Washington Public Lands Inventory

Final Report

WASHINGTON STATE
Recreation and Conservation Office

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WASHINGTON STATE
Recreation and
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Section 1: Introduction

Introduction

About this Report

The Recreation and Conservation Office (RCO) was asked by the state Legislature[1] to provide an inventory of lands in Washington owned by federal, state, and local governments, and by Native American tribes by July 1, 2014. The Public Lands Inventory Web application is available at http://publiclands.smartmine.com/.

The Legislature also asked RCO to make recommendations on the standardization of recordkeeping and a preferred process for the centralization of acquisition data. Those recommendations are in Section 4.

About the Public Lands Inventory Project

In keeping with past public land inventories completed by RCO, the 2014 inventory is focused on publicly-owned natural resource and recreation lands. It integrates data from the 2012 Washington State Parcel Database, which is managed by the University of Washington's School of Environmental and Forest Sciences, with updated information from state agency partners – the Department of Natural Resources (DNR), Department of Fish and Wildlife (WDFW), and the State Parks and Recreation Commission (State Parks).

Executive guidance for the 2014 inventory was provided by a steering committee, which was chaired by RCO and included executive managers from the state agency partners. Joint Legislative Audit and Review Committee (JLARC) staff provided input to the steering committee regarding how the RCO inventory could support its separate study of public habitat and recreation lands. A technical advisory committee, also chaired by RCO, brought together information technology and data management staff from the state agency partners.

[1] 2013-15 Capital Budget proviso (Section 3174 of Engrossed Substitute Senate Bill 5035)

Budget Proviso Requirements

The Public Lands Inventory budget proviso is included as Appendix A. The proviso stipulated that the inventory be Web-accessible and include a Geographic Information System (GIS)-based interactive map. This is the first Web-based interactive mapping application for public lands for the state.

The proviso further required that the inventory include ownership, ownership type, location, and acreage information for each parcel. It required that land be categorized according to its principal use, including, but not limited to, developed recreation land, habitat and passive recreation land, and revenue generation. The proviso indicated that the inventory should include the intended use at the time of acquisition, the current use, acquisition cost, and funding sources for lands acquired by state agencies within the past 10 years.

The proviso specified that RCO collaborate with JLARC staff in the completion of the inventory.

JLARC Staff Review of Public Lands

RCO, in keeping with the budget proviso, collaborated with JLARC staff on the Public Lands Inventory. JLARC staff is required to complete a three-part review of public lands[2] (Appendix B). Part three of the JLARC study includes an analysis of how public habitat and recreation lands may affect the economic vitality of Washington's counties. JLARC staff will use data from the Public Lands Inventory to aid in modeling these impacts.

Previous Public Lands Inventories

RCO[3] previously provided the Legislature with information on public lands. RCO's 2005 report, *Toward a Coordination Strategy for Habitat and Recreation Land Acquisition,* led to the formation of the Habitat and Recreation Lands Coordinating Group in 2007. Before that, *The 1999 Public and Tribal Lands Inventory Project* first compiled public lands data into a relational database. The 1999 inventory was based on a landowner survey and existing central data sources when landowner information was not available. It did not show property boundaries or other geographically referenced ownership data.

Washington State University completed the report *Public Lands in Washington: Statistical Summary* in 1983. It covered federal, state, and some county lands, as well as lands held

[2] Section 1001, Engrossed Substitute Senate Bill 5035

[3] Before 2007, RCO was known as the Interagency Committee for Outdoor Recreation (IAC).

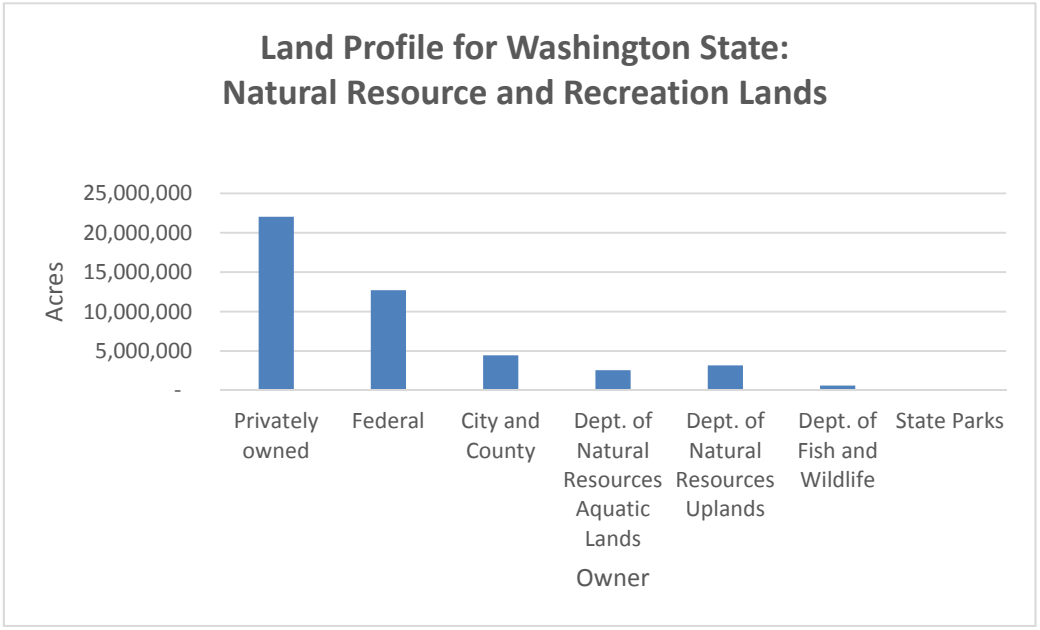
in trust for, or owned by, Native American tribes. Washington State University contacted federal and state agencies for information and asked county officials to complete a questionnaire. The 1983 inventory did not explicitly record lands owned by cities or special purpose districts, nor did it record state-owned aquatic lands.

The Office of Program Planning and Fiscal Management prepared the *State Lands Inventory: Ownership, Control and Use Summary* in 1970 and 1971. These reports present a summary of the lands owned or managed by state agencies. The 1970 report used a reporting system to collect data on the uses of state-owned or -managed lands on the county level. This system was developed in accordance with Chapter 53, Laws of 1969. The 1971 report incorporated information from 25 state agencies that owned or managed state lands as of July 1, 1971.

Findings of the Public Lands Inventory

The estimated total land area of Washington State is 45,663,000 acres[4]. The graph below is a summary of private lands and public natural resource and recreation lands in Washington State. As a percent of land area, private ownership is roughly 48 percent. All public natural resource and recreation lands total about 23.6 million acres.

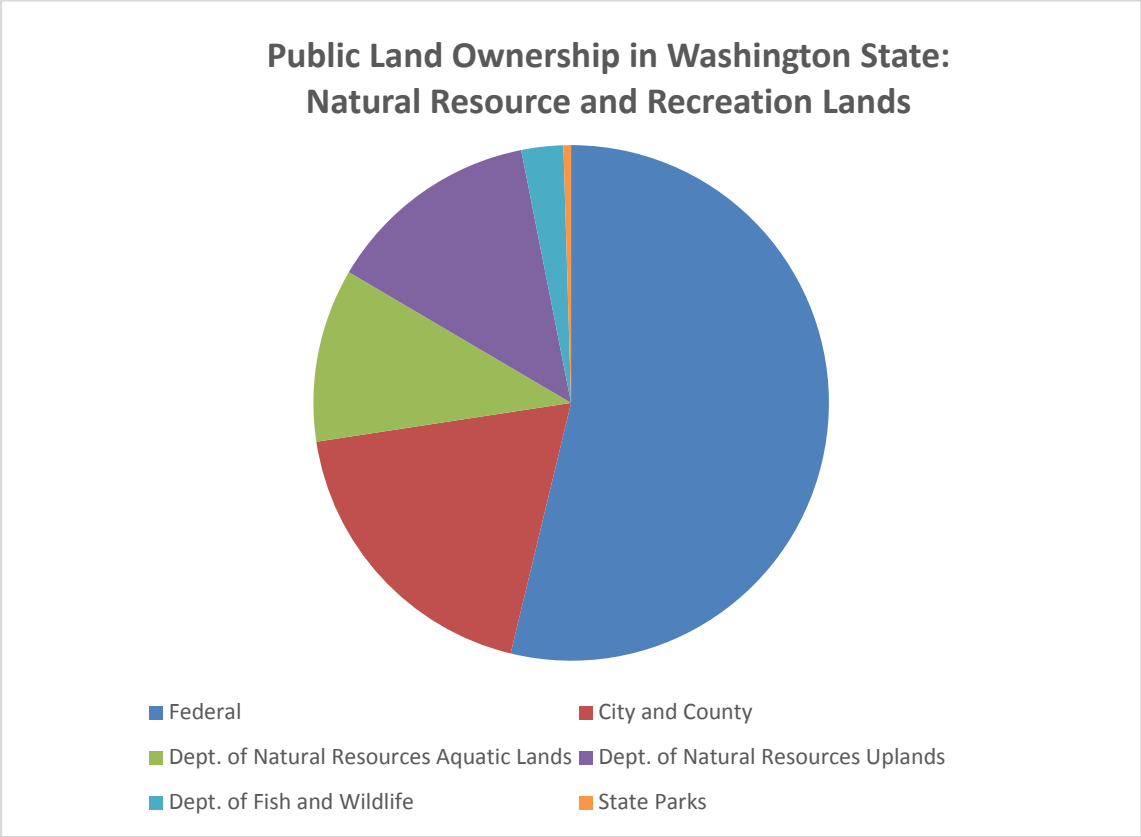
Figure 1. Washington State Land Profile



[4] This estimate includes aquatic lands. Previous inventories totaled the area of Washington State uplands at 43,271,000 acres.

Of the 23.6 million acres in public ownership, 12.7 million, or 54 percent, are owned by the federal government. The available federal data did not distinguish between land use types, so the federal acreage total includes lands presumably not used for recreation. State-owned natural resource and recreation lands represent roughly 6.5 million acres, or 27 percent of public lands in Washington State.

Figure 2. Ownership of Washington State Natural Resource and Recreation Lands



Assumptions and Approach

Intent of the Public Lands Inventory

The Public Lands Inventory is intended as a tool for Washingtonians to better understand the location, use, and purchase price of recreation and natural resource lands owned and managed by federal, state, and local governments. The inventory also helps state agencies better collaborate and manage these lands by revealing current and future opportunities for partnerships.

Focus on Natural Resource and Recreation Lands

The proviso did not identify which public lands to include in the inventory, except that it specifically required the inclusion of developed recreation land, habitat and passive recreation land, and lands that are principally used for revenue generation. As past inventories have focused on natural resource and recreation lands, RCO assumed that the Legislature would prefer a deliverable of similar scope.

Due to these factors and the limited time and funding available, RCO focused the 2014 inventory on publicly-owned natural resource and recreation lands.

Use of Available Data

Early in the planning process, RCO concluded that the schedule and budget requirements of the proviso limited its ability to collect new public lands data. Instead, RCO worked with its partners to integrate existing data sources for use in the inventory. These existing sources of data are summarized below.

Washington State Parcel Database

The 2012 Washington State Parcel Database serves as the foundation of ownership and land use data in the Public Lands Inventory. The University of Washington's School of Environmental and Forest Sciences produces the parcel database by aggregating parcel data from federal, state, and county sources and varied formats into a common dataset. The parcel database provided the database schema, the structure for how to store and relate data from all of the various data providers. The university's dataset for the inventory includes additional data not incorporated into the Web application to support later analysis.

Federal Lands

Federal lands data were sourced from multiple providers. The available federal data did not distinguish between land use types, so some federal lands in the inventory are presumably not used for natural resources or recreation.

The U.S. Bureau of Land Management maintains its own ownership information in addition to land records for many other federal agencies. The Bureau's data was used to represent the following federal agencies: Bureau of Land Management, Bonneville Power Administration, Bureau of Reclamation, Army Corps of Engineers, Coast Guard, Department of Energy, and the Department of Defense. Bureau of Land Management's surface management ownership data were acquired from www.blm.gov/or/gis/data.php in March 2014.

The Defense Installations Spatial Data Infrastructure maintains geospatial information for U.S. military installations, ranges, and training areas. These data were acquired from www.acq.osd.mil/ie/bei/disdi.shtml in May 2014, and represent boundaries as of October 17, 2011.

The U.S. Fish and Wildlife Service maintains its own ownership information. Fee title land and special designation data were downloaded from www.fws.gov/gis/data/CadastralDB/index.htm in May 2014, and represent boundaries as of February 2014.

The National Park Service maintains current administrative boundaries of national park system units. These data were downloaded from https://irma.nps.gov/App/Reference/Profile/2209648 in May 2014, and represent boundaries as of April 2014. The National Park Service also owns many parcels outside of the congressionally designated administrative boundaries, and there are many private inholdings within the boundaries. The administrative boundaries were supplemented with ownership tract data from the Service's land resources division tract and boundary service layer at http://mapservices.nps.gov/arcgis/rest/services/LandResourcesDivisionTractAndBoundaryService/MapServer/3 in June 2014.

The U.S. Forest Service maintains its own ownership information as part of its Automated Lands Program. The Forest Service's surface ownership parcel data were acquired from http://data.fs.usda.gov/geodata/ in May 2014, and represent boundaries as of May 2014.

State Lands

Several agencies in Washington State own and manage natural resource and recreation lands. These agencies operate with different missions and policies for acquiring and disposing of state lands. For example, WDFW manages wildlife areas, water access sites, fish hatcheries, and game farms. DNR manages state forest and trust lands, aquatic lands, natural resource conservation areas, and natural area preserves. State Parks manages state parks lands.

State Parks contributed to the Washington State Parcel Database for the first time in 2014. WDFW and DNR historically have contributed state lands data to the parcel database. Additionally, a portion of the proviso's appropriation for the 2014 inventory was used to support partner agency data review and the population of data fields requested by the Legislature. Assistance in state agency data review was provided by the University of Washington's School of Environmental and Forest Sciences.

Local Government Lands

Local government lands data (lands owned by Washington's 39 counties and more than 280 cities and towns) included in the 2014 inventory were sourced from the 2012

Washington State Parcel Database. The parcel database obtained the local jurisdiction data directly from county auditor offices or other local records-keeping officials. Time and resource constraints precluded local governments from reviewing their respective data as included in the Public Lands Inventory. The available local government data did not distinguish between land use types, so some local lands in the inventory are presumably not used for natural resources or recreation.

RCO Acquisition Data

In addition to state agency lands data compiled by the University of Washington's School of Environmental and Forest Sciences, RCO provided acquisition data for 2003–2014. RCO is the state's primary grant administrator for public recreation and habitat land acquisitions.[5] RCO manages a tabular and geographic database and application system (PRISM) that stores information about grant-funded public land acquisition projects. RCO's acquisition data were the most comprehensive source of information available on the funding sources for lands acquired by state agencies in the past 10 years. Additional detail on the funding sources for acquisitions not funded by RCO would require additional time and funding.

Data Not Included in the Inventory

The following were not included in the 2014 inventory, mainly due to lack of time and resources.

Tribal Lands

Although the proviso asks RCO to include tribal lands in the inventory, these lands are not included in this inventory for several reasons. The Bureau of Land Management collects ownership records of tribal lands from the Bureau of Indian Affairs and contributes these data to the parcel database. Some of the data includes federal reservation boundaries; sometimes the data merges many different categories of tribal land (tribal land held in trust by the federal government, tribal lands owned by individuals, tribal lands acquired by the tribe but not held in trust); sometimes the data held by the Bureau of Land Management is out-of-date.

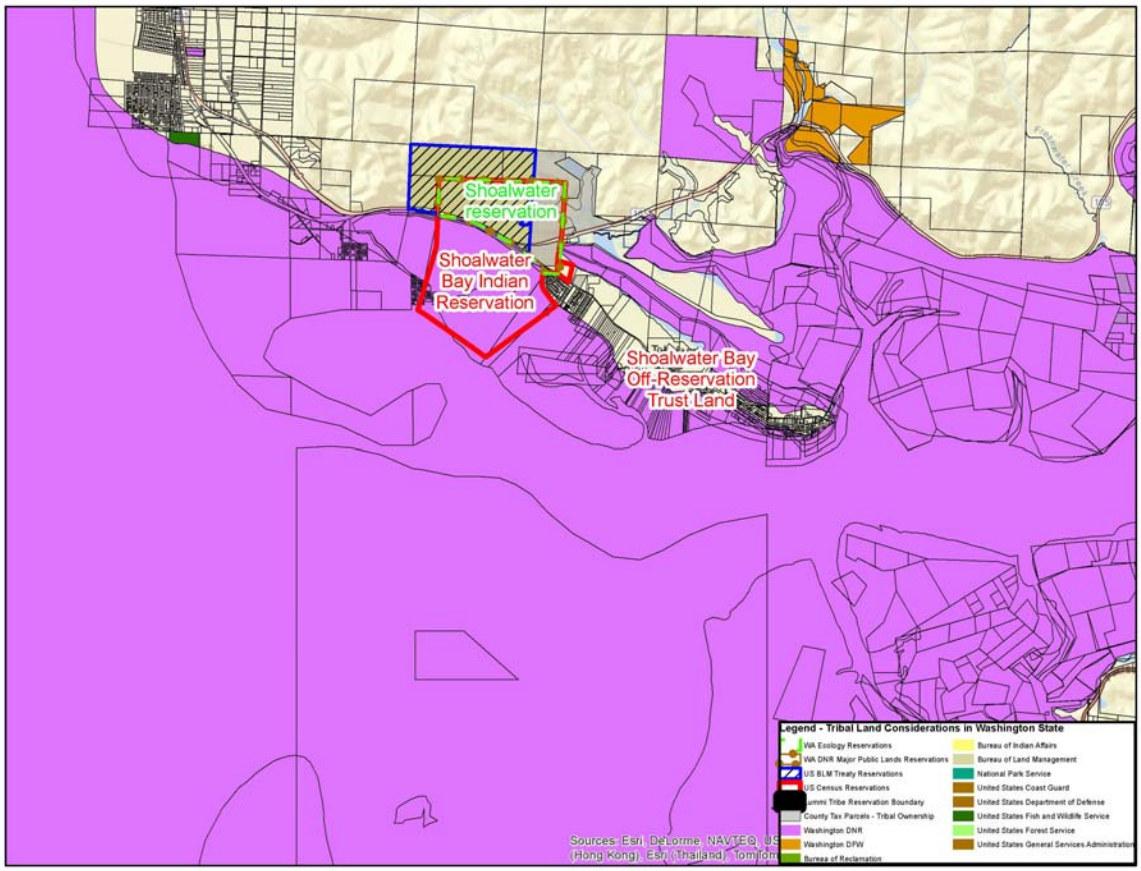
RCO distributed Bureau of Land Management maps to all of Washington's federally recognized tribes and requested feedback on the accuracy of the land and boundary information. RCO received many responses indicating that the maps and data were inaccurate. RCO contacted the Bureau to better understand the data and learned that

[5] State agencies including WDFW, DNR, and the Department of Ecology receive funds for acquisitions from other sources as well. Some are federal grants and some are direct appropriations.

due to long-standing litigation over tribal trust lands, the Bureau is undertaking a major update to its tribal databases. Because of the inconsistencies, lack of consensus, ongoing efforts to update the tribal data, and the short time frame for this project, it was decided not to include tribal lands in the inventory. Further, the responses from tribes (Attachment F) clarified that tribal lands are not public lands and should not be included in an inventory of public lands.

Although RCO is not including the tribal lands in the inventory, the advice and feedback received from several of the tribes illustrate the challenges of accurately representing these lands. An example is included as Figure 3, in which the Bureau, U.S. Census, DNR, and Pacific County all have different lands owned by the Shoalwater Tribe.

Figure 3. Example of Difference in Reservation Boundaries



Section 4 of this report summarizes suggestions for the inclusion of tribal data in future updates to the Public Lands Inventory.

Lands Not Used for Natural Resources or Recreation

As indicated above, this inventory focuses on public lands that are considered natural resource or recreation lands. Other public land ownership categories such as transportation, utility infrastructure, corrections, general state offices, or higher education

facilities were not included in the 2014 inventory. Future inclusion of these categories of public lands would require additional time and money.

Intended Use at the Time of Acquisition

Although the proviso indicated that the inventory should include the intended use at the time of acquisition, inconsistencies in the availability of such data prevented the inclusion of that information. The steering committee noted that "time of acquisition" might stretch back to statehood for DNR trust lands or earlier for certain federal lands. Future inclusion of these data would require additional time and money.

WDFW Geographic Envelopes

WDFW's "geographic envelopes" are broad areas with similar habitat characteristics. The agency uses them to evaluate critical habitat acquisitions. These areas and their boundaries are not included in the Public Lands Inventory because they are used for prioritization purposes only. WDFW's report *Lands 20/20: A Clear Vision of the Future* (2005) outlines the transaction evaluation matrix that assists the agency in determining its acquisition priorities.

Ecoregional Assessments and Conservation Opportunity Framework

Ecoregional assessments for the Pacific Northwest, completed during the period 1999-2004, provides a regional-scale, biodiversity-based context for implementing conservation efforts on state lands. The maps identify ecologically significant areas for conservation action with a goal of protecting representative biodiversity. Similarly, the Conservation Opportunity Framework Data Viewer enables the public review of the data used in these assessments. These datasets inform acquisition planning and were not included in the Public Lands Inventory.

Federal Rail Right-of-Ways

Federal rail right-of-ways often are used for recreation but are not included in the Public Lands Inventory because the data is not included in the data sources tapped for the project. The Bureau of Land Management does not provide this information to the parcel database. In addition, RCO noted that the proviso asks for lands counted in acres and decided not to include linear easements, such as rail right-of-ways, road ownership and easements, or linear stream bank ownerships.

Section 2: Project Implementation

Roles and Responsibilities

RCO developed a project plan that incorporated a timeline, process, and partners to complete the inventory. The Office of the Chief Information Officer vetted and approved RCO's approach for the inventory.

RCO first brought partners together to develop the project approach in July 2013. (See Appendix C for a list of participants.)

Steering Committee

Executive guidance was provided by a steering committee chaired by RCO. This group included executive managers from the state agency partners: WDFW, DNR, and State Parks. JLARC staff provided input to the steering committee about how the inventory could support its separate study of public habitat and recreation lands.

Technical Advisory Committee

Technical guidance was provided by a technical advisory committee chaired by RCO. This group included information technology and data management employees from RCO, its contractors on the project, state agency partners, and the University of Washington's School of Environmental and Forest Sciences.

Data Contractor

Through the existing cooperative agreement between DNR and the University of Washington, RCO supported improvements to the Washington State Parcel Database so that it could be used for this project. Staff from the University of Washington's School of Environmental and Forest Sciences integrated ownership data provided by state land management agencies into a 2014 state subset of the parcel database.

Web Developer

After a competitive selection process, RCO contracted with GeoEngineers to develop the Web-accessible aspects of this project. The developer integrated data from the sources identified above (RCO grant database, agencies' own acquisition information, and the Washington State Parcel Database) and developed a Web map application that shows ownership, principal use, and acquisition data, including links to all RCO grant funded public land acquisitions. The Web map application is GIS-based and interactive.

In addition, the developer included layers of proposed future land acquisition sites for future biennial state land acquisition forecast reports for the Habitat and Recreation Lands Coordinating Group.

Communications

RCO met with legislators, legislative staff, and other interested groups about the information included and not included in the inventory and explained the challenges and opportunities. RCO's director also presented opportunities and challenges that the inventory presents at a Washington State Senate Ways and Means Committee work session in January 2014.

The Habitat and Recreation Lands Coordinating Group also received a description and updates on the development of the inventory. The group discussed ways the information will be useful in furthering its goal of increased visibility of state land acquisitions and ownership. The group is required by law to produce an interagency, statewide forecast of habitat and recreation land acquisitions every biennium. The proposed acquisitions layer will assist with this required task.

As required by the proviso that directs RCO to provide a centralized inventory of lands in Washington, RCO submitted a status report to the Legislature on December 31, 2013.

Cost Estimates

To better understand the true costs associated with the completion of the inventory and final report, RCO requested information from each participating state agency and contractor (Table 1).

Table 1. Estimated Actual Cost to Complete the Public Lands Inventory

Public Lands Inventory Costs		
	Budgeted Costs	Actual Cost
Web Interface (GeoEngineers)	$90,000	$115,000[6]
Data Integration (University of Washington's School of Environmental and Forest Sciences)	$50,000	$50,000
Data from DNR	$10,000	$15,000
Data From WDFW	$10,000	$17,500
Data From State Parks	$10,000	$12,500
Data From RCO	$10,000	$2,000
RCO Project Management, IT Support, and Administration	$10,000	$18,000
Contingencies	$10,000	$0
Total	**$200,000**	**$230,000[7]**

The additional costs associated with this inventory resulted in added value to Washingtonians. For example, one state agency had to create an additional data field to answer RCO's data request that permanently will link a transactions data set (which includes fields such as purchase price, date purchased, funds used, etc.) to a dataset that tracks managed lands. Another agency discovered data omissions and anomalies when checking its data, which will be researched, completed, and corrected.

Estimates of Cost to Update the Inventory and Report

To better understand the estimated costs associated with updating the inventory and final report in the next biennium, RCO requested information from each participating state agency and contractor (Table 2). Estimates are based on a 2016 data update to the 2014 inventory and report and do not include additions to this inventory.

[6] The additional costs for GeoEngineers include transferring the inventory to the state's hosting environment and stabilization of the Web application. The GeoEngineers cost estimates are under negotiation for use of contingency funds held in the project budget.

[7] Additional costs beyond the $200,000 appropriation for the project were absorbed by the participating state agencies.

Table 2. Estimated Biennial Cost to Update the Public Lands Inventory

Public Lands Inventory Costs to Update	
	Estimated Future Cost
Web Interface	$45,000
Data Integration	$50,000
Data from DNR	$15,000
Data from DFW	$9,500
Data from Parks	$2,800
Data from RCO	$1,000
RCO Project Management, IT Support, and Administration	$20,000
Contingencies	$10,000
Total	**$150,500**

Anticipated Agency Uses for the Inventory

To better understand state agency anticipated uses for the inventory, RCO requested information from state agency partners. A selection of responses is included below.

- The inventory will assist in responding to public and other government requests for ownership information. For State Parks, this occurs three to four times a month and the inventory will reduce response time to these requests to minutes.
- The inventory will assist in responding to a variety of public land information requests. State Parks averages five to six requests a month. The inventory reduces response time to these requests to minutes.
- The inventory should result in improved communication between agencies that acquire land and help them better plan property acquisitions and disposals.
- The inventory provides an opportunity to improve the quality of lands data.
- The inventory may be used to determine ownership of critical habitat or recreational resources (public or private) when combined with other WDFW data layers.

Section 3:
Data Definitions and Decisions

Data Definitions and Decisions

During the development of this project, RCO and its partners agreed on key definitions, tasks, and the four main deliverables identified in the proviso. The steering committee identified the primary audiences for the Public Lands Inventory as the Legislature, JLARC staff, state agencies, the public, and local decision makers. With the help of GeoEngineers, RCO developed a series of potential Public Lands Inventory "user stories" (Table 3) to further clarify the highest priority uses and needs of the final Web application.

Table 3: Public Lands Inventory User Stories

As a Public Lands User…	
I would like to ____	So that I can _____
view a map showing all public lands, categorized by public agency ownership and ownership type (fee simple or easements).	better understand who owns and manages public lands.
view a map showing all public land categorized by the primary land use types: Revenue producing, habitat and recreation, recreation, conservation (no public use: habitat only), and other.	better understand how state lands are being used.
be able to access information specific to each publically-held parcel.	better understand how much land is owned or managed by public agencies.
be able to access detailed information specific to each parcel such as acquisition date and cost during the past 10 years	better understand the history of each parcel and access information on how much public money has been invested during the past 10 years.

As a Public Lands User…	
I would like to ____	So that I can _____
be able to provide overall meta information specific to the overall datasets collected.	provide the Legislature and JLARC staff information specific to how the data was collected.
know the percentage of total acres held by each public agency such as WDFW, DNR, State Parks, and RCO based on the above land use types.	better understand the ownership and management of state lands.
view state base map information such as legislative districts, county lines, watershed boundaries, and other base map data.	better understand the ownership and management of state lands by geo-political and natural boundaries.
be able to access RCO grant management data on the map.	view RCO project locations to access information on the investment of public funding.

What follows is a discussion of key definitions and decisions made during the development of the inventory to complete these "user stories." This effort allowed the population of the following data fields for most state-owned parcels:

- Parcel Name/Number
- Owner
- Date Acquired
- Ownership Type
- Total Area (Acres)
- Principal Land Use
- Acquisition Cost (If acquired within the past 10 years.)

These data fields are further described in the sections below.

Parcel Name or Number

The parcel name or number is a unique identifier used to distinguish public lands from one another. Each agency or data source has its own system for naming or numbering land parcels. For the Public Lands Inventory, the University of Washington's School of Environmental and Forest Sciences aggregated the parcel name or number used by each agency.

Owner

The parcel owner is defined as the public agency holding the title. The steering committee decided that leased lands would be assigned to the agency that owned the underlying land to avoid potential double counting when one agency might own a parcel and lease it to another agency.

Date Acquired

The date a parcel was acquired is defined as the year the current owner acquired the land.

Ownership Type

Land ownership type was determined by the contributing agency. Ownership is assigned to the agency holding the title; in most cases this is fee simple ownership, but discussion among the agencies revealed that other instruments are used occasionally.

Conservation and agricultural easements on private land that were purchased with public funds are tallied at the county level. These are counted in acres; the counts do not include linear roadside or stream bank easements. Privately owned parcels with easements are not shown as part of the Public Lands Inventory to protect the landowners' privacy.

Total Area (Acres)

Total area in acres was reported by the contributing agency.

Principal Use of the Lands

Land use categories for the inventory were identified by the Legislature in the proviso and then expanded and clarified by the steering committee. The proviso required land uses including, but not limited to, developed recreation land, habitat and passive recreation land, and revenue-generation uses.

The steering committee's discussion further clarified that the inventory would focus on surface ownership of the lands and not on other associated rights (e.g., mineral rights, water rights, development rights).

Use Categories

The use categories identified in the proviso (developed recreation land, habitat and passive recreation land, and revenue-generation uses) generated lengthy and spirited discussion among all participants because recreation and natural resource lands almost

always encompass more than one use. A DNR site near Olympia, Capitol Forest, is an example. In the long term, it is managed to generate revenue for trust beneficiaries primarily through logging and electronic tower leases. For many Olympia residents, these public lands are a place to camp, hike, ride, race, and enjoy the great outdoors. It has developed amenities for recreation in places, and many acres without developed facilities. For the plants and animals that live there, it is habitat. This inventory will show the principal use of these lands as revenue-generating.

Developed recreation lands may include developed parks, campgrounds, playgrounds, boat launches, ball fields, shooting ranges, and many other outdoor recreational activities that require infrastructure. However, where does developed recreation end and undeveloped (or passive) recreation begin? While a playground or a shooting range may include constructed facilities, what about a trail? Does a trail system need to be constructed to be considered "developed?" What about a network of "user-built" trails? Ultimately, the steering committee decided that it was nearly impossible to show on a map the difference between developed and passive recreation.

Because the WDFW, DNR, and State Parks have different missions and policies for acquiring and disposing of state lands, their in-house categories of land use are different also. There was strong feeling in the technical committee that the categories should be supported by good data that each agency could provide.

Each state agency determined the principal use of its land parcels. Federal and local lands were assigned use categories from the available data provided to University of Washington's School of Environmental and Forest Sciences.

Acquisition Cost

The proviso asked that the inventory show the detailed costs for the lands acquired during the past 10 years. The steering committee defined the past 10 years as the fiscal years beginning July 1, 2003 and ending June 30, 2013. In practice, because agency data consistently reported the year, but not the month or day, the map includes acquisitions from January 2003 through June 2014.

In this inventory, the acquisition costs are shown as the price paid for the land and do not include incidental and administrative costs. When land was acquired or disposed of through a land exchange, the acquisition cost is shown as zero.

Agencies noted that individual acquisitions often have funding from more than one source.

Other Data Set Decisions

The steering committee agreed that the inventory should present data that it is confident in and that will communicate the value that public lands provide. Other data sets added to the Web application allow for more robust visualization and reporting. These data sets included boundaries of legislative districts, congressional districts, counties, and Water Resource Inventory Areas (WRIAs). This allows the viewer to see the geography of public lands in several different ways.

In addition to the data required in the proviso, points on the Web map indicate the location of land acquisition grants administered by RCO. These points are linked to RCO's database so that viewers may drill down into the background of these projects, view contracts, photographs, and the complete funding information.

Data Summary and Public Access Information by State Agency

DNR

The data for DNR-managed lands was derived from the combination of a land inventory system and land transaction database. This information is subject to changes over time and the Web application map may not always reflect the most up-to-date information. The ownership layer shows both fee simple and easement interests of DNR. For landscape specific maps and other GIS data, including DNR's state trust lands map, visit its Web site.

RCO

The data for the RCO's grant-funded acquisition projects is from its Project Information SysteM (PRISM) database. PRISM stores information on more than 11,000 proposed and completed recreation, conservation, and salmon recovery grants that are managed by RCO. PRISM has a Web interface where the public can apply for grants, review information on funded grants, and produce reports about projects.

State Parks

The data for State Parks-managed lands was extracted from its Land Inventory Database, which compiles records of all the land donations, purchases, and management agreements that have built the park system during the past century. The acquisition boundaries and land use information were sourced from the agency GIS that stores long-term boundary goals for many parks and intended uses for park land acquisitions as they occur. State Parks has a Web site where the public can find maps and additional information on the various natural, cultural, recreational, artistic, and interpretive experiences available at each park.

WDFW

The data for WDFW's lands was obtained from its real estate records and Lands Information System. WDFW stores information on more than 5,000 real estate transactions, dating back to its predecessors, the Department of Game and the Department Fisheries. Some of these records date back to the 1930s. WDFW does not have a Web interface for this information.

Summary of Quality Assurance Process

Several steps were taken to check that the information acquired from state and federal agencies was transformed accurately into the Public Lands Inventory Database and that any conflicts between agencies were identified and resolved or noted. To ensure that the data was transformed appropriately, a random sample of original agency records were compared with the normalized records in the database. Several issues were identified with both the transformation of source data and with the original agency data. The University of Washington's School of Environmental and Forest Sciences worked with the agencies to correct and improve the issues identified with their data and resolve errors in the transformation process.

The quality assurance process also identified areas where agency ownership claims overlapped. Agencies were given a list of overlapping claims and worked together to resolve those differences. Even with the work done to resolve overlapping claims the Public Lands Inventory Database still contains many areas that show more than one land owner or have large gaps between adjacent ownerships. Differences in scale, purpose, standards, and time all but guarantee that data mismatch issues will continue to be a challenge in the future.

Web Application Considerations

GeoEngineers and the steering committee focused on building a nimble, streamlined Web application to answer the Legislature's requirements. The application includes a framework that will assist in future data updates and the addition of supplementary information, if requested. Some recommendations on these enhancements are provided in Section 4.

Section 4: Recommendations

Recommendations

Knowledge Management Strategy for Lands Data

New technologies have dramatically changed the way state agencies conduct business and the public's expectations of access to information. Accessible, useable data are a tangible service that the state provides to its residents much in the same way as it provides fishing licenses, water quality testing, and access to parks.

Although the Public Lands Inventory requested by the Legislature was relatively narrow in focus, the process of completing this first Web-based inventory of land ownership data for Washington State was challenging due to the complexity of aggregating diverse agency data into one platform. Currently, each agency collects, manages, and stores its lands data independently. As a result, these datasets have variable structure, quality and content.

Processing data into one central, cohesive platform for the Public Lands Inventory resulted in a complicated set of intricately linked data tables that provide only basic information to the Web application. This is akin to gathering land management experts from each agency into a room when those experts don't speak the same language, so only the most basic information can be communicated. Lack of a central, standardized lands dataset is a missed opportunity for natural resource agencies to better inform their decision-making and encourage active public involvement in how state money is invested.

In light of these challenges, RCO recommends that the Office of the Chief Information Officer assist natural resources agencies in developing an integrated knowledge management approach to store and manage open public lands data into the future. This could involve the GIS coordinator in that office, who chairs the geographic information technology committee, re-engaging that committee and finding an approach to fund and improve the Statewide Parcel Database and supporting the land inventories in federal, state, and local government databases. This effort would standardize

recordkeeping, improve the process for consolidating acquisition data for future iterations of the Public Lands Inventory, and lay a solid foundation for improved public access to information about our public lands.

State Agency System Improvements

State agency partners summarized several system improvements that would improve the efficiency of preparing the Public Lands Inventory and the quality of lands data.

- The State Park lands inventory system does not support the data needs of GIS well and requires two to three times the staff time needed to respond to data requests as compared to installing an updated system.

- WDFW data reported through this inventory comes from multiple databases. To generate this data, a series of manual and iterative steps are required to extract, organize, and apply quality assurance measures to the disparate data sources. WDFW needs to improve the quality, integration, and accessibility of its land inventory records by migrating its lands records and legal instruments into an enterprise database management system.

Public Lands Inventory System Automation

Until agency data are proactively integrated into a cohesive dataset, a data standardization process is needed to incorporate agency datasets into a format consumable by the Web application. Additional time and funding would allow RCO to automate this process so updates can run automatically, without requiring staff to manually update the data.

RCO recommends that additional time and funding be allocated to automate the processing and update of the Web application. This would decrease the need for the ongoing support of a consultant.

Ongoing Public Lands Inventory System Support

The Public Lands Inventory Web application potentially will stimulate public interest and feedback on how public land information is viewed and used. New ideas and increased functionality requests will need to be addressed. Regular maintenance also will be required. A support mechanism (staff, contractors, etc.) should be established so the application does not fall into disrepair.

This system support also may include a feedback mechanism to allow users to tag or comment on parcel information that may not be correct. This is the first time public ownership has been aggregated into a viewable, interactive context. Errors and discrepancies will occur and should be flagged and addressed.

Tribal Lands

As noted above, while the proviso directs RCO to include "lands in Washington…owned by Native American tribes," these lands are not included in this Public Lands Inventory. There are two parts to this discussion. One is whether to consider lands owned by Native American tribes as public. The other is to consider the numerous ways that lands owned by Native American tribes are classified and mapped.

Native American tribes in Washington State include federal treaty tribes, executive order tribes, and re-recognized tribes. Tribal lands in Washington belong to sovereign nations or are held in trust for specific tribes, and they are not in the same public category as lands owned by the United States, the State of Washington, or city and county governments. The public served by these tribes is made up of tribal members, not the general population of Washington State.

That being said, defining and mapping the lands owned by Native American tribes in Washington would meet several needs, as articulated by state agency representatives and by some of the respondents to RCO's query to tribes for the Public Lands Inventory (See Appendix F).

Discussion among state agency representatives in February 2014, at a meeting convened by DNR's tribal liaison, surfaced some of these needs. One identified need is for common definitions for different categories of tribal lands. Tribal land may include federal reservation lands, tribal trust lands, allotments, ceded lands, in-lieu sites, off-reservation lands (such as usual and accustomed fishing sites, gathering sites for plants, open and unstaked beds for shellfish, and open and unclaimed lands for hunting), tribal member-owned lands, and tribal fee lands.

As the respondent from the Skokomish Tribe noted:

> "Land owned by Tribes is not necessarily located within a Reservation. For example, Confederated Tribes of the Chehalis owns some substantial parcels outside of the reservation, including the parcel that Great Wolf Lodge is constructed on. These parcels will not show up on a BLM Reservation parcel map. They may show up on a "trust lands" map because the parcel is in trust. However, lands owned by a Tribe, but held in fee, would not show up on a BLM parcel map. Also, parcels within a Reservation may be owned by non-Indian owners and held in fee status, but would show up as being within the reservation on a BLM parcel map. In addition, land may be owned in trust status or fee status by individual Native Americans (rather than by a Tribe). These trust lands would show up as trust on BLM parcel map even though owned by individuals. Does the Legislature want an inventory of reservation lands, of trust lands (on and off reservation), or one of land actually owned (in trust or fee) by Native American tribes? These are all different maps."

State agencies focus on tribal lands in support of their own missions. For example, the Gambling Commission, with its interest in Class 3 gambling institutions, focuses on reservation lands that were put in trust before 1988. The Department of Social and Health Services has contracts in defined health service areas on tribal lands. A WDFW representative commented that treaty-ceded areas are important for wildlife management.

Another need identified by state agencies is for improved risk management for both the agencies and the state as a whole. The use of different definitions and boundaries for tribal lands may result in uncoordinated actions or ambiguous policies.

Tribes have invested in surveying, mapping, and geographical information systems to varying degrees, and each one collects, manages, and stores its lands data independently. The Bureau of Land Management is undertaking a major update to its tribal databases due to long-standing litigation over tribal trust lands.

Aggregating diverse tribal data into one platform would be at least as technically complex as aggregating state agency data. While such an effort would be an excellent opportunity for improved coordination and transparency, it would require significant support for resources and personnel as well as good will and trust on all sides.

Land Use Information

As discussed in Section 3, steering committee members suggested many additional land use categorizations beyond those ultimately chosen for the inventory due to schedule and budget constraints. Future iterations of this report could include secondary and tertiary land uses. In addition, the land use categories could be expanded to include more detail. For example, information on the type of revenue generated (for state benefit, agency benefit, or other) could be included for revenue-generating lands.

The inventory also would benefit from a further focus on land use information for federal and local lands.

Recreation Information

In discussion with interested groups during this process, a reoccurring question was how to make the inventory useful for Washingtonians who want to know not just the location of public lands, but also how they can interact with those lands. Although this inventory was focused on ownership information of land, there is a parallel interest in where to go to begin a recreational journey on public land. Trailhead and access information may be a useful component of another inventory or an expansion of this inventory in the future.

Additional information to inform the recreational use of land may include:

- Discover Pass Requirement Information

- Access (Closed, Open)
- Seasonal Access
- Access Points
- Use Restrictions
- Campgrounds and Trailheads
- Boat Launches and Moorages
- Statewide Trails Network

County and Local Data

County and local data quality varies widely across the state. While county assessors are statutorily responsible for maintaining land records and tax rolls for their counties, the reality is that when it comes to non-taxable lands assessors have little interest and resources to maintain specific attributes of that data. Many counties don't maintain information on public land at all. They simply mark the parcel as non-taxable leaving every other attribute of the land blank in their systems. According to the University of Washington's School of Environmental and Forest Sciences, asking counties to compile public ownership information along with acquisition costs and funding sources would likely be a multi-million dollar, 5-year project.

For these reasons, the data used for local lands comes directly from the 2012 Washington State Parcel Database. Based on previous work done by the university, automated routines were used to identify public lands using land use codes and an extensive list of owner names and abbreviations. In the data provided by counties there are more than 7.5 million acres of land with an "unknown" or blank owner. Many of those lands are public but the land use is unknown. There also are many private lands with unknown or blank ownership information. Accurately quantifying local public lands is difficult.

Because the focus of the Public Land Inventory is mainly on recreation and habitat lands, alternate sources of local ownership could be used. The U.S. Census, OpenStreetMap, and various commercial organizations compile and distribute or sell this information regularly. Acquiring data from one of these other organizations likely would be more useful for locating local public recreation and habitat lands than using assessor data. Alternatively, local public lands could be excluded from the inventory initially and added as individual counties are able to do so.

Acquisition Costs

The acquisition cost data in the Public Lands Inventory Web application includes only the purchase price for particular parcels; it does not cover the costs of personnel time, agency overhead costs, or incidentals associated with the acquisitions, nor does it necessarily include the entire match provided by partners involved with an acquisition, such as volunteer time or in-kind contributions. For acquisitions funded by programs administered by RCO, the funding details are available at the link exhibited in the pop-up box.

Interested groups commented that many acquisitions require multiple and often complicated investments. The decision to limit acquisition cost to the purchase price excluded the improvements to a parcel that can be part of a larger project. The emphasis on acquisition costs may omit discussion of the features and benefits that the public derives from an acquisition.

Section 5: Appendices

A: Recreation and Conservation Office Proviso
B: Joint Legislative Audit and Review Committee Proviso
C: Participants
D: Public Lands Inventory Status Report (December 2013)
E: Previous Public Lands Inventories
F: Tribal Responses to the Bureau of Land Management Reservation Boundary Map

Appendix A: RCO proviso

Sec. 3174. FOR THE RECREATION AND CONSERVATION FUNDING BOARD

Public Lands Inventory

The appropriation in this section is subject to the following conditions and limitations: The recreation and conservation office, in collaboration with the joint legislative audit and review committee, shall:

1) Provide an updated, centralized inventory of lands in Washington owned by federal, state, and local governments, and by Native American tribes.

    a) The inventory must be in a Web-accessible format, including a GIS-based interactive map that allows users to find out information about specific areas. The data must be standardized to allow summary information to be accessible.

    b) The inventory must include the following information:

        (i) Ownership (federal; state, by state agency; local government; and tribal);

        (ii) Ownership type (fee simple or easements);

        (iii) Location;

        (iv) Acreage;

        (v) Principal use of these lands (intended use at the time of acquisition and current use) including, but not limited to, developed recreation land, habitat and passive recreation land, and revenue-generation uses; and

        (vi) Acquisition costs if acquired by state agencies over the last ten years, including acquisition funding sources.

2) Develop recommendations for standardization of acquisition and disposal recordkeeping on a biennial basis, including identifying a preferred process for centralizing acquisition data.

3) Submit a status report on the inventory to the appropriate committees of the legislature by January 1, 2014, and a final report by July 1, 2014.

Appropriation: $200,000

Appendix B: JLARC Proviso

Sec. 1001. FOR THE JOINT LEGISLATIVE AUDIT AND REVIEW COMMITTEE

Review of Public Lands

The appropriation in this section is subject to the following conditions and limitation: The appropriation is provided solely for a three part study of public recreation and habitat lands. Parts two and three of the study must be conducted under contract with a qualified economist at one of Washington's public universities.

1) Part one of the study is a review of the operating budget impacts of recreation and habitat land acquisitions by the departments of fish and wildlife, natural resources, and by the state parks and recreation commission over the past ten years. The review must describe the separate acquisitions by each agency, including the location, number of acres, the acquisition price, a general description of the land, the intended use of the land at the time of acquisition, and the source or sources of funding for the acquisition. The report must also identify the current use of the land and whether the current use matches the intended use at the time of acquisition. The review must estimate the current biennial operating budget costs to manage the land acquired and what the estimated capital and operating budget costs are to put the land to its intended use if that has not yet occurred.

2) Part two of the study is a review of estimated economic benefits and costs from acquisitions of recreation and habitat lands. The study must review and summarize the available literature describing and quantifying the economic benefits and costs of public recreation and habitat lands. The study must evaluate the reliability and validity of measures used by federal and state agencies to estimate the economic benefits of recreation and habitat lands.

3) Part three of the study is an analysis of differences in public land ownership among Washington's thirty-nine counties. The analysis must report the number of acres and percentage of total acres in each county owned by federal, state, tribal and local governmental agencies by the following categories:

    a) Developed recreation land,
    b) Habitat and passive recreation land,
    c) Timber lands,
    d) Agricultural lands, and
    e) Other public lands.

The analysis must evaluate the hypothesis that higher amounts or percentages of acres of public lands in the categories above are detrimental to measures of economic vitality in the county. Measures of economic vitality should include taxable sales per capita, median household income, median per capita income, annual employment growth, and

unemployment rate. The study should control for other relevant location related factors including elevation, population size and density, urban or rural status, and proximity to major transportation hubs such as commercial airports and seaports. The study should include a review and compilation of literature and studies on this topic.

(4) The report must be submitted to the appropriate policy and fiscal committees of the legislature by December 1, 2014.

Appropriation: $320,000

Appendix C: Participants

Steering Committee

Steering Committee			
Agency	**Name**		**Title**
DNR	Lenny	Young	Executive Management Supervisor
	Jed	Herman	Conservation, Recreation & Transactions Division Manager
JLARC Staff	Keenan	Konopaski	Legislative Auditor
	John	Woolley	Deputy Legislative Auditor
RCO	Kaleen	Cottingham	Director
	Nona	Snell	Policy Director
State Parks	Don	Hoch	Director
	Steve	Hahn	Lands Program Manager
WDFW	Joe	Stohr	Director of Operations
	Clay	Sprague	Lands Manager

Technical Advisory Committee			
Agency	**Name**		**Title**
DNR	Lowell	Thacker	Information Technologist
	Eric	Aubert	Forest Informatics Strategic Project Manager
GeoEngineers	Scot	McQueen	Chief Strategy Officer
RCO	Greg	Tudor	Information Technology Manager
	Jennifer	Masterson	Data and Special Projects Manager
	Sarah	Gage	Policy and Special Projects Manager
State Parks	Kathryn	Scott	Information Technology Specialist
WDFW	Shelly	Snyder	Information Technology Specialist
	Elyse	Kane	Property and Acquisition Specialist
	Brian	Hall	Information Technology Specialist
University of Washington's School of Environmental and Forest Sciences	Luke	Rogers	Research Scientist

Appendix D: Public Lands Inventory Status Report

The Public Lands Inventory Status Report is at:

www.rco.wa.gov/documents/plip/PublicLandsInventoryStatusReport2013.pdf

Appendix E: Previous Public Land Inventory Reports

2005 Report

Toward a Coordination Strategy for Habitat and Recreation Land Acquisitions in Washington State (2005)
www.rco.wa.gov/documents/hrlcg/LandsFinal.pdf

Appendices to Toward a Coordination Strategy for Habitat and Recreation Land Acquisitions in Washington State (2005)
www.rco.wa.gov/documents/hrlcg/TowardCoordStrategyAppedices.pdf

2001 Report

The 1999 Public and Tribal Lands Inventory (2001)
www.rco.wa.gov/documents/plip/FinalReport.pdf

Inventory Data Report (Appendix to The 1999 Public and Tribal Lands Inventory)
www.rco.wa.gov/documents/plip/InventoryDataReport.pdf

Landowners Reporting Acreage (Appendix to The 1999 Public and Tribal Lands Inventory)
www.rco.wa.gov/documents/plip/landowner_reporting.pdf

County Profiles (pages B27–B66 of Inventory Data Report)
www.rco.wa.gov/documents/plip/County_Profiles.pdf

1983 Report

Public Lands in Washington: Statistical Summary (1983)
www.rco.wa.gov/documents/plip/PublicLandsWashingtonStatisticalSummary1983.pdf

1971 Report

State Lands Inventory: Ownership, Control and Use Summary (1971)

1970 Report

State Lands Inventory: Ownership, Control and Use Summary (1970)

Appendix F: Tribal Responses to the Bureau of Land Management Reservation Boundary Map

Tribe	Comments
Confederated Tribes of the Chehalis Reservation	No response received.
Confederated Tribes of the Colville Reservation	Thank you for copying me on your request. While I am not the correct person to provide details, please accept the following comment. Your map appears to adequately represent the fact that tribal reservation boundaries extend to the center of the channel of the Columbia River and include the entirety of the Okanogan River. None of tribal allotments off the Colville Reservation are shown, nor are those lands subject to restriction on alienation off the Reservation – like BPA mitigation lands. Your map appears to adequately represent the fact that tribal reservation boundaries extend to the center of the channel of the Columbia River and include the entirety of the Okanogan River. None of tribal allotments off the Colville Reservation are shown, nor are those lands subject to restriction on alienation off the Reservation – like BPA mitigation lands.
Cowlitz Indian Tribe	No response received.
Hoh Tribe	No response received.
Jamestown S'Klallam Tribe	Our land base in the range of 1200 acres now and quite a bit of it has been converted into Trust/Reservation status. You may want to coordinate with our staff to improve the accuracy of our land base. We are converting sizable chunks of land as we speak and it will be converted this year and more next year.
Kalispel Tribe	The map shows the reservation correctly, however it does not show any of the Trust Land we have acquired since 1914. The BLM data you have shared is correct in terms of Reservation Lands for Pend Oreille county but omits the same category in the Spokane County. In addition there are additional lands held in trust status within Pend Oreille and Spokane counties and others under simple fee status. Once I have direction to reply in full to the data request, I am confident that the Tribe can provide actionable data in a format that your team can use. Please be advised that

Tribe	Comments
	the Kalispel Tribe has an active land acquisition policy to meet the strategic needs of its community and that periodic maintenance of the State's central register will likely be needed particularly when lands are converted from simple fee to Federal trust. Again, once I have received some direction, I'm sure the Tribe can develop a periodic update procedure that keeps the RCO on task and fulfills the legislature's expectations presently and thereafter.
Lower Elwha Klallam Tribe	No response received.
Lummi Nation	No response received.
Makah Tribe	No response received.
Muckleshoot Tribe	I am the GIS Manager for the Muckleshoot Indian Tribe. I've attached a PDF file that shows the official boundary of the Muckleshoot Reservation. The BLM boundary is incorrect. Please remove all references to the BLM boundary and use this data source. I can send you a shapefile or a geodatabase of the Reservation boundary if needed.
Nisqually Indian Tribe	Jennifer has the maps approved by Nisqually Tribal Council for all Nisqually Tribal lands and is responsible to keep them updated. Tribal owned lands whether on reservation or off reservation are very important to tribes and there is the need for accurate updated information on all databases.
Nooksack Indian Tribe	The map attached is not accurate. There are some missing tribally owned parcels and there are individual tribal member parcels displayed. I am not sure if those should be in your data base as they are private properties. Additionally there may be some sensitive areas of cultural significance that the Tribe does not wish to be made public. I will need to get permission from Tribal Council and our THPO before any additional information can be released to you.
Port Gamble S'Klallam Tribe	Your map shows the boundary of the reservation proper. The tribe put an additional 390 acres of land into trust status within the past few years. We refer to it as the "DNR land" since it was previously owned by the state DNR. I have attached a location map that shows it relative to the reservation boundary and a record of survey that shows the legal parcel boundaries. One quick change is that the PGST reservation goes out to Extreme Low Low Water or what is

Tribe	Comments
	now called Mean Lower Low Water or MLLW.
Puyallup Tribe	No response received.
Quileute Tribe	No response received.
Quinault Indian Nation	There are definite issues with the map produced by BLM and there are questions that need interactive discussion.
Samish Indian Nation	No response received.
Sauk-Suiattle Indian Tribe	No response received.
Shoalwater Bay Tribe	No response received.
Skokomish Tribe	This is NOT an accurate map and Skokomish has objected to its use in the past. I am requesting further direction from Tribal Council in responding to your request. I also have a question regarding your request and the statement that the legislature has requested "a centralized inventory of lands in Washington owned by federal, state and local governments, and by Native American tribes." Land owned by Tribes is not necessarily located within a Reservation. For example, Confederated Tribes of the Chehalis owns some substantial parcels outside of the reservation, including the parcel that Great Wolf Lodge is constructed on. These parcels will not show up on a BLM Reservation parcel map. They may show up on a "trust lands" map because the parcel is in trust. However, lands owned by a Tribe, but held in fee, would not show up on a BLM parcel map. Also, parcels within a Reservation may be owned by non-Indian owners and held in fee status, but would show up as being within the reservation on a BLM parcel map. In addition, land may be owned in trust status or fee status by individual Native Americans (rather than by a Tribe). These trust lands would show up as trust on BLM parcel map even though owned by individuals. Does the legislature want an inventory of reservation lands, of trust lands (on and off reservation), or one of land actually owned (in trust or fee) by Native American tribes? These are all different maps.
Snoqualmie Tribes	No response received.
Spokane Tribe of Indians	No response received.

Tribe	Comments
Squaxin Island Tribe	No response received.
Stillaguamish Tribe of Indians	No response received.
Suquamish Tribe	No response received.
Swinomish Tribe	No response received.
Tulalip Tribes	(Two maps received.)
Upper Skagit Indian Tribe	We will be in touch with you regarding this request.
Confederated Tribes and Bands of the Yakama Nation	The map that was attached to the e-mail I received seems suitable for the exterior boundary of the Yakama Reservation. The scale of the map attached didn't lend itself to viewing anything beyond the reservation boundary so I'm assuming that's all you needed us to confirm. Thanks, if you have any further issues or questions feel free to contact me.