



CONSERVATION SUITABILITY ANALYSIS

METHODS AND FINDINGS

PREPARED FOR
CAPITOL LAND TRUST
JUNE 20, 2012
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PIONEERING CHANGE WITH INNOVATIVE SOLUTIONS

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ACRONYMS AND ABBREVIATIONS

CBI	Conservation Biology Institute
CLT	Capitol Land Trust
Ecology	Washington State Department of Ecology
EDT	Ecosystem Diagnosis and Treatment
FYI	“for your information”
GIS	Geographic Information Systems
MFA	Maul Foster & Alongi, Inc.
NWI	National Wetlands Inventory
PSH	priority species and habitats
RCW	Revised Code of Washington
SSHAIP	WDFW Salmon and Steelhead Habitat Inventory and Assessment Program
SMA	Surface Management Agency
SMP	shoreline master plan
TNC	The Nature Conservancy
UID	Unique ID
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WRIA	Watershed Resource Inventory Area

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1 INTRODUCTION

1.1 Purpose

Capitol Land Trust (CLT) is a nonprofit organization located in Olympia, Washington, that collaboratively works in southwest Washington to protect and conserve marine shorelines, wetlands, riparian areas, and working lands. As part of ongoing strategic planning efforts, Maul Foster & Alongi, Inc. (MFA) was contracted to develop a Geographic Information Systems (GIS) based suitability analysis to assist CLT in identifying parcels for potential conservation opportunities in Thurston County.

Emphasis was placed on nearshore salmon habitat in Watershed Resource Inventory Area (WRIA) 13. In general, the project area includes Thurston County and the portion of WRIA 13 located in Lewis County. The project area consists of 112,855 parcels that total 515,052 acres of land (Figure 1).

1.2 Objectives

CLT conservation objectives for the suitability analysis include lands consisting of critical habitats (e.g., salmon-bearing streams, wetlands, shorelines,) with minimal impacts from human activity (e.g., roads, utility lines, densely populated areas). MFA worked with CLT Conservation Project Managers to develop a comprehensive list of weighted site selection criteria that took into account presence or absence, adjacency, proximity, and abundance in order to conduct a parcel-based prioritization. Parcels received a score for each criterion and those scores were combined into a final prioritization rank. The site selection criteria included a variety of data types, including infrastructure, land use, ownership, environmental and biological indicators, and hydrologic features.

2 DATA COMPILATION

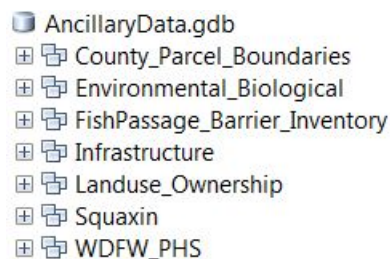
2.1 Data Compilation Overview

Supporting datasets were acquired from county, state, tribal, and federal agencies, as well as from a variety of conservation organizations, including: The Nature Conservancy (TNC), Squaxin Island Tribe, Wild Fish Conservancy, Conservation Biology Institute (CBI), and the Conservation Registry. These datasets were compiled and standardized for analysis using the procedures described below. A source data table is provided as Appendix A.

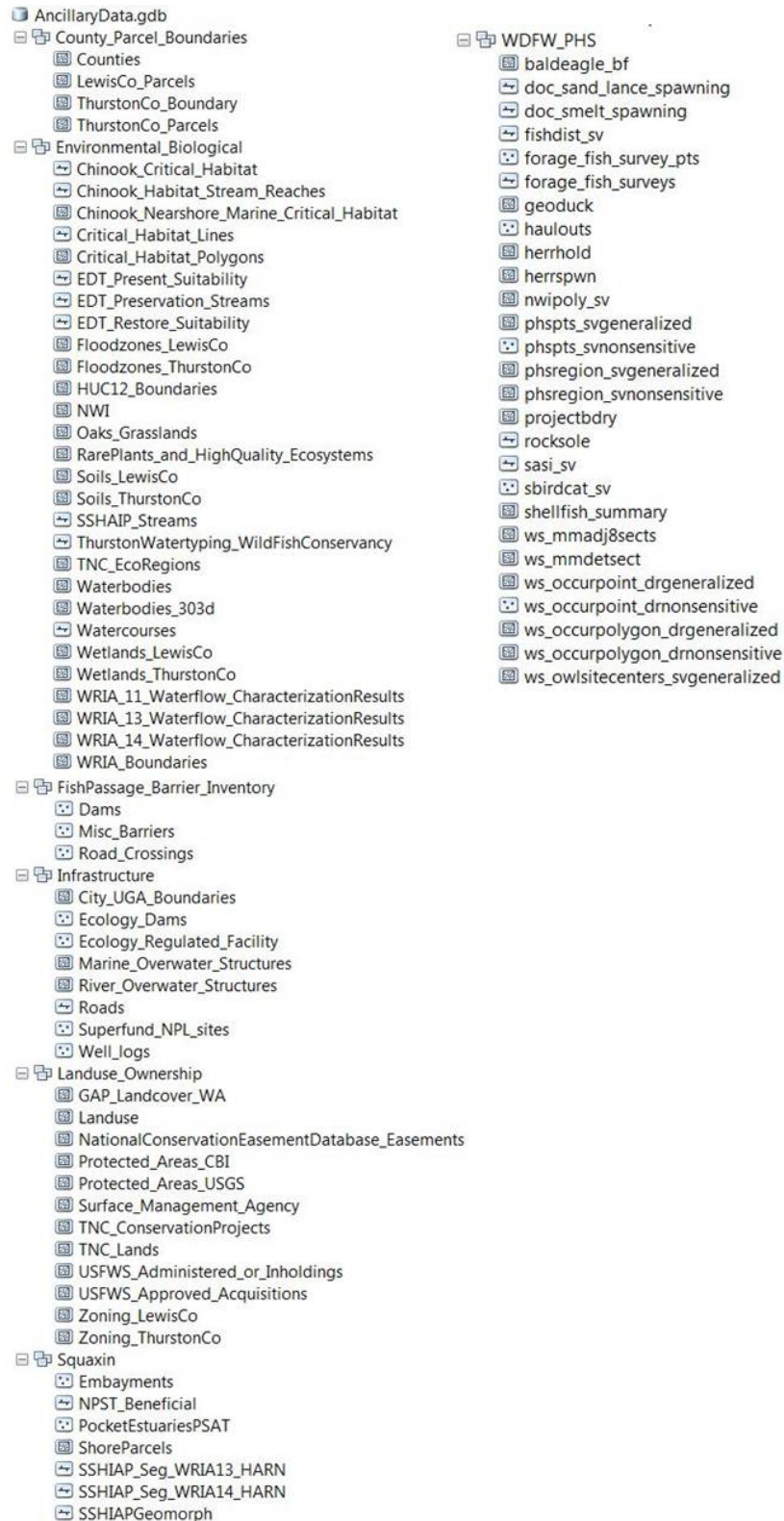
2.2 Ancillary Geodatabase Organization

Supporting datasets were imported into an ancillary data file geodatabase, a common data storage and management framework for ESRI ArcGIS. Once imported, all datasets were standardized into a common coordinate system: North American Datum 83 State Plane Washington South FIPS 4602. The ancillary geodatabase is generally organized by theme, so that datasets (i.e., feature classes) are contained in a parent feature dataset (Graphic 1). When a particular data source contained multiple datasets, a feature dataset specific to that theme was generated. For example, this is the case with Washington Department of Fish and Wildlife (WDFW), where multiple datasets were provided for priority habitats and species. These feature classes are stored within one feature dataset specific to that theme. A detailed geodatabase schema, including the organization of both feature datasets and feature classes, is provided as Graphic 2. Additional dataset documentation, including priority habitat and species metadata and Gap Analysis Program landcover metadata, has been provided separately to CLT in a metadata directory.

Graphic 1: Ancillary Data Geodatabase Feature Datasets



Graphic 2: Ancillary Data Geodatabase Organization



3 PARCEL DATA STANDARDIZATION

In addition to data compilation, several data standardization processes were performed on county parcel datasets in order to prepare the datasets for analysis and to provide a means for CLT to easily query the results.

3.1 Unique IDs

Parcel IDs were checked for uniqueness. The Thurston County assessor's office assigns one parcel number for each owner regardless of the number of parcels owned. In order to perform a parcel-by-parcel analysis, unique IDs (UID) were added to each parcel. These UIDs have the county name followed by a unique number.

3.2 County Assessor Tables

Ownership and additional parcel information from county assessors was segregated into tables that can be joined to the prioritization results via the UID. The county assessors' offices should be contacted directly to obtain the current ownership information or for questions regarding the information contained in the parcel tables.

3.3 Private Ownership Determination

Only parcels with private ownership were included in the prioritization. Surface Management Agency (SMA) data were used to identify privately owned areas. The proportion of a parcel with private ownership was determined and parcels with greater than or equal to 80 percent private ownership were retained in the analysis. Federal or state-owned parcels were not included in the analysis. Non-privately owned properties may be present in the analysis due to differences in spatial extents between the SMA and parcel datasets. Site visits or review of county assessors' information should be conducted to confirm private ownership of parcels.

3.4 Property Type Designation

Parcels were designated as shoreline, nearshore marine or inland (Figure 2). Parcels that intersect Thurston County Shoreline Master Plan (SMP) boundaries were classified as shoreline. Parcels that intersect Thurston County SMP and Washington Department of Natural Resources (WDNR) nearshore habitat or National Wetland Inventory (NWI) estuarine or marine

wetlands were classified as nearshore marine. All other parcels were classified as inland.

3.5 Assigning Watershed Resource Inventory Area Numbers

WRIA numbers were assigned to each parcel. Properties whose boundaries were completely within a specific WRIA were assigned the corresponding WRIA number. Parcels that spanned two WRIA boundaries were assigned both WRIA numbers.

4 IDENTIFYING UNSUITABLE AREAS

Areas with specific landuse, zoning, landcover, or ownership types were identified as unsuitable for CLT's conservation objectives (Appendix B). Parcels were removed from the suitability analysis, based on whether they were located entirely or partly in these unsuitable areas. Unsuitability criteria were combined into a master "Unsuitable" dataset. The proportion of a parcel containing unsuitability criteria was calculated. Parcels were retained in the analysis if 80 percent or more of the property did not meet unsuitable criteria. Approximately 26 percent, or 136,419 acres, of the project area can be categorized as unsuitable (Figure 3). Site visits should be conducted to verify the proportion of unsuitable characteristics on a parcel.

5 SUITABILITY ANALYSIS

5.1 “Prioritization” Dataset

Only privately owned parcels that did not meet unsuitability criteria were included in the suitability analysis. A prioritization dataset was generated by querying for privately owned parcels that meet minimal unsuitability criteria, as described in Sections 3.3 and 4. This dataset was the starting point for the suitability analysis and includes 81,473 parcels that total 340,933 acres of land (Figure 4).

5.2 Site Selection Criteria Overview

Site selection criteria, including presence/absence, adjacency, proximity, and abundance, were evaluated in ESRI's ArcGIS 10. Attribute fields were added to the prioritization dataset (Section 5.3); these contain the designated score for site selection criteria. Criteria were weighted by CLT conservation project managers with a +/- 1, 5, or 10, based on how strongly each criterion contributes to CLT's conservation objectives (Appendix C). Certain criteria were also included as “for your information” (FYI). FYI criteria were evaluated neutrally and received no score; therefore, they have no influence in the suitability analysis. Properties with the FYI criteria are flagged with an “X” in their associated attribute field. A spatial data dictionary detailing each attribute field generated during the suitability analysis is provided as Appendix D.

5.3 Modifier Fields

When multiple subcategories within criteria received the same ranking or when there were a large number of potential subcategories, as was the case with wetland and landcover types, a modifier attribute field was added. This field provides information on the specific subcategory that received the rank. For example, multiple wetland types received a rank of 5, in these cases the specific wetland type(s) present on the property (i.e.; Estuarine Intertidal Aquatic Bed, Riverine Intermittent, etc.) is listed in the modifier field. Refer to the results table in the analysis geodatabase or spatial data dictionary (Appendix D) for detailed modifier field information. Priority habitat and species data provided by WDFW did not receive modifier fields, with the exception of salmonid data. These data are updated frequently, and the source data contain additional accuracy information concerning an observation location, observer, and federal or state status for each particular

species observation. Source data are contained in the ancillary and analysis geodatabases.

5.4 Presence, Adjacency, and Proximity Definitions

Because of varying spatial scales and accuracies among the numerous datasets used in the analysis, distance thresholds were established. These thresholds include: presence criteria, which are defined as within 100 feet of a parcel boundary; adjacency criteria, defined as being beyond 100 feet from the parcel, but less than $\frac{1}{8}$ mile; and proximity criteria, which refers to distances greater than $\frac{1}{8}$ mile. Site visits should be performed to confirm the presence of specific criteria within a parcel's legal boundary.

5.5 Analysis Geodatabase

An analysis file geodatabase was established to store data specific to the suitability analysis and prioritization results. Feature datasets for relevant themes were developed to contain supporting data specific to each theme. These include: infrastructure; landuse-ownership; environmental-biological; Squaxin Island Tribe; and WDFW-provided data (Graphic 3). Supporting datasets were subsetting to the project area and imported into the geodatabase.

Graphic 3: Analysis Geodatabase Organization



Feature datasets were also established to store data after preprocessing was complete. County parcel data with UIDs applied and the prioritized parcels are contained in the “Parcels” feature dataset. Attribute fields were added to contain the proportion of the property that is privately owned and meets unsuitability criteria. Data that were used to remove unsuitable parcels from the prioritization are contained in the “Unsuitable Criteria” feature dataset.

Tables containing county assessors' office ownership and tax information for parcels included in the analysis were also imported into the analysis geodatabase. These tables can be joined to the prioritization datasets, via the UID, to obtain assessors' office parcel information.

5.6 Infrastructure Criteria

Site selection criteria categorized as infrastructure features were used to negatively rank or flag properties. Infrastructure features contribute to habitat fragmentation and degradation, and include areas where future growth will occur (Figure 5). Features such as fish barriers and overwater structures, which may indicate a potential restoration opportunity, were also used to evaluate or flag parcels.

5.6.1 Major Roads

Parcels were evaluated for presence of a state highway.

5.6.2 Fish Passage Barriers

Properties were flagged, but not ranked, if a fish passage barrier is present. Fish-passage barriers include dams and road-based, stream-crossing structures. Source data should be consulted for the type of fish-passage barrier that is present.

Dam locations were provided by several agencies and include overlaps. State-regulated facility sites, a dam-specific dataset from Ecology, and WDFW fish-passage barrier dams were all reviewed. Ecology was contacted and, based on their recommendation, areas of overlap were manually reviewed and information from Ecology's up-to-date dam dataset was used where overlap existed. Ecology-regulated dams capture and store at least 10 acre-feet of water or watery materials.

5.6.3 State-Regulated Sites

Parcels were evaluated for their proximity to state-regulated facilities. Properties were flagged if they are within ¼ mile of a state-regulated facility site. Washington State regulated sites include, but are not limited to: cleanup sites; facilities that handle solid waste, have underground storage tanks, or perform activities that may affect state waters, such as activities related to nurseries, dairies, and hatcheries. Facilities were included regardless of whether or not they had an inactive interaction status with Ecology, as these sites can be considered to have a historical regulatory issue. Ecology should be contacted for additional information on the regulatory status of each site.

5.6.4 Overwater Structures

Parcels were flagged for presence of marine and river overwater structures. Overwater structures include features such as docks, piers, bridges, and structure support fill.

5.6.5 Utilities

Utility data include major routes of natural gas pipelines and electrical transmission lines in Thurston County. Comparable data were not provided by Lewis County. However, none of the major utility routes continue into the small portion of Lewis County that is in the project area. Parcels were flagged for presence of a utility line.

5.6.6 Urban Growth Areas

Parcels were ranked for being within incorporated and unincorporated urban growth boundaries. Parcels were considered to be within an urban growth boundary if more than 20 percent of the parcel was in an urban growth area.

5.7 Land Use and Ownership Criteria

Areas linked via suitable land uses or managed by agencies that have a common interest in conservation can create contiguous areas within which to focus conservation efforts (Figure 6). Properties that are adjacent or approximate to these areas can help contribute to these conservation corridors or provide opportunities for collaboration.

5.7.1 CLT Properties

Parcels were ranked for proximity to CLT properties. Properties within 1/2 mile of a CLT owned property received a score, while parcels beyond 1/2 mile but within 1 mile of a CLT property were flagged.

CLT parcels were included in the prioritization and then exported to a separate feature class once the results were calculated. Their inclusion in the suitability analysis allows for land trust managers to see how their current holdings rate relative to other properties with these site selection criteria.

5.7.2 Existing Conserved Lands or Protected Areas

Properties were evaluated for proximity to existing conservation lands or protected areas. Parcels within 1/2 mile of a protected area were ranked, while parcels within 1/2-1 mile were flagged.

Multiple sources provided information on areas currently in protection (Appendix A). The National Conservation Easement database, the U.S. Geological Survey, and CBI Protected Areas databases Gap Status 1 and 2 areas (permanent protection; ecological disturbance events allowed to proceed (1) and suppressed (2)), and TNC lands and conservation projects polygon datasets were combined into one “Protected Areas” dataset. Source datasets have areas of overlap between them. As a result, the source dataset for each polygon was identified in the attribute table of the protected areas dataset in a field titled “SOURCE.” Areas that have multiple sources listed have overlap between the datasets. Refer to the individual source datasets contained in the ancillary database for specific information regarding individual protected areas. Areas identified as CLT properties were removed and were evaluated separately (Section 5.7.1).

5.7.3 Adjacent Surface Management Agency (SMA)

Adjacency to SMA properties was assessed. Parcels were ranked if they are adjacent to federal or state-managed areas. Federally managed areas include those under management by the Bureau of Indian Affairs, the Bureau of Land Management, the U.S. Fish and Wildlife Service (USFWS), or the U.S. Forest Service. State management agencies include Washington State Department of Parks and Recreation and WDFW, or “other” state agencies not explicitly defined.

USFWS inholdings or lands approved for acquisition were incorporated into SMA data, since these areas may be currently designated as privately owned.

5.7.4 Parcel Size

Parcel size categories were established for the various parcel types: shoreline, nearshore marine, and inland (Section 3.4). Each parcel type received the corresponding ranking for its specific size preferences.

5.7.5 Zoning

Parcels were flagged if they were zoned for long-term agriculture or forestry in Thurston County. Areas zoned as “Forest” were utilized in Lewis County. Parcels were flagged if 75 percent or more of the parcel had preferred zoning.

5.7.6 Landuse

Preferential land uses include Agriculture, Designated Forest Land, Open Space, or Timberlands classified under current use Chapter 84.34 Revised

Code of Washington. Parcels were flagged if 75 percent or more of the parcel had preferred landuse.

5.8 Environmental and Biological Criteria

Presence of priority species and habitats (PSH) as defined by CLT conservation managers was the focus of the environmental and biological site selection criteria. Results from a detailed nearshore assessment performed by the Squaxin Island Tribe and a landscape scale assessment performed by Ecology were also included. The Squaxin Island Tribe performed an on-the-ground update of pocket estuary mapping originally conducted by the Puget Sound Action Team, and included embayments mapped by the Northwest Indian Fisheries Commission. They also recorded human-induced stressors. The landscape scale analysis evaluated water flow through Puget Sound watersheds. This effort modeled the importance of water flow relative to degradation in a watershed and assigned appropriate management strategies based on these results (e.g., protection, restoration, conservation). Landscape scale analyses can be useful for placing a property within an appropriate landscape setting relative to conditions in the watershed.

5.8.1 Wetlands

Information regarding Thurston and Lewis county wetlands was provided by county assessors' offices (Figure 7). Wetland types were added to Lewis County wetlands, using the NWI Cowardian classification system, as wetland types were not provided by the county. Thurston County provided detailed NWI classification codes, which were used to group wetlands at the class or subclass level. The NWI wetland dataset has been included in the ancillary geodatabase and a Cowardian classification diagram is included in the metadata folder.

5.8.1.1 Wetland Size

Two size categories were established for on-site wetlands: 11 to 50 percent and 51 to 90 percent. Parcels were ranked according to the proportion of wetlands on the property. A modifier field was added, which contains the proportion of wetlands on a parcel. All wetland classes were included in the calculation.

5.8.1.2 Wetland Type

Properties were evaluated for presence of priority wetland types. A modifier field was added to detail the priority wetland type(s) present. Priority wetland types were identified as: Estuarine Intertidal Aquatic Bed; Estuarine Intertidal Aquatic Bed/Unconsolidated Shore; Estuarine Intertidal Emergent;

Estuarine Intertidal Emergent/Unconsolidated Bottom; Estuarine Intertidal Emergent/Unconsolidated Shore; Riverine Freshwater Tidal; Riverine Perennial; and Riverine Intermittent.

5.8.2 Hydrologic Features

A number of hydrologic criteria were evaluated (Figure 8) in addition to wetlands. Properties were evaluated for stream and floodplain presence, importance to fish abundance and habitat, and the level of impairment.

5.8.2.1 Streams

The WDNR watercourse lines, “Stream/River” classified waterbody polygons, and Wild Fish Conservancy Water Type Assessment streams were used to evaluate stream presence. In nearshore marine areas, water type assessment streams replaced WDNR hydrography, as the assessment program has field verified and more accurately mapped streams and fish presence in that area. WDNR watercourses were removed in areas where water typing data were present. Water type stream segments classified as “NOCH,” indicating that the survey found no stream channel where WDNR had a stream mapped, were excluded from the prioritization.

5.8.2.2 Ecosystem Diagnosis and Treatment Streams

Ecosystem Diagnosis and Treatment (EDT) stream preservation and restoration priorities were assigned by the WDFW Salmon and Steelhead Habitat Inventory and Assessment Program (SSHAIP). SSHAIP assessed relative importance of stream reaches for their contribution to fish abundance, productivity, capacity, and life history diversity.¹ Multiple species are assessed for each stream reach. Refer to the source data contained in the ancillary geodatabase for species-specific information. Stream reaches are prioritized for preservation, based on current conditions, while restoration priorities compare current conditions to historical conditions. Restoration rankings indicate the level of habitat that would be provided if the stream was restored to historical conditions. EDT stream rankings are available only for WRIA 23.

Properties were assessed for presence of high or medium ranking preservation streams, while high or medium ranking restoration reaches were flagged. Multiple prioritization levels can exist for a stream reach when the reach is being assessed for multiple species. Therefore, the highest rank for a stream was used in the prioritization analysis.

¹ WDFW SSHAIP. Ecosystem Diagnosis and Treatment Modeling. Washington Department of Fish and Wildlife Salmon and Steelhead Habitat Inventory and Assessment Program. April, 2012.

5.8.2.3 303d Stream or Waterbody

Properties were flagged if a 303d waterbody was present, regardless of the 303d parameter. Source data can be consulted to determine the type of impairment(s) for the waterbody.

5.8.2.4 Flood Zones

Properties were evaluated for presence in the 100-year flood zone. A property received a score regardless of the proportion within the flood zone. Source data should be consulted to determine the extent of the flood zone on the property.

5.8.3 PUGET SOUND WATERSHED CHARACTERIZATION MANAGEMENT ACTION STRATEGY

Ecology completed watershed assessments for watersheds draining to Puget Sound. This assessment assigns watershed management action strategies to watershed SSHAIP subbasins, based on their contribution to the watershed process of water flow and level of degradation from human activity. Management strategies were assigned based on the level of impairment in the watershed and the importance of the subbasin to the water flow process (Figure 9). Lower impairment and higher importance to watershed processes place the watershed into the protection category; mid-level impairment and mid-level importance were assigned for protection/restoration; and low levels of impairment and importance were under the conservation strategy. Additional watershed process assessments for water quality, such as movement of nutrients and sediments, and for fish and wildlife habitat will be incorporated into the watershed assessment in the future, and the watershed characterization will then be complete.²

Parcel center points were used to assign the rank for the water management strategy associated with the subbasin within which the property is located. A modifier field was added that lists the specific management strategy. Parcels listed as bordering two WRIAs (Section 3.5) should be reviewed for multiple watershed management strategy assignments, as only one strategy was assigned to each parcel during this analysis. Management strategies related to development were not included in the analysis.

² Stanley, S., S. Grisby, T. Hruby, and P. Olson. 2009 Puget Sound watershed characterization project: description of methods, models, and analysis. Publication No. 10-06-005. Washington State Department of Ecology, Olympia, Washington.

5.8.4 Landcover

Priority landcover types were identified and properties were ranked for presence (Figure 10). Priority landcover categories include estuarine grasslands and mudflats and various classes of riparian areas (Appendix C). Modifier fields were added to list the dominant priority landcover and the percentage covering a given parcel. The dominant priority landcover was determined by calculating the proportion of each priority landcover on a property. The landcover with the highest percentage was used to rank the property. Properties with multiple priority landcovers can be identified by relating the feature class “Priority Landcover Percentage” in the parcel feature dataset, via the UID, to the prioritization dataset. Alternatively, the priority landcover percentage feature class can be viewed.

5.8.5 Rare Plants and High-Quality Ecosystems

In addition to landcover, parcels were ranked for presence of rare plants or high-quality ecosystems. These areas contain a rare vascular plant, rare nonvascular plant, high-quality terrestrial, aquatic, or wetland community. Although there is overlap with the county wetland data (Section 5.8.1), these wetlands have been deemed high-quality by the Washington Natural Heritage program and have therefore been included regardless of overlap.

5.8.6 Priority Species and Habitats

PSH data from WDFW were reviewed to identify species and habitats specific to CLT conservation objectives. Emphasis was placed on priority salmonid species. Source datasets should be consulted for species identification, observation accuracy information, and regulatory status. Additionally, WDFW should be contacted to confirm currency of the observation, as these data are updated frequently. WDFW recommends obtaining updated information every six months. Data used in this analysis were acquired in January 2012.

Species and habitats that were not of interest to the suitability analysis were removed from PHS datasets in the analysis geodatabase. PHS data are provided as received from WDFW in the ancillary geodatabase. PHS data for WRIA 11 were not provided by CLT, with the exception of data for salmonids and coast resident cutthroat trout. Therefore, properties within WRIA 11 may have PSH present that will not be identified in the suitability analysis.

Species and habitat information is not displayed on maps as per WDFW data agreements.

5.8.6.1 Salmonids

Fish distribution and habitat use data were used to evaluate properties for presence of priority anadromous fish species. Priority species include: coho; fall Chinook; spring Chinook; fall chum; winter chum; and winter steelhead. A modifier field was added to contain the species present and to detail fish use of habitat. Habitat use type includes known spawning, known juvenile rearing, and presence/migration of fish.

5.8.6.2 Coast Resident Cutthroat Trout

Parcels with coast resident cutthroat trout presence or migration habitat use were ranked.

5.8.6.3 Additional Species Occurrences

PHS wildlife survey occurrence point data were used to identify properties with species of interest to CLT. Properties were ranked if any of the following species were present: marbled murrelet, Olympic mudminnow, Oregon spotted frog, Pacific lamprey, reticulated sculpin, riffle sculpin, or Yelm pocket gopher.

Wildlife survey occurrence data points have estimated accuracy for a species observation provided in the attribute field. This information was not used to inform the suitability analysis, and the established presence threshold of within 100 feet of a parcel was applied for all observations regardless of the observations' accuracy. Source data should be consulted for additional information on accuracy and date of the survey occurrence observation.

5.8.6.4 Habitat

PHS wildlife surveys and priority habitat polygon data were used to identify properties with habitats of interest. Habitats of interest included: Bald Eagle Nest Buffer or Communal Roost; Estuarine Zone; Olympic Mudminnow Occurrence Area; Oregon Spotted Frog Breeding and Occurrence Area; Shorebird Concentrations; Wetlands; and Yelm and Western Pocket Gopher Concentrations. Wetlands were reviewed for overlap with county wetland data (Section 5.8.1) and were included in areas where there was no overlap. Harbor seal haulouts and parturition areas were evaluated as nearshore-specific criteria (Section 5.9.4).

5.8.6.5 Marbled Murrelet and Spotted Owl

PHS data for species with direct regulatory implications are shown in generalized locations. Generalized data are presented as a large bounding area, such as a township boundary. Therefore, parcels ranked for these

features should not be interpreted as having a sighting of a particular species on site. PHS data were provided as section boundaries containing marbled murrelet detections and township boundaries containing spotted owl site centers. Properties in these sections and townships were ranked for presence of these habitats.

5.9 Nearshore Specific Criteria

Nearshore specific criteria exist only in the nearshore marine or shoreline areas surrounding Puget Sound. Data were obtained by CLT from conservation colleagues or WDFW.

Species and habitat information is not displayed on maps as per WDFW data agreements. Data provided to MFA by CLT are also not shown on maps because the data are not within the public domain.

5.9.1 High Ranking Shoreline

The Squaxin Island Tribe provided data from their nearshore habitat prioritization effort. Parcels were ranked for presence of beneficial shorelines as delineated in the Squaxin prioritization effort.

5.9.2 Embayments

Properties were evaluated for presence of an embayment. Embayment data were provided by the Squaxin Island Tribe.

5.9.3 Nearshore Fish Habitat

5.9.3.1 Water Typing Data

Wild Fish Conservancy Water Typing Assessment fish habitat data were used to rank nearshore marine parcels for presence of fish habitat. Areas that have documented fish presence in the PHS fish distribution data, and that were ranked for salmonid presence (Section 5.8.6.1), were not ranked for nearshore fish habitat using the water typing data to avoid overemphasizing fish presence in the prioritization. Although the water typing data have more accurate stream locations, they do not have fish species information. Therefore, known presence of priority salmonid species was given precedence. To account for more accurate stream locations, presence was evaluated as fish habitat being on site, or intersecting a property, and not within 100 feet.

5.9.3.2 Forage Fish

Properties were evaluated for presence of PHS documented intertidal spawning habitat for surf smelt and Pacific herring adult holding and spawning areas.

5.9.4 Harbor Seal Habitat

Haulouts and parturition areas were provided by WDFW as point and polygon data. Point data were removed where polygons exist and properties were evaluated for presence of harbor seal habitat.

6.1 Suitability Analysis Results

Suitability analysis prioritization results can be used as an objective regional screening tool to support CLT's decision-making process. Areas deemed unsuitable have been identified and properties have been ranked for presence, adjacency, proximity, or abundance of site selection criteria. Landowner outreach can be more efficiently planned by screening results for high-priority properties, reviewing attribute fields to determine if a property has specific site selection criteria, and associating property ownership information provided in tables. As site selection criteria priorities change or are reevaluated, criteria can be reweighted or removed and the result rankings recalculated if desired. Site visits should be conducted to confirm presence of specific criteria, but priority properties are easily identified and CLT resources can be strategically allocated for further on-site investigation and outreach.

Prioritization results were calculated by summing the rankings for each criterion. The number of parcels prioritized and range of result ranks is listed in Table 1. Nearshore marine properties have a higher upper range because nearshore specific criteria were included. Non-nearshore properties may have received rankings for nearshore criteria since presence was evaluated as within 100ft.

Table 1
Number of Parcels Prioritized and Range of Results

Type	Number Prioritized	Results Range
Nearshore Marine	1,760	0 to 59
Shoreline	8,064	-1 to 57
Inland	71,649	-2 to 52

6.2 Project Area Findings

Prioritization results for the project area are shown in Figure 11. Class breaks were established to visually differentiate between the very highest and the most negatively ranking parcels and to include a manageable number of the highest-tier parcels for landowner outreach review (Table 2). Class breaks can

easily be adjusted to incorporate a larger or smaller proportion of high ranking sites to redefine focus areas, as required.

Table 2
Number of Parcels Prioritized by Class Range
for Entire Project Area

Ranking	Nearshore Marine	Shoreline	Inland	Total
41 to 59	21	132	52	205
31 to 40	70	932	405	1,407
21 to 30	318	1,435	1,821	3,574
11 to 20	922	1,699	8,735	11,356
1 to 10	412	2722	31,674	34,808
-2 to 0	17	1,144	28,962	30,106
<i>Total</i>	<i>1,743</i>	<i>8,064</i>	<i>71,649</i>	<i>81,473</i>

6.3 WRIA 13 Findings

Prioritization results for priority area WRIA 13 are shown in Figure 12. WRIA 13 encompasses 42% of the project area and contains 44% of the highest-priority properties, using the current class breaks (Table 3).

Table 3
Number of Parcels and Acres Prioritized by Class Range
for WRIA 13

Ranking	Nearshore Marine	Shoreline	Inland	Parcels	Total Acres
41 to 59	20	33	38	91	7,774
31 to 40	59	523	274	856	24,989
21 to 30	253	536	1,088	1,877	42,529
11 to 20	593	761	5,144	6501	31,229
1 to 10	193	928	16,087	17,208	26,530
-2 to 0	17	911	20,979	21,907	9,809
<i>Total Parcels</i>	<i>1,138</i>	<i>3,692</i>	<i>43,610</i>	<i>48,440</i>	<i>-----</i>
<i>Total Acres</i>	<i>3,226</i>	<i>26,417</i>	<i>11,3217</i>	<i>-----</i>	<i>142,860</i>

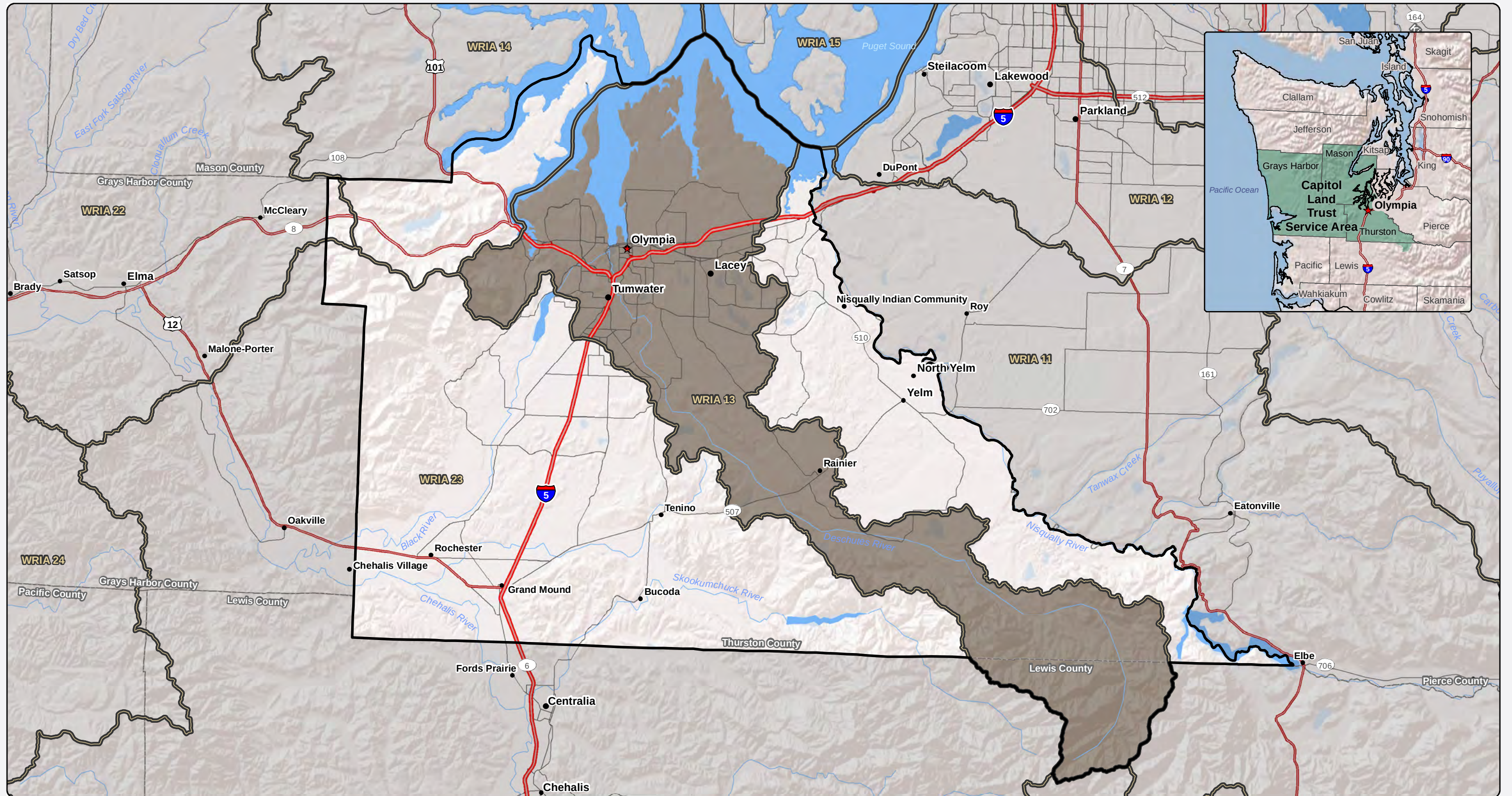
LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

FIGURES



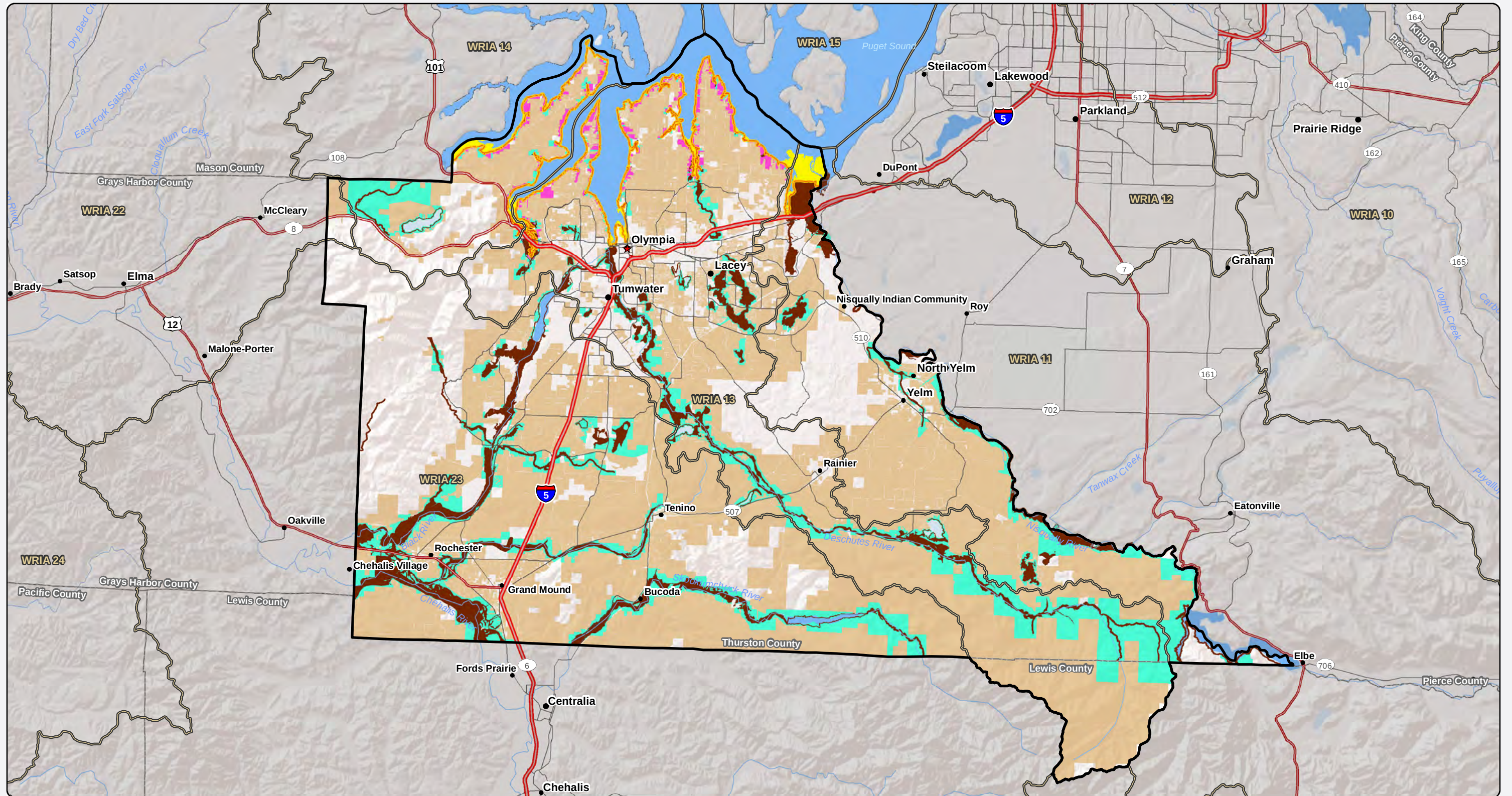


Capitol Land Trust's service area encompasses Gray's Harbor, Mason, and Thurston Counties. A suitability analysis was performed to identify potential conservation opportunities in Thurston County with a priority focus area of Watershed Resource Inventory Area (WRIA) 13.

-  Project Area
-  WRIA Boundary
-  WRIA 13

Figure 1
Project Area



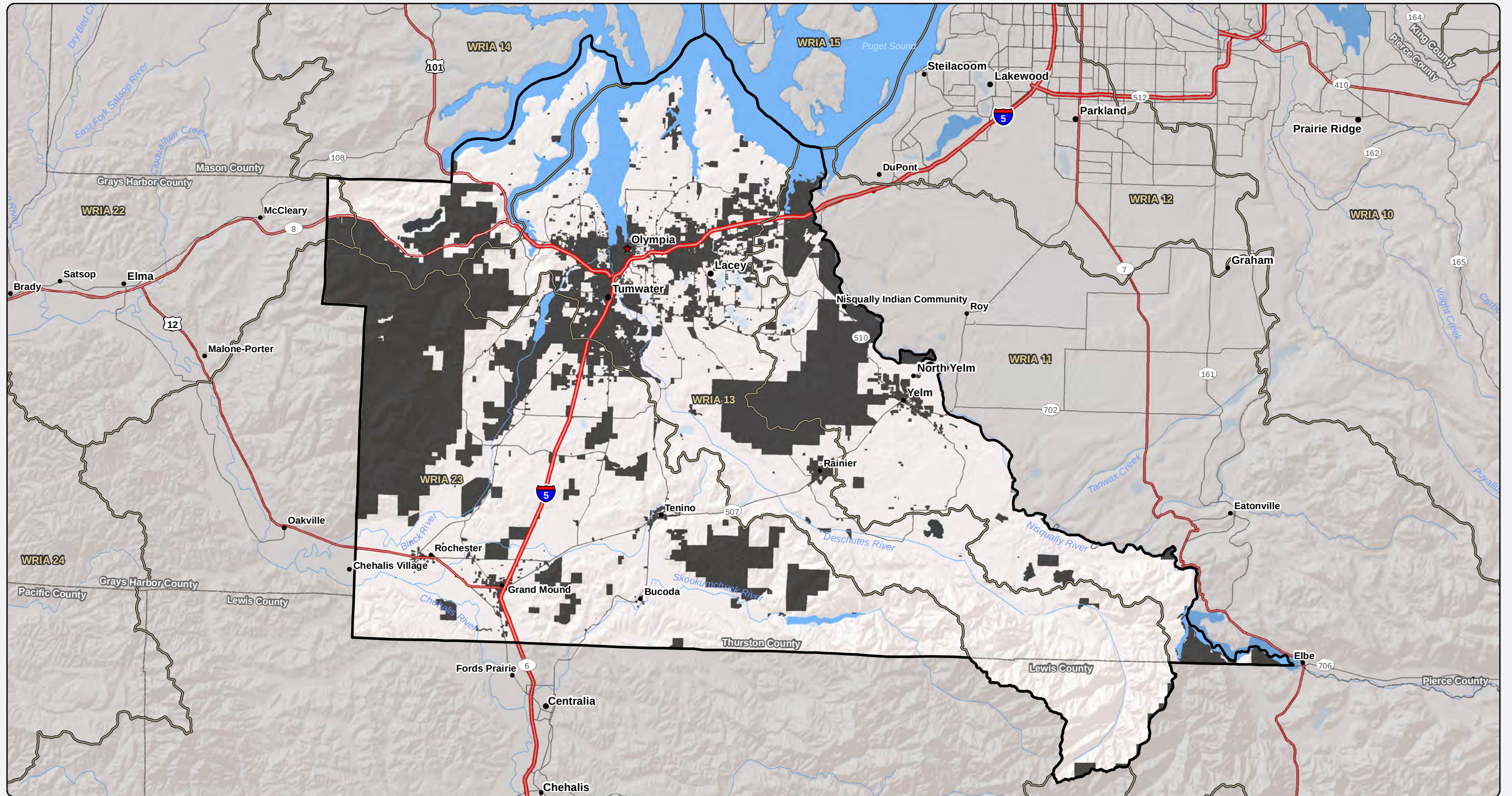


Shoreline parcels were defined as areas that intersect Thurston County Shoreline Master Plan (SMP) boundaries. Nearshore marine properties intersect SMP boundaries and areas designated as either DNR nearshore habitat or NWI estuarine and marine wetlands. Inland parcels are defined as all other parcels not meeting shoreline criteria.

-  Project Area
-  Nearshore Marine
-  Shoreline
-  Inland
-  Thurston Co. SMP
-  DNR Shoreline Habitat
-  NWI Estuarine and Marine Wetland

Figure 2
Property Type Designation



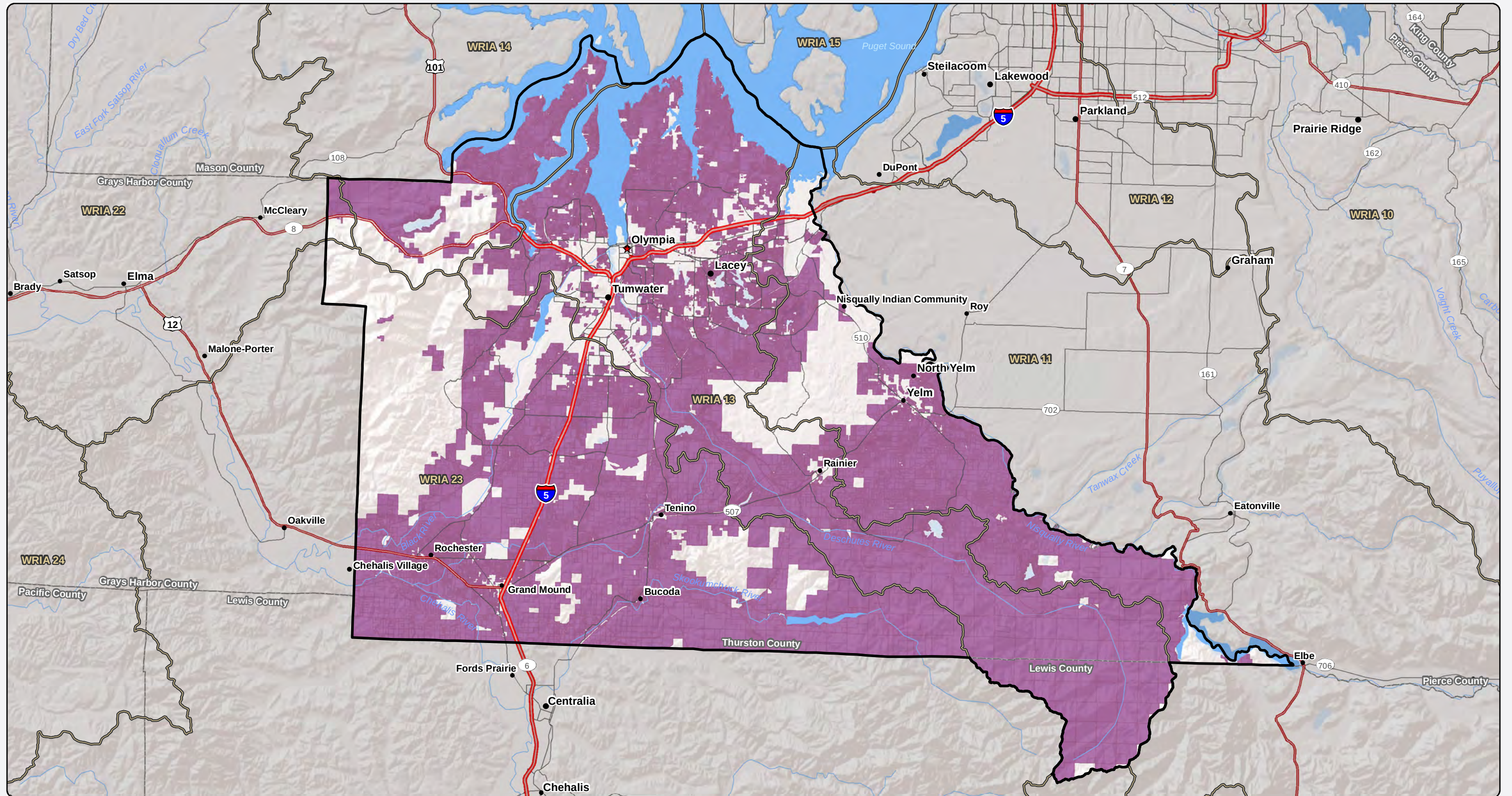


Unsuitable areas were defined as areas having specific landuse, zoning, landcover or ownership that is incompatible with Capitol Land Trust (CLT) conservation objectives. Parcels were removed from prioritization based on identification of these areas. Please refer to the Conservation Suitability Analysis Report Appendix B for detailed information on how unsuitable areas were defined by CLT for the suitability analysis.

- Project Area
- Unsuitable Areas

Figure 3
Unsuitable Areas



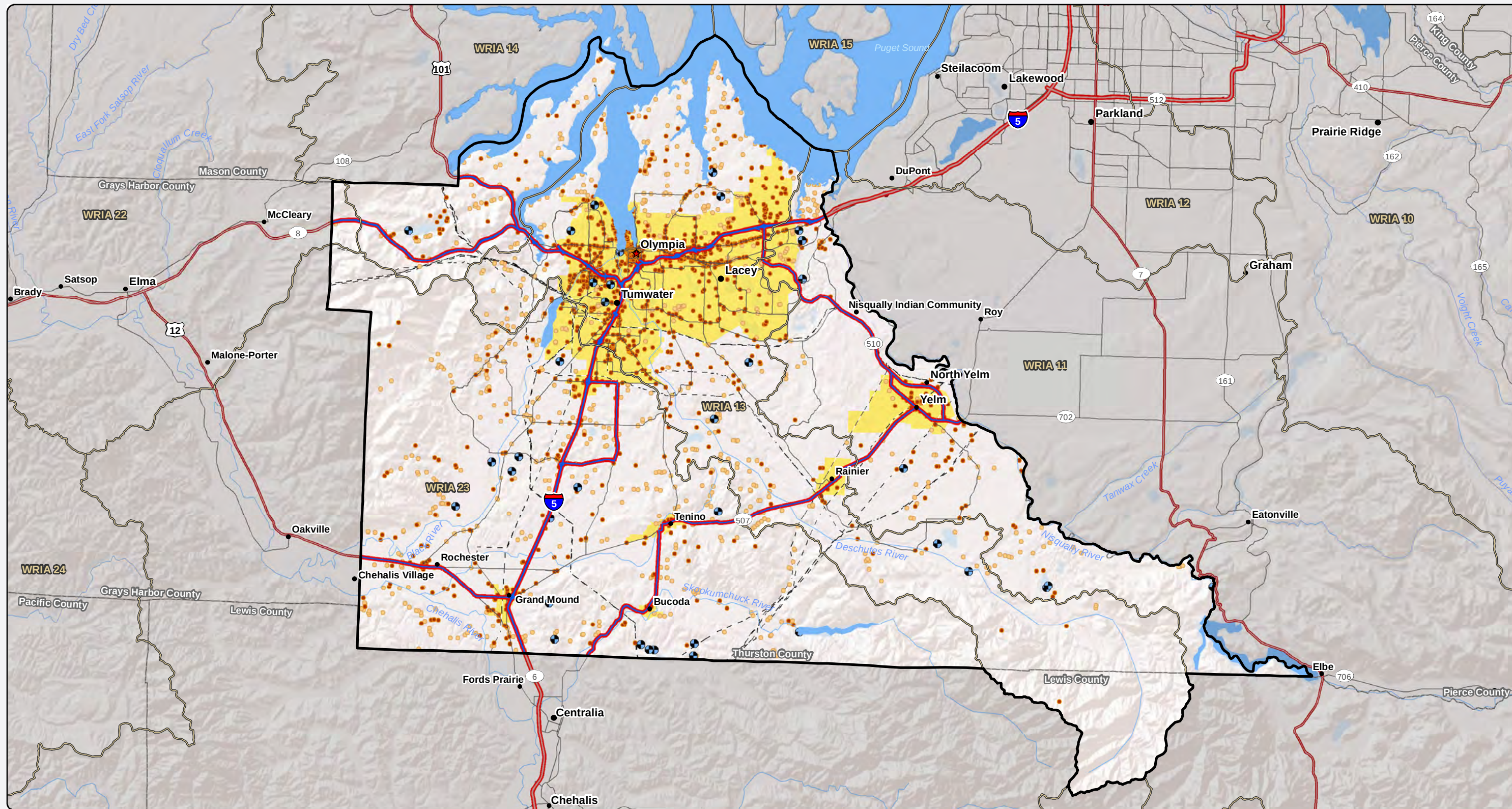


Only parcels with private ownership were included in the suitability analysis. Surface Management Agency data were used to identify privately owned areas and to remove Federal or state-owned properties. Unsuitable zoning, landuse, and landcover were also used to remove areas that are incompatible with Capitol conservation objectives. The area shown was prioritized and include 81,473 parcels that total 340,933 acres of land .

-  Project Area
-  Prioritized Areas

Figure 4
Prioritized Areas

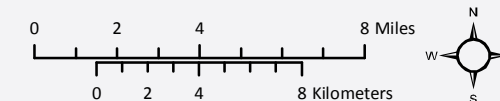


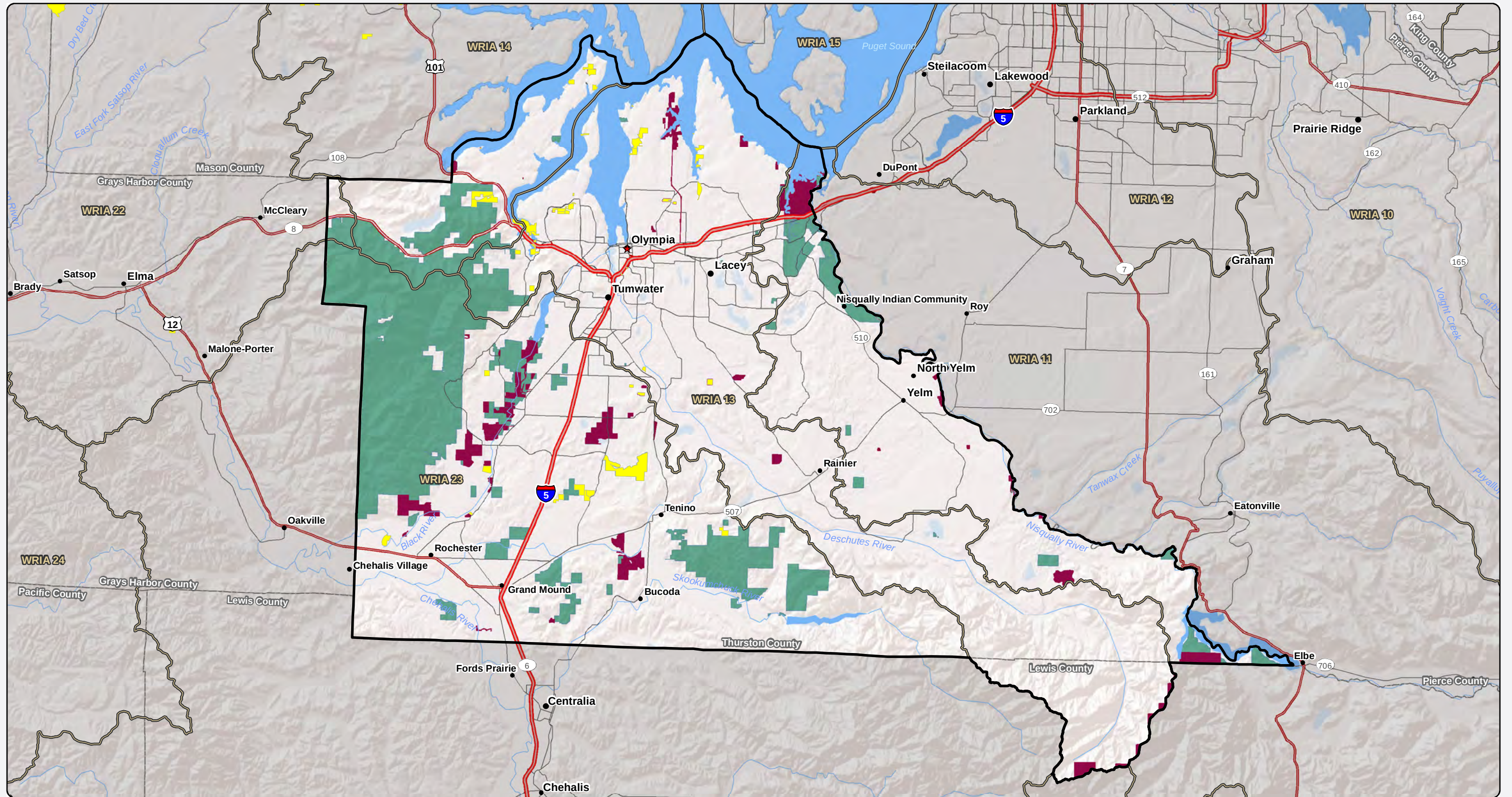


Infrastructure features were used to negatively rank or flag properties. Infrastructure criteria included state highways, fish passage barriers, Department of Ecology (Ecology) regulated sites, marine and river overwater structures, utility lines, and urban growth areas (UGAs). Overwater structures are not visible at this scale.

- Project Area
- UGA Boundary
- State Highway
- Utility line
- Dam
- Ecology regulated facility
- Fish passage barrier

Figure 5
Infrastructure



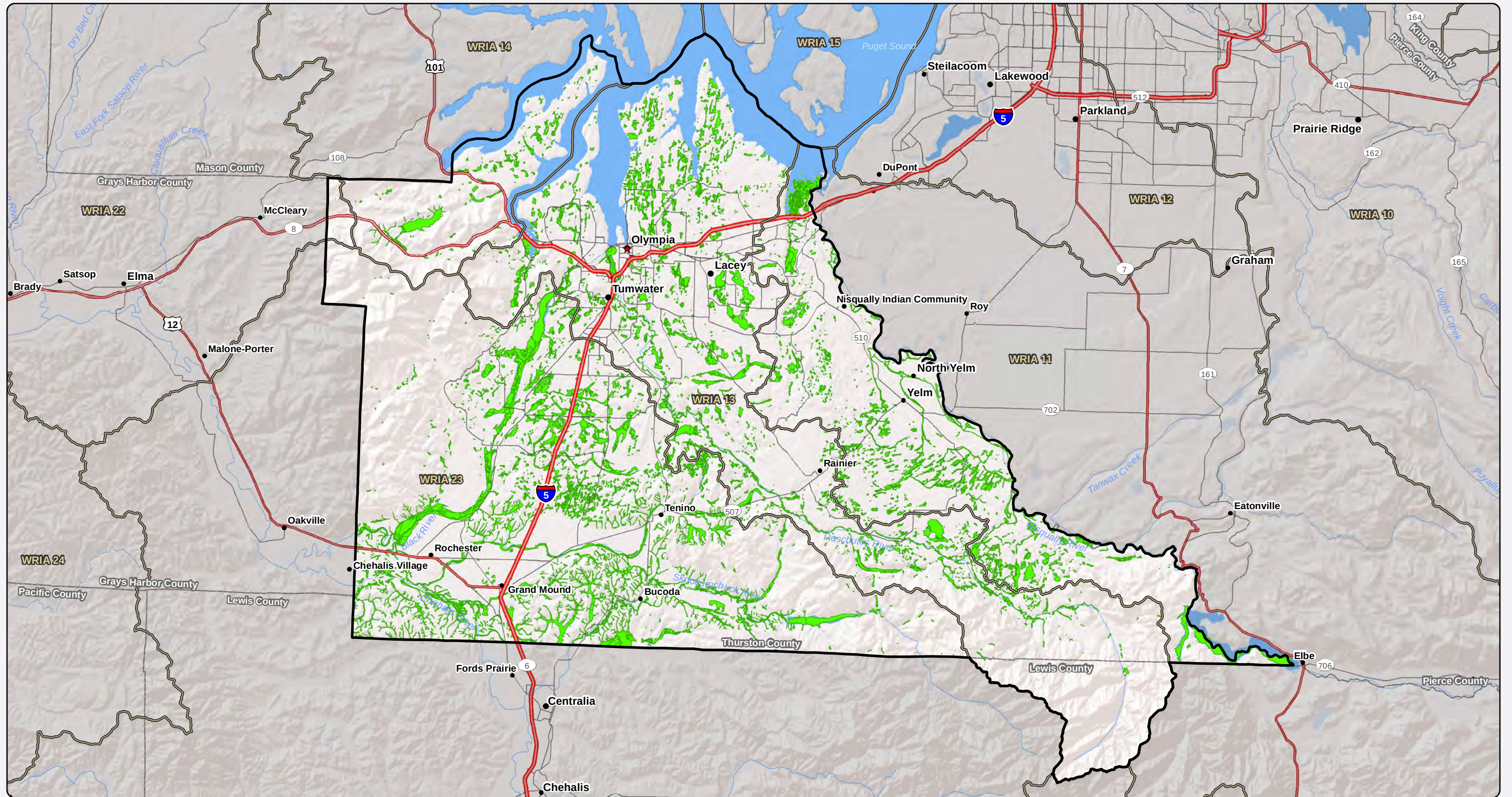


Protected areas were obtained from the National Conservation Easement database, the USGS and Conservation Biology Institute Protected Areas databases, and The Nature Conservancy. Properties were evaluated for proximity to protected areas. Adjacency to Federal and state-managed lands was also evaluated in the prioritization. Preferred landuse and zoning classes were used in the prioritization to flag parcels and are not shown on the the figure.

-  Project Area
-  Capitol Land Trust Property
-  Protected Area
-  Federal or State Managed Lands

Figure 6
Land Use and Ownership



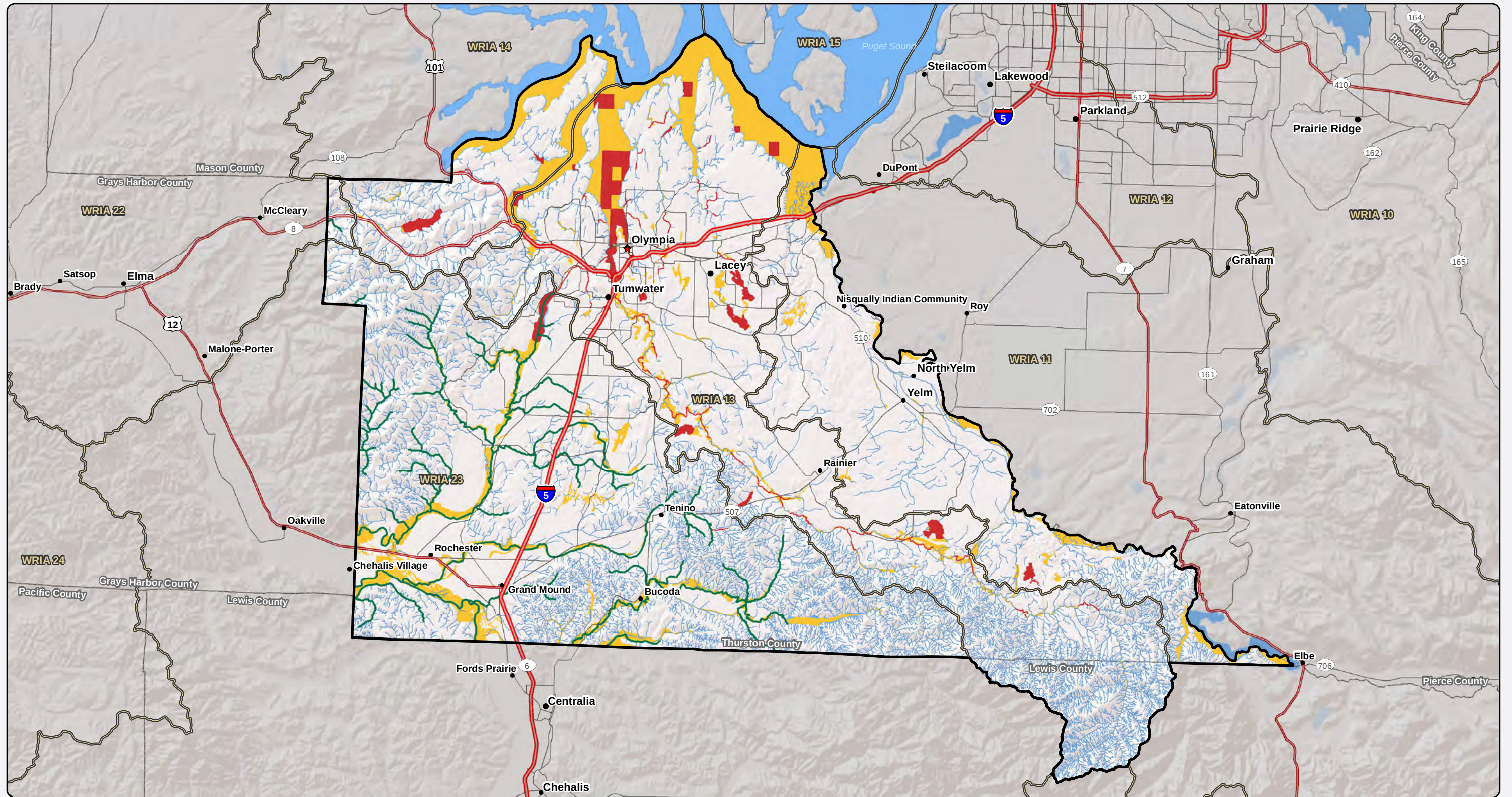


Properties were evaluated for the proportion of wetlands on site and for presence of priority wetland habitats. Priority wetland types were identified as: Estuarine Intertidal Aquatic Bed, Estuarine Intertidal Aquatic Bed/Unconsolidated Shore, Estuarine Intertidal Emergent, Estuarine Intertidal Emergent/Unconsolidated Bottom, Estuarine Intertidal Emergent/Unconsolidated Shore, Riverine Freshwater Tidal, Riverine Perennial, and Riverine Intermittent.

-  Project Area
-  Wetlands

**Figure 7
Wetlands**



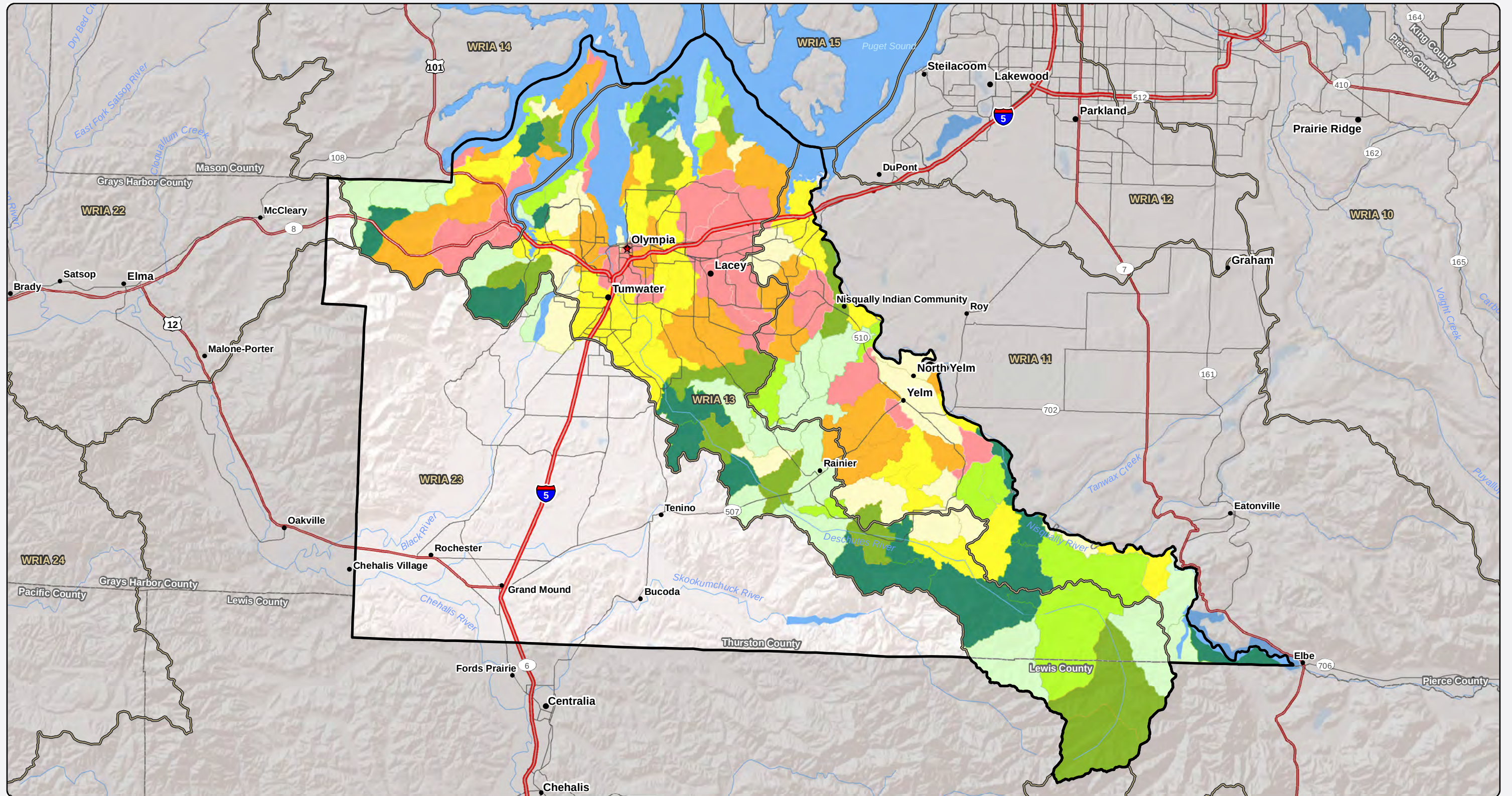


Properties were evaluated for presence of several types of hydrologic features: streams, Ecosystem and Diagnosis and Treatment (EDT) priority stream reaches, 303d waterbodies, and 100-year floodzones.

-  Project Area
-  Area inundated by 100-yr flooding
-  EDT Stream Reach
-  303d Waterbody
-  Watercourse

Figure 8
Hydrography



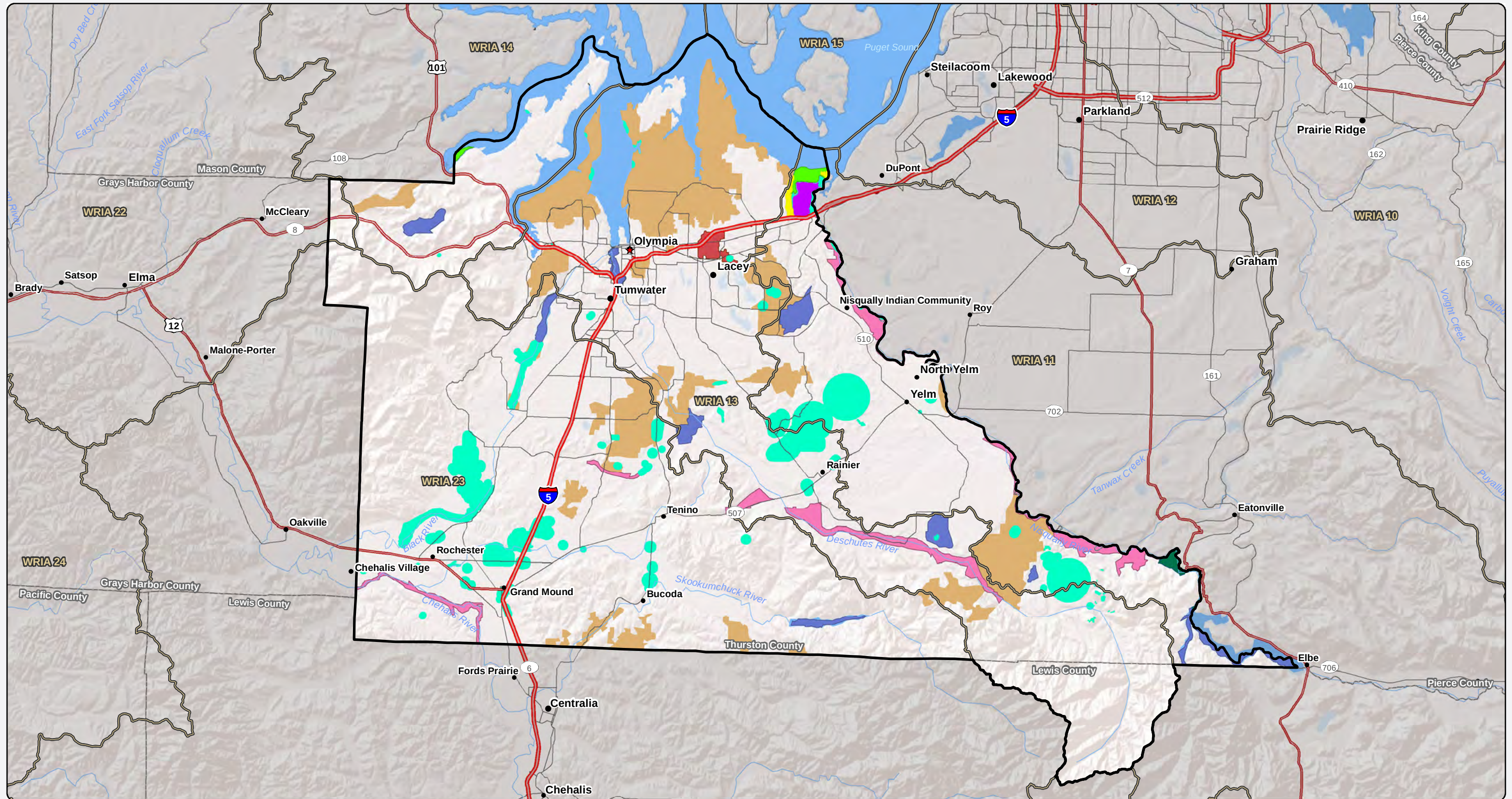


Ecology completed watershed assessments for watersheds draining to Puget Sound. This assessment assigned watershed management action strategies to watershed subbasins based on their contribution to the watershed process of water flow. Management strategies were assigned based on the level of impairment within the watershed and the importance of the subbasin to the water flow process.

-  Project Area
- Management Strategy**
-  Conservation
-  Development/Restoration
-  Highest Protection
-  Protection
-  Protection/Restoration
-  Restoration
-  Highest Restoration
-  Restoration/Development

Figure 9
Puget Sound Watershed Characterization
Management Action Strategy

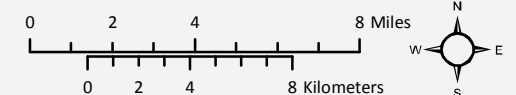


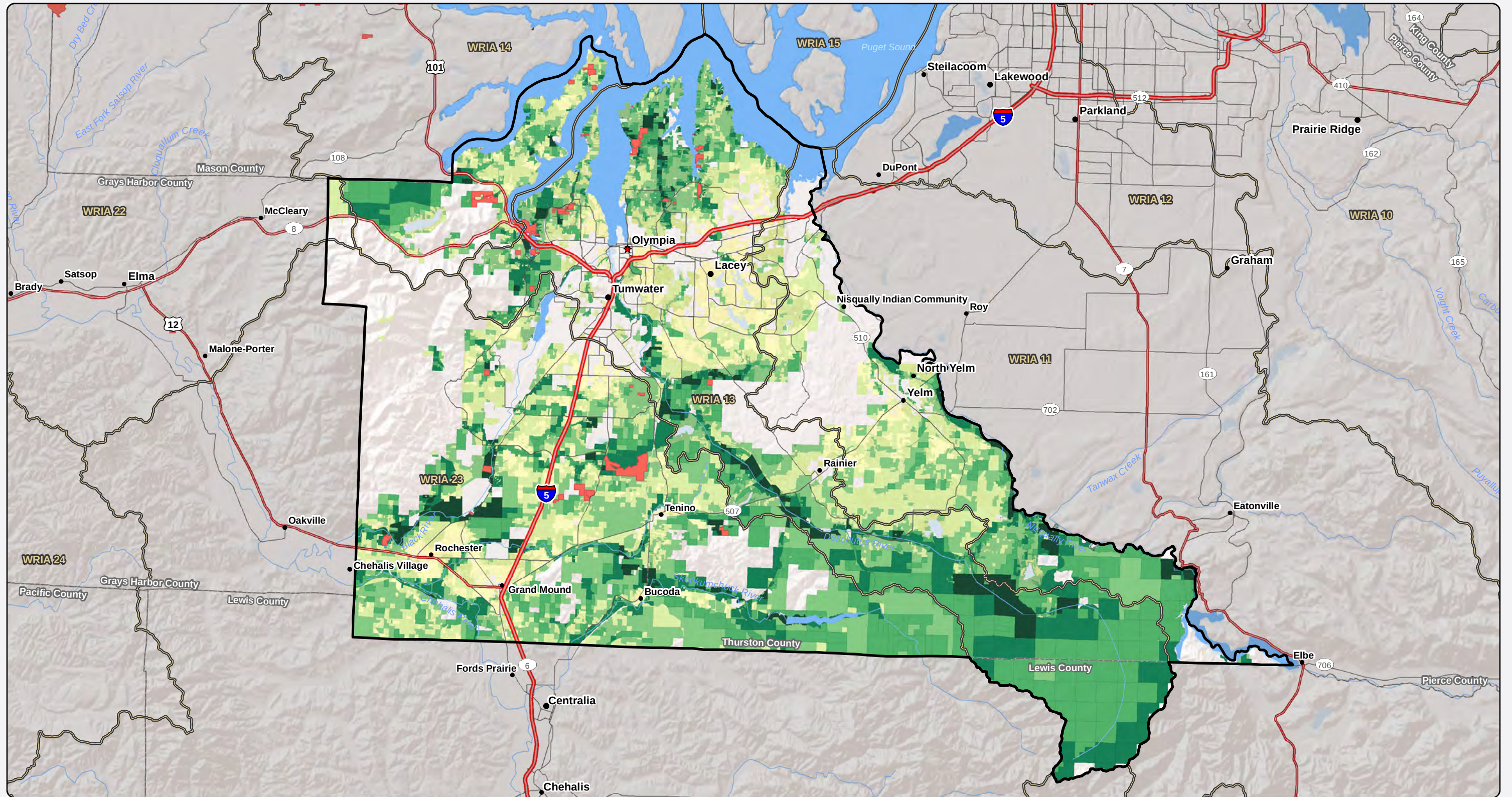


Priority landcover categories were established and properties were evaluated for presence of priority vegetation. Landcover descriptions have been summarized based on more detailed information found in the GAP source data.

- | | |
|--------------------------------------|--|
| Project Area | Riparian dominated by shrubby hardwoods |
| Rare Plant or High Quality Ecosystem | Mixed community riparian |
| Landcover | Hardwood dominated riparian |
| Estuarine grassland | Lakes |
| Estuarine mudflat | Hardwood forest usually associated with riparian |
| Riparian lined by conifers | |

Figure 10
GAP Landcover & Rare Plants and High Quality Ecosystems

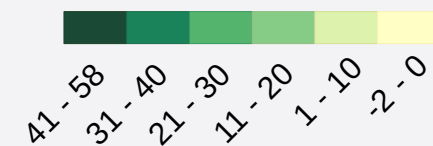




Suitability analysis results combine multiple weighted site selection criteria to rank properties. The range of prioritization ranks has been chosen to illustrate the highest and lowest ranking areas. Class breaks can be adjusted by Capitol Land Trust during their strategic planning efforts. The details of how individual site selection criteria contributed to ranking of each property can be viewed in an associated geodatabase.

 Project Area

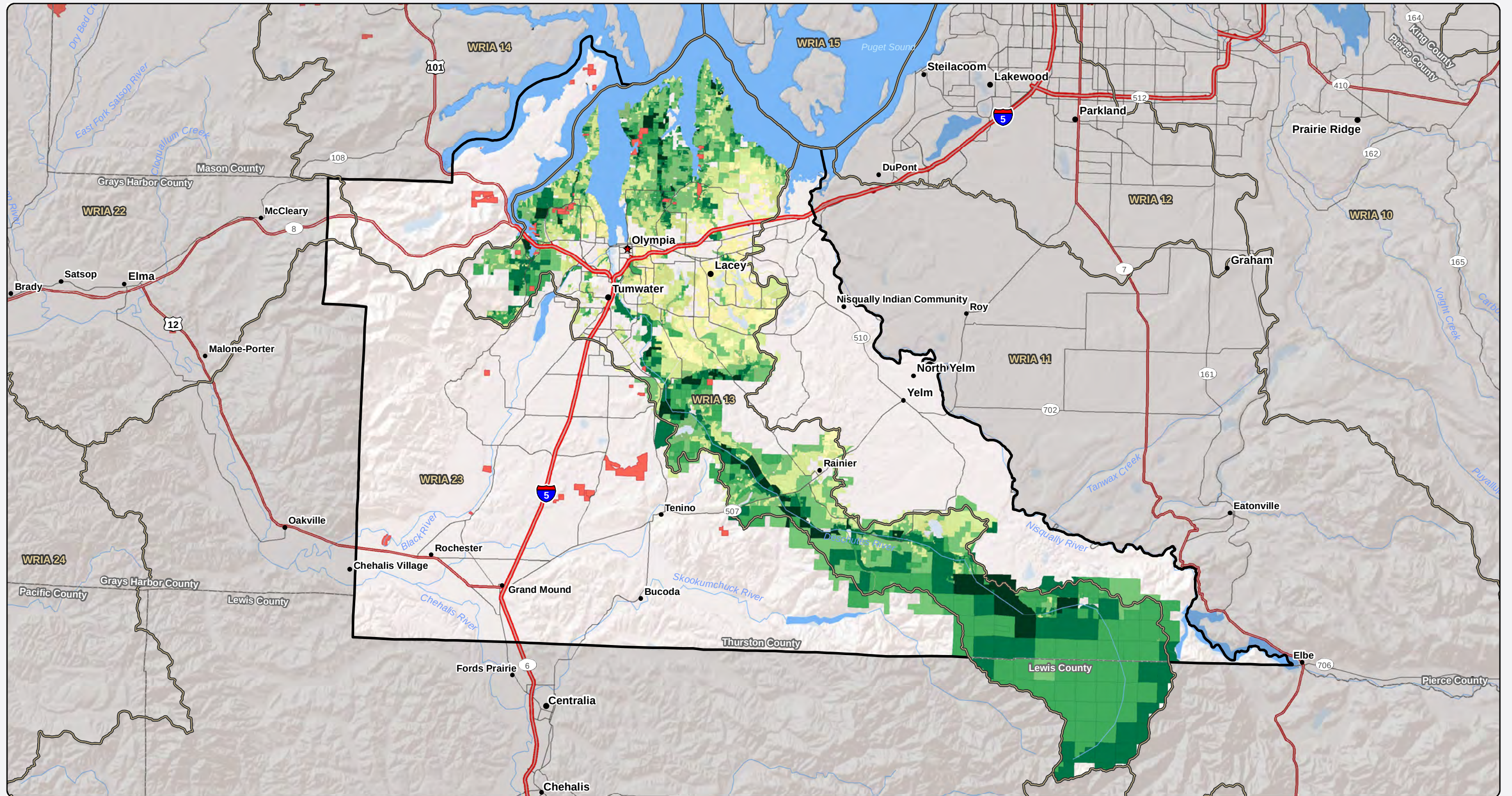
Prioritization Rank



 Capitol Land Trust Property

Figure 11
Suitability Analysis Results
Project Area

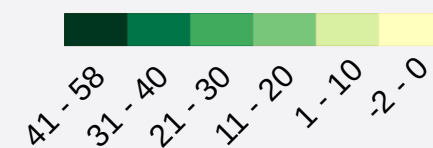




Suitability analysis results combine multiple weighted site selection criteria to rank properties. The range of prioritization ranks has been chosen to illustrate the highest and lowest ranking areas. Class breaks can be adjusted by Capitol Land Trust as they see fit during their strategic planning efforts. The details of how individual site selection criteria contributed to ranking of each property can be viewed in an associated geodatabase.

 Project Area

Prioritization Rank



 Capitol Land Trust Property

Figure 12
Suitability Analysis Results
WRIA 13



APPENDIX A

SOURCE DATA



**CAPITOL LAND TRUST
SUITABILITY ANALYSIS
SOURCE DATA**

Theme	Theme Goal	Site Selection Criteria	Source
Infrastructure	Assess areas with current impacts	Major Roads	DOT
		State Cleanup Sites	Ecology
		Fish Passage Barriers	WDFW Ecology
		Utility Lines	Thurston County
		Overwater Structures (Marine and River)	DNR
		Urban Growth Areas	Ecology
Land Use / Ownership	Identify areas with favorable / unfavorable conditions	Existing Capitol Land Trust Properties	Capitol Land Trust
		County Parcels	County Assessors' Offices
		Zoning	Thurston County
		Landuse	Ecology
		Surface Management Agency	DOI
		Existing Protected Areas	USGS CBI TNC NCED

**CAPITOL LAND TRUST
SUITABILITY ANALYSIS
SOURCE DATA**

Theme	Theme Goal	Site Selection Criteria	Source
Environmental / Biological	Identify Biological or Ecological Resources of Interest	Critical Habitat for Threatened and Endangered Species	USFWS
		Priority Fish Habitat	WDFW
		Priority Species or Habitats	WDFW
		Rare Plants or Priority Habitats	DNR
		303d Waterbodies	Ecology
		Wetlands	Thurston County
		Watercourses	DNR
		Floodzones	FEMA
		Stream Ecosystem Diagnosis and Treatment Priority (WRIA 23)	WDFW
		Landcover (GAP data)	WDFW
		WRIA Watershed Characterization Results (WRIA 11, 13, and 14)	Ecology
Capitol Provided Data	Evaluate Nearshore Areas	Water type	Wild Fish Conservancy
		Beneficial Shorelines	Squaxin Island Tribe
		Embayments (WRIA 13 and 14)	Squaxin Island Tribe

APPENDIX B

UNSUITABLE CRITERIA



**CAPITOL LAND TRUST
SUITABILITY ANALYSIS
UNSUITABLE CRITERIA**

Unsuitable Criteria	Sub-Categories
LANDCOVER	Developed; high-density; mostly business
	Developed; high-density; mostly residential
NONPRIVATE OWNERSHIP	Bureau of Indian Affairs
	Bureau of Land Management
	U.S. Fish and Wildlife Service
	State Dept. of Fish and Wildlife
	State Dept. of Parks and Recreation
	State Agency
LANDUSE	Aircraft transportation
	Automobile parking
	Business services
	Communication
	Contract construction services
	Cultural activities and nature exhibitions
	Fabricated metal products
	Hotels/motels
	Household, 2-4 units
	Household, multiunits (5 or more)
	Institutional lodging
	Marine craft transportation
	Mining activities and related services
	Miscellaneous manufacturing
	Miscellaneous services
	Mobile home parks or courts
	Other retail trade
	Personal services
	Petroleum refining and related industries
	Professional services
	Public assembly
	Repair services
	Residential condominiums
	Retail trade—automotive, marine craft, aircraft, and accessories
	Retail trade—building materials, hardware, and farm equipment
	Retail trade—eating and drinking
	Retail trade—food
	Retail trade—furniture, home furnishings, and equipment
	Retail trade—general merchandise
	Wholesale trade

**CAPITOL LAND TRUST
SUITABILITY ANALYSIS
UNSUITABLE CRITERIA**

Unsuitable Criteria	Sub-Categories
ZONING	ARTERIAL COMMERCIAL
	AUTO SERVICES
	BUSINESS PARK
	CAPITOL CAMPUS/COMMERCIAL SERVICE HIGH
	CEMETERY
	CENTRAL BUSINESS DISTRICT
	CENTRAL BUSINESS DISTRICT 4
	CENTRAL BUSINESS DISTRICT 5
	CENTRAL BUSINESS DISTRICT 6
	CENTRAL BUSINESS DISTRICT 7
	COMMERCIAL ORIENTED SHOPPING CENTER
	COMMUNITY COMMERCIAL
	COMMUNITY SERVICE
	CORE COMMERCIAL
	DOWNTOWN BUSINESS
	GENERAL COMMERCIAL
	HAWKS PRAIRIE BUSINESS DISTRICTBUSINESS/COMMERCIAL
	HAWKS PRAIRIE BUSINESS DISTRICT—COMMERCIAL
	HEAVY COMMERCIAL
	HEAVY INDUSTRIAL
	HIGH DENSITY CORRIDOR 1
	HIGH DENSITY CORRIDOR 2
	HIGH DENSITY CORRIDOR 3
	HIGH DENSITY CORRIDOR 4
	HIGH DENSITY RESIDENTIAL
	HIGH DENSITY RESIDENTIAL 14
	HIGH DENSITY RESIDENTIAL 6/1
	HIGH RISE MULTIFAMILY
	HIGHWAY COMMERCIAL
	INSTITUTIONAL DISTRICT
	LACEY HISTORIC NEIGHBORHOOD
	MANUFACTURED HOUSING PARK
	MASTER PLANNED COMMUNITY
	MEDICAL SERVICE
	MEDIUM DENSITY RESIDENTIAL 4/1
	MEDIUM DENSITY RESIDENTIAL 6-9
	MILITARY RESERVATION

**CAPITOL LAND TRUST
SUITABILITY ANALYSIS
UNSUITABLE CRITERIA**

Unsuitable Criteria	Sub-Categories
ZONING cont.	MINERAL EXTRACTION
	MIXED RESIDENTIAL 10-18 UNITS
	MIXED RESIDENTIAL 7-13
	MIXED USE
	MIXED USE HIGH DENSITY
	MODERATE DENSITY RESIDENTIAL
	MULTIFAMILY HIGH DENSITY RESIDENTIAL 14-29 UNITS PER ACRE
	MULTIFAMILY MEDIUM DENSITY RESIDENTIAL 9-15 UNITS PER ACRE
	MULTIFAMILY RESIDENTIAL
	NEIGHBORHOOD COMMERCIAL
	NEIGHBORHOOD CONVENIENCE COMMERCIAL
	NEIGHBORHOOD RETAIL
	NEIGHBORHOOD VILLAGE
	OFFICE COMMERCIAL
	OPEN SPACE SCHOOL
	PUBLIC PARKS TRAILS AND PRESERVES
	PUBLIC USE
	PUBLIC/SEMI-PUBLIC
	RESIDENT MIXED USE
	RESIDENTIAL LOW IMPACT 2-4 UNITS PER ACRE
	RESIDENTIAL MULTIFAMILY 18
	RESIDENTIAL MULTIFAMILY 24 UNITS PER ACRE
	SAINT MARTAIN'S UNIVERSITY
	SINGLE FAMILY DUPLEX
	SINGLE FAMILY LOW DENSITY RESIDENTIAL 4-7 UNITS PER ACRE
	SINGLE FAMILY MEDIUM DENSITY RESIDENTIAL 6-9 UNITS PER ACRE
	TOWN CENTER
	TRAILS/OPENSOURCE/PARKS
	TWO FAMILY RESIDENTIAL 6-12
	URBAN CENTER
	URBAN RESIDENTIAL
	URBAN VILLAGE
	URBAN WATERFRONT
	URBAN WATERFRONT HISTORIC
	VILLAGE (URBAN) CENTER

APPENDIX C

SITE SELECTION CRITERIA





Capitol Land Trust Suitability Analysis Site Selection Criteria

Site selection criteria have been placed into three themes:

- Infrastructure
- Landuse and Ownership
- Environmental and Biological

Selection criteria within each group were evaluated for presence, adjacency, proximity, or abundance. Each criterion has been weighted with a 1, 5, or 10, based on how strongly it contributes positively or negatively to Capitol's conservation objectives. An "FYI" indicates neutrality and properties with the criteria are flagged. Flagged criteria are "For Your Information" and do not influence the suitability analysis.

Because of varying spatial scales and accuracies among the numerous datasets utilized in the analysis, distance thresholds were established. Presence criteria were evaluated as within 100 feet of a parcel boundary, adjacency was defined as beyond 100 feet but less than $\frac{1}{8}$ mile, and proximity refers to distances greater than $\frac{1}{8}$ mile. Site visits should be conducted to confirm the presence of specific criteria within a parcel's legal boundary.

INFRASTRUCTURE

Major Roads

- 1) A U.S. Highway or Interstate is Present on property:

		X	
-10	-5	-1	FYI

Fish Passage Barriers

- 2) Fish passage barrier is Present on property:

			X
-10	-5	-1	FYI



Capitol Land Trust Suitability Analysis Site Selection Criteria

State-Regulated Sites

- 3) State Cleanup Site or Regulated Facility is Proximate to the property:

Proximity is defined as within ¼ mile.

			X
-10	-5	-1	FYI

Overwater Structures

- 4) Overwater structure is Present on the property:

			X
-10	-5	-1	FYI

Utilities

- 5) Utility line is Present on the property:

			X
-10	-5	-1	FYI

UGA

- 6) Parcel is within a designated UGA:

		X	
-10	-5	-1	FYI



Capitol Land Trust Suitability Analysis Site Selection Criteria

LAND USE / OWNERSHIP

Capitol Land Trust Properties

- 1) Capitol property is Proximate to property:

Proximity is defined as within ½ mile.

	X		
1	5	10	FYI

A Capitol property is within ½ to 1 mile of the property line.

			X
1	5	10	FYI

Existing Conserved Lands or Protected Areas

- 2) Existing Conservation Lands or Protected Lands are Proximate to property:

Proximity is defined as within ½ mile.

	X		
1	5	10	FYI

An Existing Conserved Lands/Protected Area is within ½ to 1 mile of the property line.

			X
1	5	10	FYI



Capitol Land Trust Suitability Analysis Site Selection Criteria

Adjacent Management Agency

- 3) Property is Adjacent to Parcel Managed by State or Federal Entity:
Adjacency is defined as 200 feet.

	X		
1	5	10	FYI

Parcel Size

- 4) Property is of Preferred Acreage:

Marine Nearshore Parcels:

5 - 19.9 acres

	X		
1	5	10	FYI

20+ acres

		X	
1	5	10	FYI

Shoreline Parcels:

10 - 39.9 acres

	X		
1	5	10	FYI

40+ acres

		X	
1	5	10	FYI

Inland Parcels:

40+ acres

	X		
1	5	10	FYI



Capitol Land Trust Suitability Analysis Site Selection Criteria

Zoning

5) Property has preferred Zoning:

Long-Term Agriculture or Long-Term Forestry:

			X
1	5	10	FYI

Landuse

6) Property has preferred Landuse:

Agriculture, Designated Forest Land, Open Space, or Timberlands classified under current use
Chapter 84.34 RCW:

			X
1	5	10	FYI



Capitol Land Trust Suitability Analysis Site Selection Criteria

ENVIRONMENTAL / BIOLOGICAL

Wetland Size on Property

- 1) Percentage of property covered by Wetlands:

11-50%

X			
1	5	10	FYI

51-90%

	X		
1	5	10	FYI

Wetlands

- 2) Wetland is Present on the property:

Estuarine Intertidal:

Aquatic Bed or Aquatic Bed / Unconsolidated Shore

	X		
1	5	10	FYI

Estuarine Intertidal:

Emergent, Emergent/Unconsolidated Bottom, or Emergent/Unconsolidated Shore

			X
1	5	10	FYI

Riverine:

Freshwater Tidal, Perennial, or Riverine Intermittent

	X		
1	5	10	FYI

Streams

- 3) Stream is Present on the property:

	X		
1	5	10	FYI



Capitol Land Trust Suitability Analysis Site Selection Criteria

Ecosystem Diagnosis and Treatment Stream

(Data available only for WRIA 23)

- 4) EDT High or Medium Priority Stream is Present on the property:

	X		
1	5	10	FYI

EDT Restoration Potential of High and Medium stream is Present on the property.

			X
1	5	10	FYI

303d Stream or Waterbody

- 5) Impaired Waterbody is Present on the property:

			X
1	5	10	FYI

Floodzone

- 6) Floodzone is Present on the property:

X			
1	5	10	FYI



Capitol Land Trust Suitability Analysis Site Selection Criteria

Puget Sound Watershed Characterization Management Strategy

(Available only for WRIA 11, 13, and 14)

- 7) Property is located in a Watershed with the following strategy:

Highest Protection, Protection, or Conservation:

		X	
1	5	10	FYI

Highest Restoration, Restoration, or Protection/Restoration

	X		
1	5	10	FYI

Landcover

- 8) Priority Landcover is Present on Property:

Estuarine Grasslands:

		X	
1	5	10	FYI

Estuarine Mudflats:

	X		
1	5	10	FYI

Hardwood forest usually associated with Riparian, Lake shorelines and marshy edges, Hardwood dominated riparian, Riparian dominated by shrubby hardwoods, Riparian lined by conifers, or Mixed community riparian:

X			
1	5	10	FYI



Capitol Land Trust Suitability Analysis Site Selection Criteria

Rare Plants and Priority Habitats (Natural Heritage Data)

- 9) Rare Plant or Priority Habitat is Present on the property:

	X		
1	5	10	FYI

Priority Species and Habitats (WDFW Data)

- 10) Priority Salmonid habitat is Present on the property:

Fish species include: coho, fall/spring Chinook, fall and winter chum, and winter steelhead.

Known Spawning, Known Juvenile Rearing, or Presence/Migration:

		X	
1	5	10	FYI

- 11) Priority Trout habitat is Present on the property:

Coast Resident Cutthroat Trout Presence/Migration:

X			
1	5	10	FYI

- 12) Priority Species Point is Present on the property:

Priority Species include: marbled murrelet, Olympic mudminnow, Oregon spotted frog, Pacific lamprey, reticulated sculpin, ruffle sculpin, and Yelm pocket gopher.

X			
1	5	10	FYI

- 13) Priority Habitat Polygon is Present on the property:

Priority Habitat includes: bald eagle nest buffer or communal roost, Estuarine zone, Harbor Seal haulout and parturition areas, Olympic mudminnow occurrence area, Oregon spotted frog breeding and occurrence area, shorebird concentrations, wetlands, and Yelm and western pocket gopher concentrations.

X			
1	5	10	FYI



Capitol Land Trust Suitability Analysis Site Selection Criteria

- 14) Priority Generalized Species Presence is Present on the property:

Generalized data are represented as large geographic regions such as townships or sections.

Priority Generalized Species include: marbled murrelet detection, spotted owl site.

X			
1	5	10	FYI

NEARSHORE SPECIFIC CRITERIA

The available data for the following site selection criteria exist only in the marine nearshore environment and will not be applicable to upland inland properties or shoreline properties higher in the watershed. Presence is evaluated as within 100ft of the property line and therefore some inland and shoreline parcels along Puget Sound may be ranked for these criteria.

High Ranking Shoreline

- 1) Squaxin Island Tribe defined High Ranking Shoreline is Present on the Property:

	X		
1	5	10	FYI

Embayments

- 2) An Embayment is Present on the property:

		X	
1	5	10	FYI



Capitol Land Trust Suitability Analysis Site Selection Criteria

Nearshore Fish Habitat

3) Nearshore Fish Habitat is Present on the property:

Presence is defined as on-site due to higher accuracy of the source data.

Wild Fish Conservancy Water Type Assessment:

Fish Habitat:

	X		
1	5	10	FYI

WDFW Priority Habitat and Species:

Smelt Spawning Habitat:

	X		
1	5	10	FYI

Pacific Herring Adult Holding and Spawning Areas:

	X		
1	5	10	FYI

Harbor Seal haulouts or parturition areas:

	X		
1	5	10	FYI

APPENDIX D

SPATIAL DATA DICTIONARY



**CAPITOL LAND TRUST
SUITABILITY ANALYSIS
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PARCEL DATASETS

Feature Class	Feature Dataset	Description
County_Parcels	Parcels	Thurston and Lewis County parcels for the project area. These parcels are evaluated for private ownership and their proportion of unsuitable criteria.
Prioritization	Parcels	Only those parcels for each county that were prioritized in the suitability analysis. Nonprivate and unsuitable areas have been removed.
Capitol Properties Prioritized	Parcels	Capitol Land Trust owned parcels with prioritization ranks.
Lewis County Parcels	Parcels	Parcels and assessor's office attribute fields for the portion of the project area in Lewis County.
Thurston County Parcels	Parcels	Parcels and assessor's office attribute fields for Thurston County.

PARCEL FEATURE CLASS ATTRIBUTES

Attribute Field	Description
UID	Unique ID specific to an individual county and parcel. This field can be used to join county parcel information to prioritization results.
PRIVATE	Flagged with a "Y" if the parcel has private ownership as defined in the surface management agency dataset.
PRCT_PRIVATE	The proportion of the parcel that is privately owned. The parcel was included in the analysis if the proportion was 80% or greater.
UNSUITABLE	Flagged with a "Y" if the parcel contains unsuitable criteria.
PRCT_UNSUITABLE	The proportion of the parcel that contains unsuitable criteria. The parcel was included in the analysis if the proportion was less than 20%.
PRIORITIZE	Flagged with a "Y" if the parcel is included in the analysis.
PARCEL TYPE	Contains the parcel type: Inland, Nearshore Marine, or Shoreline.

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PRIORITIZATION FEATURE CLASS ATTRIBUTES

Attribute Field	Description
MAJOR_ROADS	The ranking for presence of a major road.
FISH_BARRIER_FLAG	Flagged with an "X" if a fish passage barrier is present.
CLEAN_UP_SITE_FLAG	Flagged with an "X" if a state-regulated cleanup site is within ¼ mile.
OVERWATER_STRUCTURE_FLAG	Flagged with an "X" if an overwater structure is present.
UTILITY_FLAG	Flagged with an "X" if a utility line is present.
UGA	The ranking for a parcel being within an urban growth boundary.
PROXIMATE_CAPITOL	The ranking for being within ½ mile of an existing Capitol Land Trust property.
PROXIMATE_CLT_FLAG	Flagged with an "X" if an existing Capitol Land Trust property is within ½ to 1 mile.
PROXIMATE_PROTECTED	The ranking for being within ⅛ to ¼ mile of a protected area.
PROTECTED_FLAG	Flagged with an "X" if a protected area is within ½ to 1 mile.
ADJ_STATE_FED	The ranking for being adjacent to a state or federal entity.
PARCEL_SIZE	The ranking for parcel size.
ZONING_FLAG	Flagged with an "X" if a parcel has long-term agriculture or long-term forestry zoning designation.
LANDUSE_FLAG	Flagged with an "X" if a parcel's landuse is designated as: Agriculture, Designated Forest Land, Open Space, or Timberlands classified under current use Chapter 84.34 RCW.
WETLAND_SIZE	The ranking for proportion of property covered by wetlands.
PRCT_WETLAND	Contains the proportion of the property covered by wetlands.
WETLANDS	The ranking for presence of priority wetland types. Priority types include: Estuarine Intertidal Aquatic Bed, Estuarine Intertidal Aquatic Bed / Unconsolidated Shore, Estuarine Intertidal Emergent, Estuarine Intertidal Emergent / Unconsolidated Bottom, Estuarine Intertidal Emergent / Unconsolidated Shore, Riverine Freshwater Tidal, Riverine Perennial, and Riverine Intermittent.
WETLAND_MODIFIER	Contains the type of priority wetland that is present for the ranked wetland types. When multiple wetland types are present, they are also listed. The highest possible rank was applied when multiple wetlands were present.
WETLAND_FLAG	Flagged with an "X" if an Estuarine Intertidal (Emergent, Emergent / Unconsolidated Bottom, or Emergent / Unconsolidated Shore) is present.

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Attribute Field	Description
STREAM	The ranking for presence of a stream.
EDT_STREAM	The ranking for presence of an EDT High or Medium priority stream status. Current EDT status was used.
EDT_STREAM_FLAG	Flagged with an "X" if a parcel has an EDT Restoration potential stream present with status of High or Medium.
FLAG_303D	Flagged with an "X" if a parcel has a 303d stream or waterbody present.
FLOODZONE	The ranking for a floodzone being present.
WRIA_PRIORITY	The ranking for the parcel's watershed priority from the Puget Sound Watershed Characterization effort.
WRIA_MODIFIER	Contains the Puget Sound watershed characterization priority classification for the watershed within which the parcel is located.
RARE_PLANT_HIGHQUAL_HAB	The ranking for presence of a rare plant or high-quality ecosystem.
SALMONID_PRESENCE	The ranking for presence of priority salmonid species (coho, fall and spring Chinook, fall and winter chum, winter steelhead)
SALMONID_MODIFIER	Contains the species of fish present. "COHO" = coho, "CHFA" = fall Chinook, "CHSP"= spring Chinook, "CHMF" = fall chum, "CHMW" = winter chum, "STWI" = winter steelhead.
SALMONID_SPAWNING_FLAG	Flagged if priority salmonid species habitat use is known spawning.
SALMONID_REARING_FLAG	Flagged if priority salmonid species habitat use is known juvenile rearing.
SALMONID_PRES_MIGR_FLAG	Flagged if priority fish species habitat use is presence/migration.
TROUT_PRESENCE	The ranking for presence of coast resident cutthroat trout.
PHS_POINT	The ranking for presence of PHS species of interest. Species include: marbled murrelet, Olympic mudminnow, Oregon spotted frog, Pacific lamprey, reticulated sculpin, riffle sculpin, or Yelm pocket gopher.
PRIORITY_BIRD_HABITAT	The ranking for a property being present within a section boundary containing marbled murrelet detections or a township boundary containing spotted owl site centers.
BIRD_MODIFIER	Contains information on whether the property is within a marbled murrelet section or spotted owl site township boundary.
SQUAXIN_SHORELINE	The ranking for presence of a beneficial shoreline as defined by the Squaxin Island Tribe nearshore habitat prioritization effort.

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Attribute Field	Description
EMBAYMENT	The ranking for presence of an embayment as mapped by the Squaxin Island Tribe nearshore habitat prioritization effort.
NEARSHORE_FISH_HAB	The ranking for nearshore fish habitat as defined by the Wild Fish Conservancy Water Typing assessment.
SMELT	The ranking for presence of smelt spawning habitat.
PACIFIC_HERRING	The ranking for presence of Pacific herring spawning and adult holding areas.
HARBOR_SEAL_HAB	The ranking for presence of harbor seal haulouts or parturition areas.
LANDCOVER	The ranking for presence of priority landcover habitat.
LANDCOVER_PRCT	Contains the percent of the priority landcover present on the property.
LANDCOVER_MODIFIER	The majority priority landcover present.
RESULTS	Prioritization ranks for each parcel included in the suitability analysis.
RESULTS_NO_PHS	Prioritization ranks for each parcel with PHS site selection criteria removed from results calculation.