, wildlife, and plant species emerges when examining where specific habitat types (e.g., shrub-steppe, riparian, etc.), or representative wildlife species, are found in relation to public and private lands.

For example, our assessment of specific habitat types found:

- Of the 3,000 acres of Puget prairie that exist in the state, over 2,100 acres are found on Fort Lewis.
- Of the state's remaining two to three million acres of old forest habitat, 95 percent is found on public land, generally in fragmented patches and at higher elevations.
- Approximately 33 percent of the state's remaining shrub-steppe habitat is found on public lands.

Further, our assessment of wildlife and plant use found:

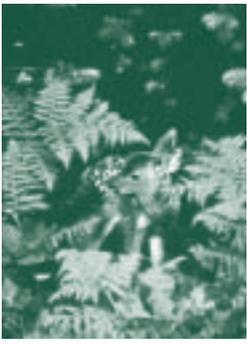
- Salmon habitat is found on both public and private riparian land.

Of the 10,755 miles of known salmon-bearing rivers and streams in the state, 2,249 miles (21 percent) are found on public lands.

- Sixty-four percent of the known bald eagle nests in the state lie on private lands, 28 percent on public lands, and 8 percent within reservation boundaries.
- Sharp-tailed grouse exist on about 3 percent of their historic range. Of the remaining habitat, 63 percent lies on private lands.
- The only remaining silverspot butterfly habitat in Washington is a 2.5 mile stretch on the Long Beach Peninsula located entirely on public lands.
- Sixty-three percent of elk winter range statewide is on private lands.
- The golden paintbrush historically occurred in suitable habitat from Vancouver Island to the central coast of Oregon. Today, it is a federally listed species, found in eleven sites in the Pacific Northwest, including nine in Washington. Found on both private and public land, the largest population of golden paintbrush resides on a site managed by the DNR.
- Water howellia, once widely distributed over the Northwest, is now rare. Most of the known populations of water howellia in Washington are located on public lands, including lands owned by the DNR, Bureau of Land Management, US Fish and Wildlife Service, and several military reservations.



Habitat and Public Lands



Habitat and Public Lands

Summary

The ability of public lands to provide for fish, wildlife, and plants is dependent upon the types and quality of habitats found there. Our review of the available literature indicates that not all habitats are well represented on public lands. The geographic and topographic distribution of public lands strongly influences the habitat roles they play. Some habitat types like old forests and Puget prairies appear to be found primarily on public lands, others like oak woodlands lie mostly on private lands, and many types of habitat (shrub steppe, riparian, nearshore) are distributed to varying degrees among public and private lands. We identified examples of species that rely heavily on public land for protection (Oregon silver spot

butterfly, water howellia, golden paintbrush). Other species (bald eagle, salmon) interact with both public and private lands as they evolve through their life cycles. Migratory species such as elk use both public and private lands, but often during different seasons.

Much of the existing planning and assessment information in Washington focuses on individual species or habitats, and is incomplete. Previous statewide assessments have often focused on measures that are proxies for determining habitat type or quality (e.g., measuring land cover with satellite imagery), and therefore may not encompass the multiple dimensions of complex systems. The shift since the early 1990s toward watershed and broad-scale ecosystem study and planning is increasing the availability of more comprehensive habitat and species information in Washington.²⁴



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²⁴ See, for example, Johnson, D.H. and T.A. O'Neil. 2000. *Wildlife-Habitat Relationships in Oregon and Washington* (Corvallis: Oregon State Univ. Press). Existing data are used to provide a comprehensive assessment of species-habitat relationships for 738 terrestrial and marine birds, mammals, reptiles, and amphibians in Washington and Oregon. In addition to the compilation of existing data sources, extensive mapping of Oregon and Washington was conducted to characterize natural vegetation types across the two states.

Recreation and Public Lands

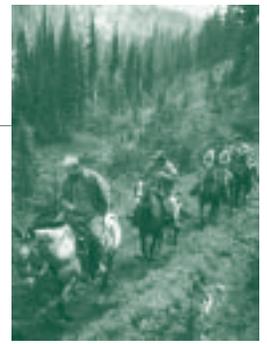
Very few acres of public land have been acquired specifically for outdoor recreation purposes, and few are managed exclusively for such use. Most of Washington's 17.2 million acres of public uplands are managed for multiple uses. Accordingly, Washington residents have access to a much greater outdoor recreation land base than is indicated by the amount of acres reported as managed exclusively for recreation, such as parks.

IAC found no single source of information reflecting management designations for recreation on multiple use lands. Each landowning agency informs the public of potential uses of its lands by means of signs, publications, and other communications. At a statewide scale, however, clear distinctions between the outdoor recreation roles, services, and facilities provided by local, state, and federal public lands are apparent.

Local recreation lands, such as local parks, and public school and college lands, are generally located within or in close proximity to cities and towns. They generally host relatively concentrated outdoor recreation uses and activities that require the development of fields and facilities. Local lands host picnic areas, playgrounds, soccer and baseball fields, tennis courts, golf courses, running and jogging trails, and other developed facilities.

Local public lands comprise approximately 660,000 acres, or approximately 3.6 percent of the total public land base. Of these, about 237,000 acres are reported as managed for outdoor recreation, habitat or environmental protection. Based on the best available information, we estimate that about half of all outdoor recreation visits by Washington residents is to local public lands.

State recreation lands, such as state parks or DNR forest lands, are less likely to be located in close proximity to population centers, and generally host outdoor recreation activities not as heavily dependent upon developed facilities. State lands see camping of all kinds, trail use by both motorized and non-motorized users, nature study, hunting, fishing, and food gathering (shellfish, berries, mushrooms). Although state lands designated principally for recreation represent about 648,580 acres, or 7 percent of the recreation land base, most state lands are available for recreation to some degree. For example, many of the nearly three million acres of state uplands managed by DNR see a significant amount of public use, even though these lands are managed principally for other purposes. In some areas, these lands also have suffered significant abuse through vandalism, dumping, illegal drug labs, and other activities.



Recreation and Public Lands



Recreation and Public Lands

Federal recreation lands, such as national parks or forests, are generally remote from population centers, and generally host recreation activities that depend on more primitive settings. Recreational activities include sight-seeing and exploring in passenger vehicles, day hiking, backpacking, horse packing, off-road vehicle use, more primitive camping, mountaineering, skiing, hunting, and fishing. Although federal lands provide 91 percent of all lands in the outdoor recreation, habitat, and environmental protection category, we estimate they host approximately the same number of recreation visits as state lands; that is, about a quarter of all outdoor recreation visits.



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Recreational Trails deserve special mention because of the great popularity of walking, bicycling and other linear activities. Recreational trail

use has long been popular in Washington State. The 93-mile Wonderland Trail, encircling Mt. Rainier, was one of the first recreational trails in the nation when it was created in the first decade of the twentieth century. Today, we estimate there are approximately 12,000 miles of trail of all kinds. The bulk of the inventory – over 8,000 miles – is located on USDA Forest Service land. National Parks manage about 1,500 miles of trail. State lands host about 1,600 miles of trail, primarily on DNR and State Parks properties. The balance of the estimated inventory is managed by local agencies. Although the local inventory is the smallest in mileage, it hosts significant usage in areas of concentrated population (e.g., the Burke-Gilman Trail in Seattle and the Centennial Trail in Spokane).

Approximately 77 percent of publicly owned land available for outdoor recreation is estimated to be above 3,000 feet elevation. This has major implications for outdoor recreation activities. In particular, high elevation lands often have rugged topographies or seasonal limitations that render the lands unsuitable for many outdoor recreation activities. For the activities these lands do support, there is no substitute. For example, mountainous

lands are necessary for downhill skiing and alpine style mountaineering. Conversely, because of the remote or rugged characteristics of the terrain, these lands generally are not suitable for facility-dependent activities, such as team sports, or even, for many people, walking.

Public Perception

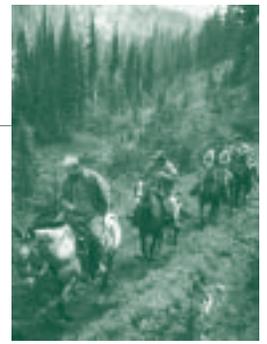
In a series of meetings conducted in 2000 as part of the IAC's recreation plan update,²⁵ the following messages were consistently delivered by citizens:

- There is a perception of crowding at the most popular destinations, and crowding is seen as a major disincentive to participation.
- Increasing specialization in recreation pursuits has led to a degree of conflict and polarization between certain segments of the recreating public; e.g., cyclists and pedestrians on urban trails.
- Access to recreation lands is seen as a more critical issue than supply. Whether to a river, lake, trail, forest, beach, shellfish bed, or ball field, there is a growing sense that access is becoming

restricted. Some people mentioned closed roads or gates, others the growing number of required permits and fees, and still others perceived safety concerns due to under-management of land or facilities. Access to private land is also decreasing due to local development of open areas or gating of lands.

- Lack of adequate maintenance and operation of the existing supply of public lands and facilities was seen as a critical issue by some. At the same time, many people expressed an unwillingness to pay fees to meet these needs. Users tend to support fees when they are specifically for use at the site where the fees are imposed.

Because available land and facilities do not appear to meet outdoor recreation demand, recreation land managers have resorted to a variety of techniques to control or ration access, whether to local ball fields, state campgrounds and wildlife recreation areas, or federal wilderness areas. These techniques include reservation systems, catch limits, party-size restrictions, permits, licenses, fees, and facility scheduling.



*Recreation and
Public Lands*

²⁵ IAC, "The State of Washington Outdoor Recreation and Habitat Assessment and Policy Plan: 2002-2006," in preparation.



Summary of Findings

- # Summary of Findings
- The total amount of land area in the state is 45.9 million acres. Of this, 2.6 million acres, or 6 percent, is aquatic land and 43.3 million, acres or 94 percent, is upland.
 - Of the state's 43.3 million upland acres, public entities own 17.2 million acres, or 40 percent. Land held in trust or owned by Native American tribes comprises 2.7 million acres, or six percent of the state's total upland area.
 - The State of Washington owns all of the bedlands of the state's navigable marine and freshwaters, and an estimated 40 percent of the state's tidelands and shorelands.
 - The largest amount of public upland is managed by the USDA Forest Service (9.2 million acres), followed by the Washington Department of Natural Resources (2.9 million acres) and National Park Service (1.8 million acres).
 - Okanogan County contains the largest amount of public land (2,418,562 acres). However, Skamania County contains the highest percentage of public lands within its borders (86 percent).
 - As a result of settlement patterns and federal land grants, public land is not evenly distributed across the state, but is concentrated at the higher elevations. Therefore, certain ecological communities are well-represented on public lands and others are not.
 - Most federal land (over nine million acres) is reported as managed principally, but not exclusively, for outdoor recreation, habitat, or environmental protection. Most state lands are managed principally, but not exclusively, for resource production and extraction. Use designations change over time and often reflect current policies of land managing agencies, elected officials and legislative bodies.
 - An array of costs and benefits are associated with public lands. Costs and benefits cannot be generalized, but must be analyzed within a specific location and context that includes clearly defined parties to whom costs and benefits accrue.



Summary of Findings

- While the public is afforded outdoor recreation opportunities on most public lands, people nonetheless report a sense of crowding and of increasingly restricted access.
- Publicly owned lands have been a part of Washington State's fabric since statehood. Most of what is currently government-owned land in Washington was acquired before, or within the first 20 years of, statehood. While there were a few sizable government land acquisitions in the twentieth century, such as state forest board lands acquired during the Great Depression and federal lands needed for military purposes during World War II, the largest government landholdings were in place decades before.
- Although land may be publicly owned for many years, its owners, managers, and uses may change significantly over time. In addition to ownership changes, land management regimes and land uses have also changed because of increased population, developing knowledge, or changes in societal needs and values. A public lands inventory captures only a snapshot of an ever-changing picture.



Conclusion

Conclusion

The 1999 Inventory's primary purpose is to create a baseline inventory of Washington's public lands that identifies the total acreage of public and tribal lands, as well as their ownership, general location, and primary purpose. The

three-year effort has produced as detailed and accurate a picture of Washington State's public lands as is possible given the type and format of data currently maintained by government agencies.

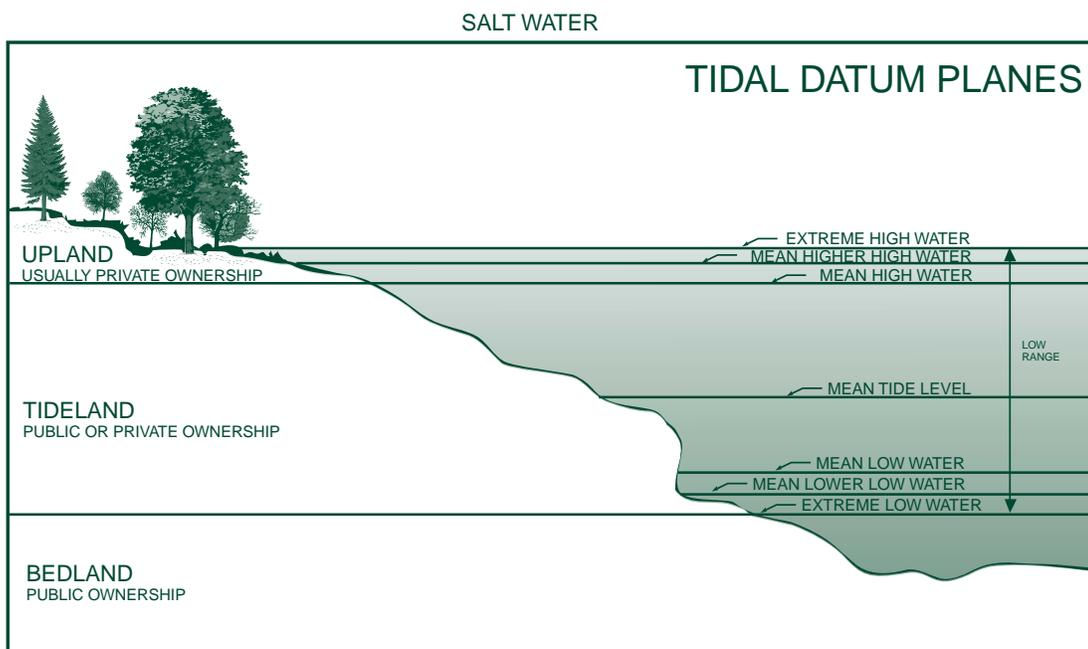
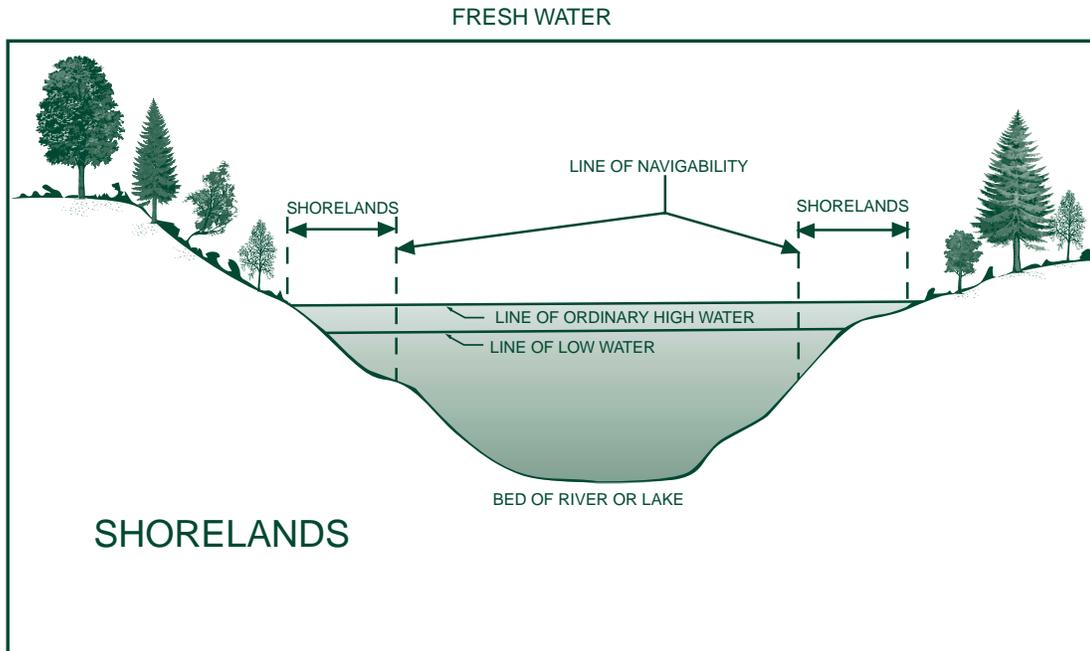


Washington State Department of Natural Resources

Appendices

Appendix B

Aquatic Land Cross-Sections Illustrating Shoreland and Tideland Boundaries



Appendix C

Advisory Committee Members

Steering Committee Members

Stan Biles, formerly Washington State Department of Natural Resources

Karl Denison, Olympic National Forest

Larry Fairleigh, Washington State Parks & Recreation Commission

Elyse Kane, Washington State Department of Fish & Wildlife

Mark Leander, Assessor, Skagit County

Dave Schultz, Commissioner, Okanogan County

Technical Advisory Committee Members

Jim Cahill, Washington State Office of Financial Management

Marie Cameron, Community and Environmental Programs, Thurston County

Russell Carter, Trust Services, Puyallup Tribe

Paul Dahmer, Washington State Department of Fish & Wildlife

Gary Fergen, Planning Department, Pend Oreille County

Gerald Gallinger, Real Estate Service, Washington State Department of Transportation

Rip Hemingway, The Evergreen State College

Martha Henderson, The Evergreen State College

Eric Huart, Resource Planning & Asset Management, Washington State Department of Natural Resources

Karl Johansen, City of Bellevue

Eric Johnson, Washington Public Ports Association

Betty Kobe, Capital Programs, Property Management, Washington State Department of Corrections

Bill Koss, Resource Development, Washington State Parks & Recreation Commission

Steve Williams, Asset Management Division, City of Tacoma

Appendix D

Principal Land Use Categories

Code	Land Use	Definition	Examples
A	Outdoor Recreation, Habitat or Environmental Protection	Lands principally used for outdoor recreation, habitat or environmental protection.	Parks, trails, camping areas, fishing sites, boat launches, water access areas, picnic areas, fairgrounds, playfields, habitat areas, natural areas, preserves, wilderness areas, wildlife areas, watershed protection areas, environmental restoration and mitigation sites.
B	Resource Production or Extraction	Lands principally used for production or extraction of agricultural, timber or mineral commodities, or production of wildlife/fisheries commodities.	Agriculture lands, grazing lands, orchards, timber production and harvest lands, tree farms, mining areas, gravel pits, hatcheries and fish culture facilities, game farms.
C	Transportation or Utilities Infrastructure	Lands principally used to support transportation or utility services provided to the general population.	Roads, airports, railroads, marine terminals, transit centers, bus barns, utility corridors, power plants, dams, submerged dam impoundment areas, diking and draining facilities, flood control facilities, landfills, transfer stations, sewage treatment plants, irrigation facilities, water supply facilities.
D	Other Government Services or Facilities	Lands principally used to support government functions, services, or facilities not included in categories A, B, or C.	Offices, city halls, courthouses, fire stations, police stations, commercial or retail facilities, maintenance facilities, warehouses, community centers, museums, interpretive centers, stadiums, convention centers, visitor centers, schools, colleges, universities, libraries, research facilities, laboratories, hospitals, health clinics, prisons, jails, cemeteries, housing, military facilities. Transportation and utility infrastructure (e.g. parking lots) used principally to support these functions, services, and facilities.

Appendix E

Summary of 1999 Public and Tribal Land Inventory Data

REPORTED UPLAND PRINCIPAL USES								
Landowner Group/Agency	Outdoor Recreation, Habitat, Environmental Protection	Resource Production & Extraction	Transportation & Utilities Infrastructure	Other Government Services and Facilities	Unknown Upland Uses	Total Upland Acres	Reported Aquatic Acres	Grand Total
FEDERAL								
US Forest Service	6,887,490	2,115,089	82,703	531	18,560	9,104,373	85,045	9,189,418
National Park Service	1,831,274		9			1,831,283	0	1,831,283
Bureau of Reclamation			468,808			468,808	11,341	480,149
US Army				404,313		404,313	0	404,313
Bureau of Land Management	74,154	318,429				392,583	3,346	395,929
US Dept. of Energy/Hanford	162,879		1,094	198,723		362,696	916	363,612
US Army Corps of Engineers	1,098		84,916	4		86,018	5,764	91,782
All Other Federal Agencies	186,567	2,032	9,798	36,787	162	235,345	1,905	237,250
FEDERAL TOTAL	9,143,462	2,435,550	647,328	640,358	18,722	12,885,421	108,317	12,993,738
STATE								
WA Dept. of Natural Res	82,474	2,830,167	18,211	3,523	40,762	2,975,136	2,407,000	5,382,136
WA Dept. of Fish and Wildlife	456,289	4,677	8	62		461,036	540	461,576
WA Dept. of Transportation			150,561	1,903		152,464	0	152,464
WA State Parks	107,608			11		107,619	0	107,619
All Other State Agencies	2,127	1,850	70	29,307	5	33,359	11,689	45,048
STATE TOTAL	648,498	2,836,694	168,850	34,806	40,767	3,729,614	2,419,229	6,148,843
LOCAL								
Counties	46,930	45,596	90,683	14,278	15,581	213,068	4,054	217,122
Cities and Towns	167,044	14,981	119,897	12,049	2,691	316,661	3,189	319,850
Port Districts	4,032	2,836	18,170	16,779	176	41,993	3,849	45,841
All Other Local Governments	19,033	2,491	14,185	24,153	781	60,643	15,489	76,132
LOCAL TOTAL	237,038	65,903	242,935	67,259	19,229	632,365	26,580	658,945
TOTAL PUBLIC	10,028,998	5,338,147	1,059,113	742,424	78,718	17,247,400	2,554,126	19,801,526
TRIBAL								
Yakama Nation					1,152,945	1,152,945		1,152,945
Colville Confederated Tribes					1,119,269	1,119,269		1,119,269
Quinalt Nation	20,800	160,212	76	400	0	181,488		181,488
Spokane Tribe					131,787	131,787		131,787
All Other Tribes	26,558	45,768	1,426	10,015	8,025	91,792		91,792
TOTAL TRIBAL	47,358	205,980	1,502	10,415	2,412,026	2,677,281		2,677,281
GRAND TOTAL	10,076,356	5,544,127	1,060,615	752,839	2,490,744	19,924,681	2,554,126	22,478,807

Easement Acres Not Included

Appendix F

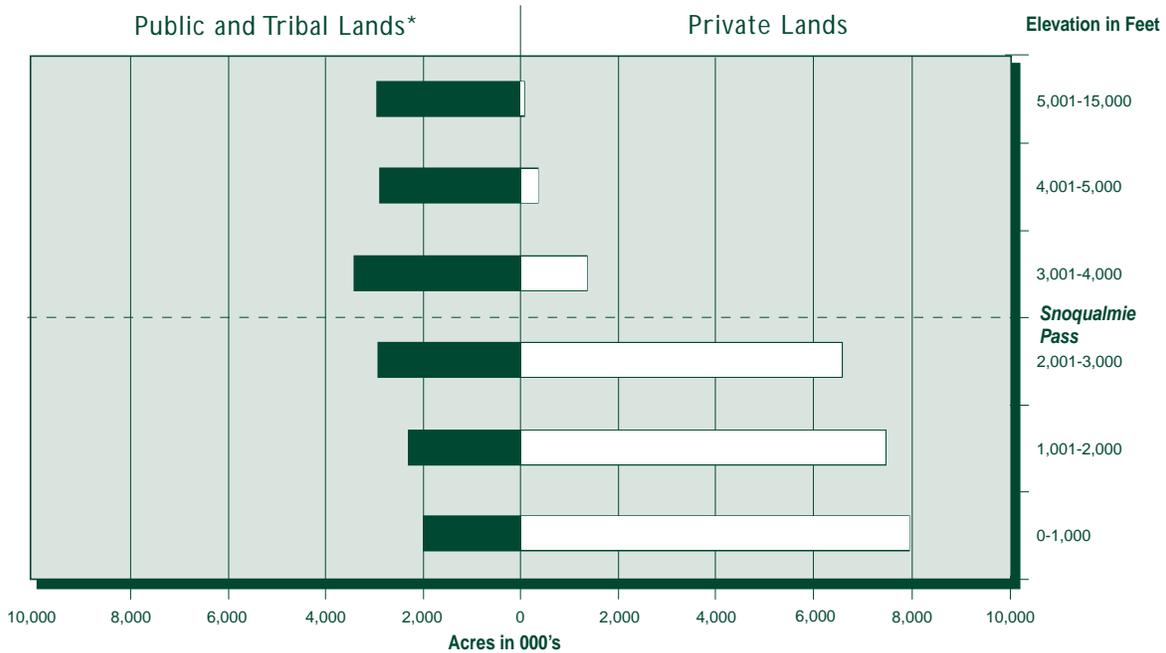
Top 20 Landowning Agencies and Top 4 Landowning Tribes in Washington

REPORTED UPLAND USES by Principal Use Category						
Agency/Tribe	Outdoor Recreation, Habitat, Environmental Protection	Resource Production and Extraction	Transportation and Utilities Infrastructure	Other Government Services and Facilities	Unknown Uses	Total Upland Acres
U.S. Forest Service	6,887,490	2,115,089	82,703	531	18,560	9,104,373
WA Department of Natural Resources	82,474	2,830,167	18,211	3,523	40,762	2,975,136
U.S. National Park Service	1,831,274		9			1,831,283
U.S. Bureau of Reclamation			468,808			468,808
WA Department of Fish & Wildlife	456,289	4,677	8	62		461,036
U.S. Department of Army				404,313		404,313
U.S. Bureau of Land Management	74,154	318,429				392,583
U.S. Richland Operations Office (Hanford)	162,879		1,094	198,723		362,696
U.S. Fish and Wildlife Service	185,464	1,870		99		187,432
WA Department of Transportation			150,561	1,903		152,464
City of Seattle	113,462		13,714	879		128,055
WA Parks & Recreation Commission	107,608			11		107,619
U. S. Army Corps of Engineers	1,098		84,916	4		86,018
City of Tacoma	11,791		44,181	2,533		58,505
Grays Harbor County	129	35,250	4,215	1,517		41,111
U.S. Department of Navy				26,501		26,501
Spokane County	3,867	712	21,252	195		26,026
King County	16,880	815	5,390	1,264		24,348
Pierce County	1,933	933	14,367	2,136		19,369
Lincoln County		667	14,938	140		15,745
TOTAL FOR TOP 20 AGENCIES	9,936,791	5,308,608	924,367	644,334	59,322	16,873,423
TRIBAL						
Yakama Nation					1,152,945	1,152,945
Colville Confederated Tribes					1,119,269	1,119,269
Quinault Nation	20,800	160,212	76	400		181,488
Spokane Tribe					131,787	131,787
TOTAL FOR TOP 4 TRIBES	20,800	160,212	76	400	2,404,001	2,585,489

Easement Acres Not Included

Appendix G

Ownership of Public/Tribal and Private Land by Elevation

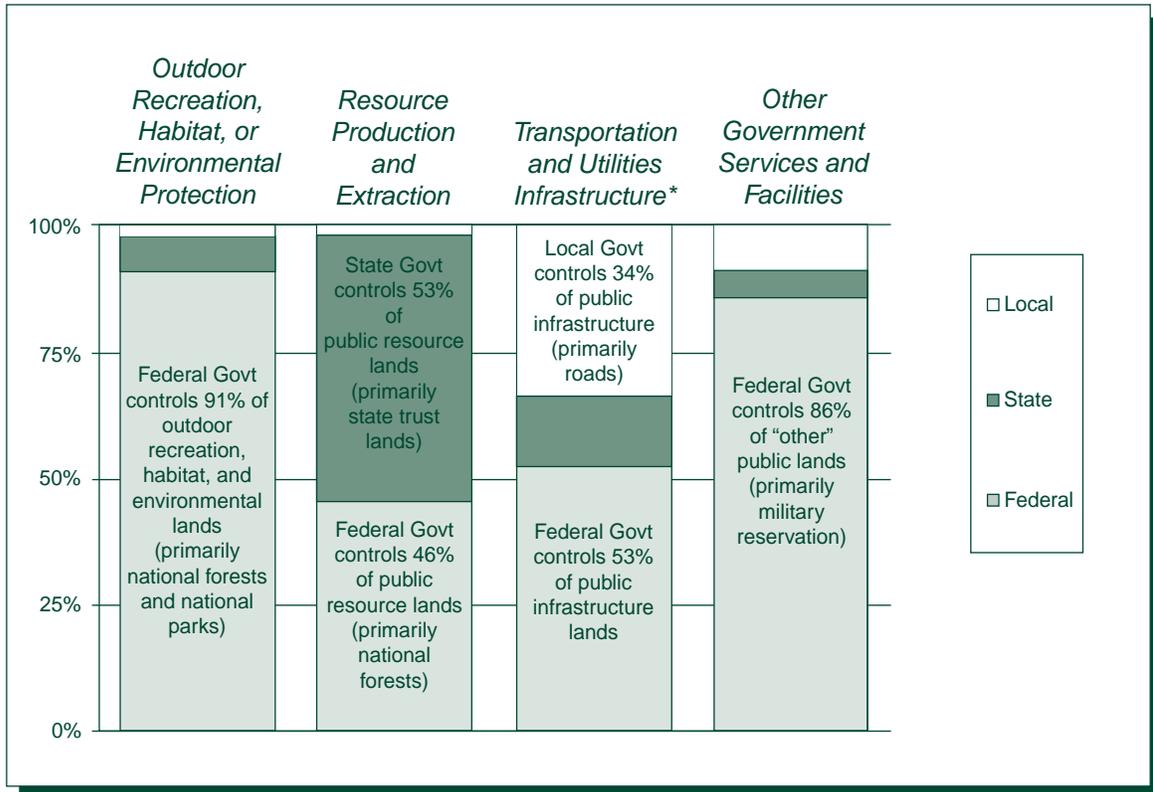


*Tribal land is defined here as land within reservation boundaries

Elevation Range (ft)	Major Federal Lands	Major State Lands	Major Local Lands	Total Public	Land Within Tribal Reservation Boundaries	All Other/Private Lands	ALL LANDS
0 - 1,000	1,025	895	47	1,967	554	7,921	10,442
1,001 - 2,000	1,288	956	39	2,283	596	7,461	10,340
2,001 - 3,000	2,035	845	27	2,907	953	6,556	10,416
3,001 - 4,000	2,894	445	18	3,357	648	1,348	5,353
4,001 - 5,000	2,645	191	5	2,841	285	351	3,477
5,001 - 15,000	2,775	115	0	2,890	84	66	3,040
TOTAL	12,662	3,447	136	16,245	3,120	23,703	43,068

Appendix H

Proportions of Public Land Uses by Type of Government

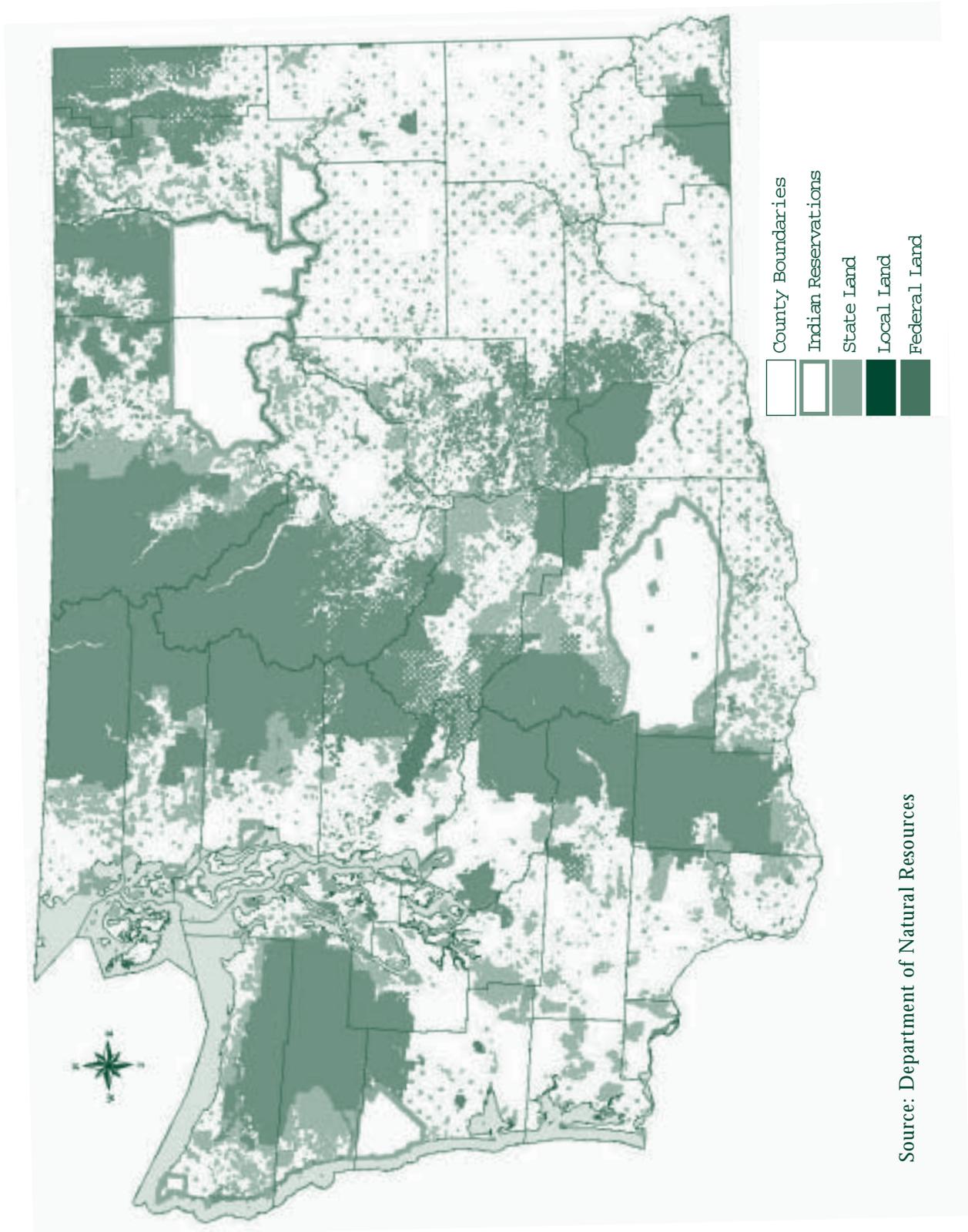


	Outdoor Recreation, Habitat, Environmental Protection		Resource Production and Extraction		Transportation and Utilities Infrastructure *		Other Government Services and Facilities	
Federal	9,143,462	91%	2,435,550	46%	656,165	53%	640,358	86%
State	648,498	7%	2,836,694	53%	168,876	14%	34,806	5%
Local	237,038	2%	65,903	1%	424,580	34%	67,259	9%
TOTAL PUBLIC	10,028,998	100%	5,338,147	100%	1,249,621	100%	742,423	100%

*Includes public road easements.

Appendix I

Washington's Major Public Lands



Comparison of Federal, Major State, and Tribal Lands among Eleven Western States

Appendix J

STATE	Total Land Area	Total Federal Lands	Federal Lands as a Percentage of State Land Area	Total Major State Lands	Major State Lands as a Percentage of State Land Area	Tribal Lands	Tribal Lands as a Percentage of State Land Area	Total Federal, Major State and Tribal Lands	Total Federal, Major State and Tribal Lands as a Percentage of State Land Area
Arizona	72,729,774	31,315,544	43.1	9,414,341	12.9	20,718,125	28.5	61,448,010	84.5
California	99,821,155	46,286,989	46.4	2,184,612	2.2	592,030	0.6	49,063,631	49.2
Colorado	66,385,315	24,149,790	36.4	3,287,015	5.0	800,343	1.2	28,237,148	42.5
Idaho	52,959,699	32,958,959	62.2	2,701,216	5.1	588,974	1.1	36,249,149	68.4
Montana	93,154,450	25,479,827	27.4	5,423,163	5.8	5,502,535	5.9	36,405,525	39.1
Nevada	70,274,318	56,689,121	80.7	124,426	0.2	1,231,603	1.8	58,045,150	82.6
N. Mexico	77,671,940	26,114,098	33.6	9,174,040	11.8	8,438,954	10.9	43,727,092	56.3
Oregon	61,440,529	31,688,748	51.6	1,000,118	1.6	782,674	1.3	33,471,540	54.5
Utah	52,586,710	33,897,913	64.5	4,238,745	8.1	2,330,962	4.4	40,467,620	77.0
Washington	43,271,000	12,885,421	29.7	3,729,614	8.6	2,677,281	6.2	19,292,316	44.6
Wyoming	62,145,848	30,876,685	49.7	3,735,913	6.0	1,889,575	3.0	36,502,173	58.7
TOTAL	752,440,738	352,343,095	46.8	45,013,203	6.0	45,553,056	6.0	442,909,354	58.9
AVERAGE	68,403,703	32,031,190		4,092,109		4,141,187		40,264,486	

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Appendix K

Examples of Benefits and Costs of Public Lands

Examples of Benefits

- I. **Services to the Public**
 - A. **Natural Ecosystem Functions**
 - water supply and quality (e.g. municipal watersheds)
 - habitat
 - flood control
 - baseline information for scientific research
 - B. **Infrastructure**
 - transportation (e.g. roads, ports, airports)
 - utilities (e.g. powerplants, water facilities, etc.)
 - C. **Natural Resources Production and Extraction**
 - timber production / mineral extraction / agricultural leases
 - wildlife (game) and fisheries production
 - D. **Public Use and Recreation**
 - recreation opportunities
 - public health benefits
 - E. **General Public Services**
 - military bases / national defense
 - public buildings and facilities hosting a broad assortment of public services (e.g. schools, libraries, post offices)
 - F. **Increased Government Revenues / Decreased Government Costs**
 - federal and state compensating programs for property tax loss
 - sales and B&O taxes from products & services used on or associated with public lands (e.g. outdoor recreation equipment, tourism services)
 - public land and user fee revenues reduce need for general taxes
 - savings from public infrastructure not needed to support development (e.g. roads, utilities)
 - G. **Option and Existence Values**
 - option values
 - existence and bequest values
- II. **Benefits to Individuals**
 - amenities accruing to adjacent landowners (e.g. views, proximity to services)
 - increased property values in certain cases
 - cultural and spiritual benefits associated with natural areas and wilderness
- III. **Benefits to the Economy**
 - direct employment on public lands
 - spending in local areas by users of public lands
 - tourism connected to public lands
 - public lands as a factor in in-migration of businesses and recruitment of high-quality employees into the state

Appendix K

Examples of Benefits and Costs of Public Lands

Examples of Costs

I. Costs to Government

A. Costs to Government Agencies That Own Land

i) Land Acquisition Costs

- land acquisition costs
- appraisal and legal costs

ii) Land Ownership Costs

a) Basic and Mandatory Costs of Land Ownership

- legally required activities and payments (e.g. in lieu taxes, assessments, fire fees, weed control)
- activities to reduce liability or protect public health & safety (e.g. hazard fencing, hazardous waste cleanup)
- activities to minimize land deterioration (e.g. erosion and pest control)

b) Ownership Costs for Creating or Enhancing Public Services on the Land

- development and maintenance of infrastructure and facilities
- operation of public access and use programs
- environmental restoration and enhancement activities
- implementation of other government programs and services

c) Ownership Costs for Centralized Administration and Planning

- administration, budget and accounting, personnel, etc.
- planning and engineering

B. Costs to Other Government Agencies

- law enforcement
- search & rescue
- weed control

C. Reduced Government Revenues

- reduced property tax revenues to local districts
- reduced timber excise tax revenues to local districts

II. Costs to Individuals

- costs/fees to individuals as taxpayers and users of public lands
- costs to adjacent or nearby dwellers (e.g. trespass, litter, fire, reduced property values in certain cases)
- emotional/psychological costs from certain public land decisions

III. Costs to the Economy

- negative impacts to local economies closely tied to public lands (e.g. reduced federal timber harvest)
- reduced land base for private use and development
- monies to acquire and manage public lands could be spent for other beneficial purposes or could be returned to taxpayers
- public land may not provide as high a level of economic activity as would occur in private ownership



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