Western Strait of Juan de Fuca Salmonid Habitat Conservation Plan

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LIST OF ACRONYMS/ABBREVIATIONS USED

BIS	Biologically Important Stream
BIS_RP	Biologically Important Stream Riparian
BIS_RP_LRFP	Biologically Important Stream Riparian on Large River Floodplain
BFW	Bankfull Width
C	Confined (freshwater GIS attribute code)
cfs	Cubic Feet per Second
CLD	Conifer Large Dense (freshwater GIS attribute code)
CLS	Conifer Large Sparse (freshwater GIS attribute code)
CMD	Conifer Medium Dense (freshwater GIS attribute code)
CMS	Conifer Medium Sparse (freshwater GIS attribute code)
CMZ	Channel Migration Zone
CSS	Conifer Small Sparse (freshwater GIS attribute code)
CZ	Convergent Zone (nearshore GIS attribute code)
DBH	Diameter at Breast Height
DEM	Digital Elevation Model
DLD	Deciduous Large Dense (freshwater GIS attribute code)
DMD	Deciduous Medium Dense (freshwater GIS attribute code)
DMS	Deciduous Medium Sparse (freshwater GIS attribute code)
DSD	Deciduous Small Dense (freshwater GIS attribute code)
DOE	Washington State Department of Ecology
DZ	Divergent Zone (nearshore GIS attribute code)
E	Estuary Habitat Units (nearshore GIS attribute code)

ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FBD	Forested Beach Deposit (freshwater GIS attribute code)
FEMA	Federal Emergency Management Agency
FHV	Feature Habitat Value
FP	Floodplain
FP-BIS-GIS	Floodplain Biologically Important Stream (GIS Layer)
FP-RIP	Floodplain Riparian
FW	Forested Wetland (freshwater GIS attribute code)
GIS	Geographic Information System
HA	Habitat Acres
HD	High Density Housing (freshwater GIS attribute code)
HP	Habitat Potential
L to R	Left to Right (nearshore GIS attribute code)
LiDAR	Light Detection and Ranging
LRFP	Large River Floodplain
M	Moderately Confined (freshwater GIS attribute code)
MLD	Mixed Large Dense (freshwater GIS attribute code)
MLS	Mixed Large Sparse (freshwater GIS attribute code)
MMD	Mixed Medium Dense (freshwater GIS attribute code)
MMS	Mixed Medium Sparse (freshwater GIS attribute code)
MSD	Mixed Small Dense (freshwater GIS attribute code)
MSS	Mixed Small Sparse (freshwater GIS attribute code)
NAD	No Appreciable Drift (nearshore GIS attribute code)
NOPLE	North Olympic Peninsula Lead Entity for Salmon
ODNF	Other Disturbed Non Forested Areas (freshwater GIS code)
ONP	Olympic National Park
OPR	Other Public Road(s) (freshwater GIS attribute code)
OWW	Open Water Wetland (freshwater GIS attribute code)
P	Pasture (freshwater GIS attribute code)
PHP	Parcel Habitat Potential
PNPTC	Point No Point Treaty Council
PPT	Pasture with Planted Trees (freshwater GIS attribute code)
PRISM	Parameter-Elevation Regressions on Independent Slopes Model
PSNERP	Puget Sound Nearshore Ecosystem Restoration Program
PV	Parcel Value
PVR	Private Road (freshwater GIS attribute code)
PWHV	Parcel Weighted Habitat Value
RIP	Riparian (freshwater GIS attribute code)
R to L	Right to Left (nearshore GIS attribute code)
ROW	Right-Of-Way (freshwater GIS attribute code)
RR	Rural Residential (freshwater GIS attribute code)
RRG	Rail Road Grade (freshwater GIS attribute code)
SH	Shoreline Habitat Unit
SH	State Highway (freshwater GIS attribute code)
SSHIAP	Salmon Steelhead Habitat Inventory and Assessment Project

U	Upland (nearshore GIS attribute code)
U	Unconfined (freshwater GIS attribute code)
USFS	United States Forest Service
USGS	United States Geological Survey
WDOT	Washington State Department of Transportation
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WPFHV	Weighted Parcel Feature habitat Value
WRIA	Water Resource Inventory Area
WSJF	Western Strait of Juan de Fuca
WSSI	Western Strait Small Independents

EXECUTIVE SUMMARY

The Western Strait of Juan de Fuca (WSJF) Habitat Conservation Plan identifies and prioritizes aquatic and riparian habitat that are important to salmon and steelhead productivity and survival. The plan specifically focuses on the most important floodplain, riparian, and nearshore habitats. Habitat conditions and aquatic ecosystem health are a function of the interaction between watershed controls, watershed processes, and land use. Land use plays a key role in how vegetation affects habitat forming processes occurring within a watershed: sediment supply, hydrological regime, organic inputs, nutrient supply, and light/heat inputs (NOPLE 2011). Salmonid populations depend on the existing quantity and quality of salmon habitat in the freshwater and marine environments.

Physical habitat characteristics, water quality, and primary productivity all contribute to defining the fitness and survival of the salmonids. Therefore, parcels considered for habitat conservation were prioritized based upon the following factors:

- Biological indicators
- Habitat forming processes
- Habitat potential and current habitat quality
- Habitat type/classification
- Ownership type (e.g., private versus publicly owned)
- Parcel size and relative proportion of parcel classified as habitat
- Relative position to other protected parcels
- Riparian and floodplain conditions

Five salmonid species are targeted to benefit from implementing the recommendations contained in this plan: Chinook, coho, and chum salmon, and steelhead and coastal cutthroat trout. These species depend on sufficient habitat quantity and quality throughout their lifecycle. This plan will help achieve NOPLE's goal to restore and maintain ecosystem function on the North Olympic Peninsula for Water Resource Inventory Area (WRIA) 19 through strategic planning and prioritization intended to create the greatest ecological benefits for than planning area.

The planning area includes all of Water Resource Inventory Area (WRIA) 19 and the adjacent nearshore environment. WRIA 19 drains the northwest tip of the Olympic Peninsula; encompassing waters emptying to the Strait of Juan de Fuca west of the Elwha River, to the northwest tip of Cape Flattery. The largest subbasin within the watershed is the Hoko River, followed by the Lyre, Pysht, Sekiu, and Clallam rivers.

Within the planning area all land and aquatic habitats were categorized into one of two broad categories: nearshore or freshwater. Estuaries were included within both categories. Primary nearshore habitats were divided into three board categories: estuaries, shoreline habitats, and nearshore uplands. Estuaries were defined as the interface between fresh and marine environments and were delineated based upon the approximated upper extent of tidal mixing. Shoreline habitats occur within the marine

environment and were bound on the landward side by ordinary high water and extended water ward to a depth of 10 meters. Nearshore uplands were divided into two zones: zone 1 (zone within 0-200 feet of shoreline), and zone 2 (from zone 1 landward to a total distance of 656 feet from shoreline).

Stream systems and segments were divided into two main habitat categories: large river floodplain and biologically important streams. Within these two main habitat categories existed several different habitat types. A total of 20 large river floodplain habitat channel segments of were delineated within the Sekiu, Hoko, Clallam, and Pysht river watersheds. In addition four large-river estuarine segment were also delineated. A total of 3,813 acres were classified as large river habitat. The Pysht River had the largest area with 1,497 acres classified as large river floodplain (includes in-channel, estuary, and floodplain/riparian acres). The Hoko River had the highest number of large river habitat acres (140ac; area within the bankfull edge), while the Pysht River had greatest number of acres classified as estuary (201ac, including estuarine wetlands).

A total of 239 freshwater habitat segments were delineated to determine the potential for habitat conservation. Collectively these 239 habitat segments encompassed 10,098 acres (~4% of the watershed area). These stream segments varied in size. For example, the smallest BIS in-channel habitat was only 0.01 acres and the largest was 45.6 acres, the average was 4.2 acres. Habitats considered for conservation were not evenly distributed across the planning area. The Pysht and Hoko watersheds contained 128 channel segments (54%) and 5,631 acres (56%) classified as large rivers, BIS, estuarine, riparian, and floodplain habitat, but these watersheds only account for 30% of the total planning area.

Floodplain and riparian features are discrete features that occupy areas within the large river-BIS GIS coverage. We documented and mapped these features in a dataset named Floodplain-Riparian Features GIS Layer. There are five different categories of feature types: estuaries, streams, wetlands, forested areas, and non-forested areas. A total of 1,720 acres of stream, wetland, and estuary habitat were delineated within the Floodplain-BIS GIS layer. A total of 1,042 acres were classified as stream habitat (area includes only habitat within the bankfull edge of the stream or river channel). The Hoko River and Pysht River watersheds had the most habitat acres classified as streams, with 371 (36%) and 210 (20%) acres respectively

Riparian conditions based on the Floodplain-Riparian Features GIS layer were summarized at the stream segment and watershed spatial scales. For this summary we simplified the riparian classification into four categories: non-impaired/slightly impaired function, impaired function, non-functioning, and non-forested. Stream segments with 10 acres or more riparian habitat were evaluated based on the percent of riparian/floodplain area classified as non-impaired/slightly impaired. Only 8 stream segments had greater than 60% of their respective habitat area classified as non-impaired/slightly impaired. The highest percent of riparian/floodplain area classified as non-impaired/slightly impaired occurred in the following stream segments: unnamed tributary 19.0135 Segment 1 (96%; tributary to Charley Creek), Deep Creek Segment 4 (84%), West Twin River

Segment 4 (72%), West Twin River Segment 3 (71%), Sadie Creek Segment 1 (Segment 66%), Sail River Segment 2 (65%), Clallam River Segment 6 (62%), and West Twin River Segment 5 (62%).

The nearshore prioritization resulted in a prioritized list of 42 parcels. The parcels were then further screened for existing habitat forming processes, proximity to other protected areas, habitat values equal to or greater than 4, ownership, submerged lands. Final screening resulted in the prioritization of 17 nearshore parcels.

The freshwater prioritization resulted in a prioritized list of 346 parcels. The top ranked 165 parcels were then further screened for existing habitat forming processes, proximity to other protected areas, proportion of parcel classified as habitat, and ownership. Parcel screening further reduced the number of parcels prioritized from 165 to 72. The 72 prioritized parcels are not evenly distributed throughout the planning area. For example, 53 percent of the prioritized parcels are within the Hoko River watershed, which makes up only 18 percent of the planning area's acreage. The distribution of the prioritized parcels is a function of the metrics used to prioritize parcels for conservation, these metrics include: habitat classification, habitat potential/current habitat quality, habitat forming processes, biological indicators, and riparian/floodplain conditions. In addition, ownership type, parcel size and the proportion of parcel classified as habitat, and parcel proximity to other protected parcels plays a major role in prioritization.

1 INTRODUCTION

The Western Strait of Juan de Fuca (WSJF) Habitat Conservation Plan identifies and prioritizes aquatic and riparian habitat that are important to salmon and steelhead productivity and survival. The plan specifically focuses on the most important floodplain, riparian, and nearshore habitats. Habitats and properties along the western portion of the Strait of Juan de Fuca are prioritized based on the recommendations and strategies set forth in the *Draft WRIA 19 Salmonid Restoration Plan* (North Olympic Peninsula Lead Entity for Salmon [NOPLE] 2011).

Habitat conditions and aquatic ecosystem health are a function of the interaction between watershed controls, watershed processes, and land use. Land use plays a key role in how vegetation affects habitat forming processes occurring within a watershed: sediment supply, hydrological regime, organic inputs, nutrient supply, and light/heat inputs (NOPLE 2011). Salmonid populations depend on the existing quantity and quality of salmon habitat in the freshwater and marine environments. Physical habitat characteristics, water quality, and primary productivity all contribute to defining the fitness and survival of the salmonids. Therefore, parcels considered for habitat conservation were prioritized based upon the following factors:

- Biological indicators
- Habitat forming processes
- Habitat potential and current habitat quality
- Habitat type/classification
- Ownership type (e.g., private versus publicly owned)
- Parcel size and relative proportion of parcel classified as habitat
- Relative position to other protected parcels
- Riparian and floodplain conditions

The primary criteria for identifying the highest priority parcels for conservation was that the parcels contained high quality habitat with high productivity potential, as well as intact habitat forming processes and a high proportion of parcel area classified as habitat. It should be recognized that this is a modeling exercise, and efforts have been made to correct errors in the modeling, but all modeling exercises are inherently imperfect. The North Olympic Land Trust only works with willing sellers who voluntarily conserve their land. No recommendations within this plan should be considered binding, nor should they act limit private property rights.

Five salmonid species are targeted to benefit from implementing the recommendations contained in this plan: Chinook, coho, and chum salmon, and steelhead and coastal cutthroat trout. These species depend on sufficient habitat quantity and quality throughout their lifecycle. This plan will help achieve NOPLE's goal to restore and maintain ecosystem function on the North Olympic Peninsula for Water Resource Inventory Area (WRIA) 19 through strategic planning and prioritization intended to

create the greatest ecological benefits for than planning area which covers over 385 square miles.

Prior to completion of this plan, there was a proposal to the NOPLE for funding of the Elwha Nearshore Ecosystem Restoration Action Plan, which would have provided a comprehensive ecosystem restoration plan for the Elwha nearshore, resulting in acquisition priorities, an inventory of properties, and parcel specific restoration priorities. The results of this plan are not focused on restoration priorities; however, it does identify priorities for conservation within the western half of the Elwha nearshore.

1.1 PLAN ORGANIZATION

The plan is divided into five main chapters:

- Introduction (Chapter 1)
- Background (Chapter 2)
- Methods (Chapter 3)
- Results (Chapter 4)
- Discussion and Recommendations (Chapter 5)

Chapter 2 includes a general watershed overview, a description of land use, and a brief summary of the planning area's salmonid resources. Chapter 3 includes a very detailed description of the methods used to map and classify habitats, as well as the methods used to prioritize parcels for potential conservation actions. The results are presented in Chapter 4. A brief discussion of results is included in Chapter 5. A list of referenced citations is included in Chapter 6.

Subbasin land use zoning and ownership maps are included in **Appendix A**. Stream channel segment maps are included in **Appendix B**. Priority parcels are summarized with maps and details relating to their conservation attributes in **Appendix C** and **D**.

2 BACKGROUND

2.1 WATERSHED OVERVIEW

The planning area includes all of Water Resource Inventory Area (WRIA) 19 and the adjacent nearshore environment. WRIA 19 drains the northwest tip of the Olympic Peninsula; encompassing waters emptying to the Strait of Juan de Fuca west of the Elwha River, to the northwest tip of Cape Flattery (see Figure 1).

The largest subbasin within the watershed is the Hoko River, followed by the Lyre, Pysht, Sekiu, and Clallam rivers. The NOPLE salmon habitat recovery strategy combined the Water Resource Inventory Area into 9 geographic units. The resulting NOPLE Geographic Units and basin areas are depicted in Table 1. Within this plan we have followed the general subbasin delineation established by NOPLE but we've separated the East and West Twin Rivers into two discrete subbasins.

Table 1. WRIA 19 NOPLE geographic units and drainage basin areas.

Watersheds	**NOPLE Geographic Unit**	**Basin Area (sq. mi.)**	**Basin Area (sq. km.)**
Colville, Whiskey, Field, Murdock, Joe, Jim, Butler, Falls, Olsen, Trettevick, Jansen, Rasmussen, Bullman, and Snow Creeks, Sail River, and Agency, Halfway, and Village Creeks	Western Strait Independents	73.3	189.8
Salt Creek	Salt	19.1	49.5
Lyre River	Crescent-Lyre	67.9	175.9
East Twin River	East & West Twin	13.6	35.2
West Twin River	East & West Twin	12.6	32.6
Deep Creek	Deep	17.2	44.5
Pysht River	Pysht	46.3	119.9
Clallam River	Clallam	31.0	80.3
Hoko River	Hoko	71.0	183.9
Sekiu River	Sekiu	33.2	86.0
Entire WRIA 19 area	**Total Area of WRIA 19**	**385.2**	997.7

The majority of planning area drains low elevation hills and mountains with maximum elevations ranging from 2,000 to 3,500 feet. The exception is the Lyre River subbasin where maximum elevations approach 5,500 feet and a significant portion of the watershed is above an elevation of 2,500 feet. The Lyre River subbasin is the only subbasin within WRIA 19 that contains alpine meadows and seasonal snow fields.

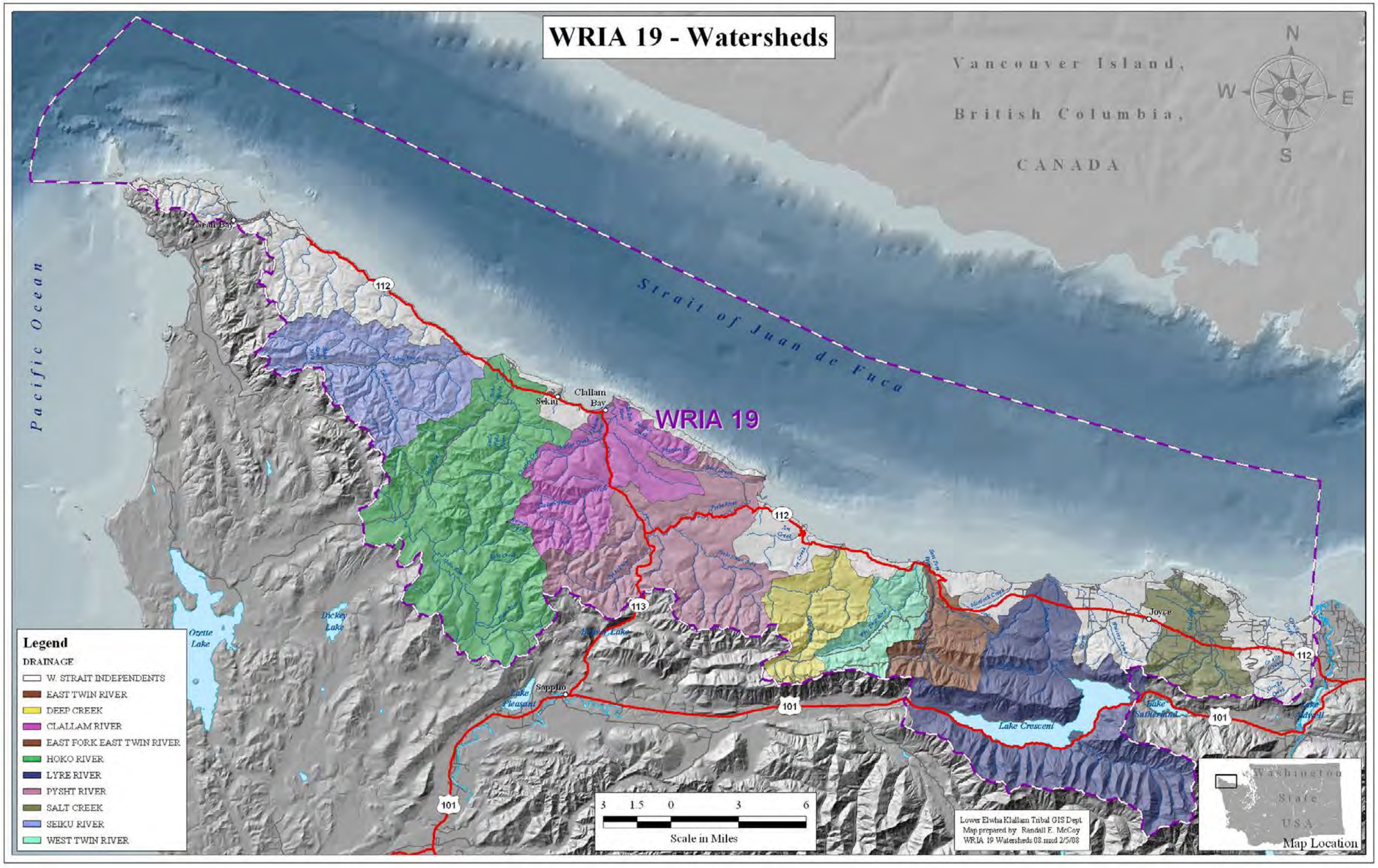

Figure 1. Water Resource Inventory Area 19 watershed overview map, from the western boundary of the Elwha River west to the tip of Washington State near Tatoosh Island at Neah Bay (source: NOPLE 2011).

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The climate varies widely throughout the planning area, with higher annual precipitation to the west and at higher elevations. The climate as a whole can be characterized as temperate coastal-marine, with mild winters and cool summers. The majority of precipitation falls as rainfall from October through April. The eastern half watershed is much drier the western half of the watershed. For example, the Salt Creek subbasin receives 35-55 inches of precipitation annually (McHenry et al. 2004); whereas the Sekiu River subbasin receives 95-120 inches of precipitation annually (Lautz 2001). Subbasins such as the East and West Twin Rivers and Deep Creek have intermediate precipitation levels averaging 75 inches per year (Stoddard 2002).

On the Olympic Peninsula, the major impacts of climate change are projected to be higher snowlines, potentially wetter autumns and winters and drier summers (Mantua 2009). Rising snowlines may affect seasonal snowpack, thus increasing winter runoff and reducing spring runoff in transition and snow dominated watersheds. Rising snowlines pose the greatest risk of hydrologic impacts to transition and snow dominated watersheds (e.g., Lyre River). Climate change will also likely increase stream temperatures throughout the Olympic Peninsula (Mantua 2009). Stream temperatures on the Olympic Peninsula are far less sensitive to future climate changes than interior Washington watersheds. Watersheds that span the current snow line appear more vulnerable to climate change, and salmon recovery plans that enhance lower-elevation habitats are likely to be more successful over the next 50 years than those that target the higher-elevation basins likely to experience the greatest snow–rain transition (Battin et al. 2007).

The terrestrial portion of planning area is predominantly forested. Lake Crescent is largest non-forested area within the watershed. Other non-forested areas occur where bogs and open water wetlands naturally exist, as well as in alpine meadows. Much of the planning area forest can be characterized as a coastal temperate rainforest. Within the western portion of the watershed western hemlock (*Tsuga heterophylla*) and Sitka spruce (*Picea sitchensis*) are the dominant conifer species, followed by western red cedar (*Thuja picata*), pacific silver fir (*Abies amabilis*), Douglas fir (*Psuedotsuga mensiezii*), and western yew (*Taxus brevifolia*). Forests in the eastern half of the watershed are similar but with Douglas fir being a more dominant component and Sitka spruce being a much less prevalent species. Red alder (*Alnus rubra*) is the most prevalent deciduous tree, and is common along streams and disturbed sites. Vine maple (*Acer circinatum*) and bigleaf maple (*Acer macrophylla*) are also common in riparian areas, wetlands, and meadows.

Figure 2 depicts the geology of the planning area. The geology is mix of sedimentary and basaltic volcanic rock types interspersed with glacial deposits. Bedrock units are generally orientated parallel to the Strait of Juan de Fuca, striking northwest in western portion of the WRIA and west-northwest in the eastern half. The rock units are generally youngest nearest the Strait of Juan de Fuca and oldest in the headwaters. Bedrock units are overlain by glacial deposits in many places throughout the watershed but the most extensive glacial deposits occur closest to the Strait and/or east of the East Twin River. For example, glacial deposits occur across 18 percent of the watershed area but in the Salt Creek subbasin glacial deposits cover more than 35 percent of the basin.

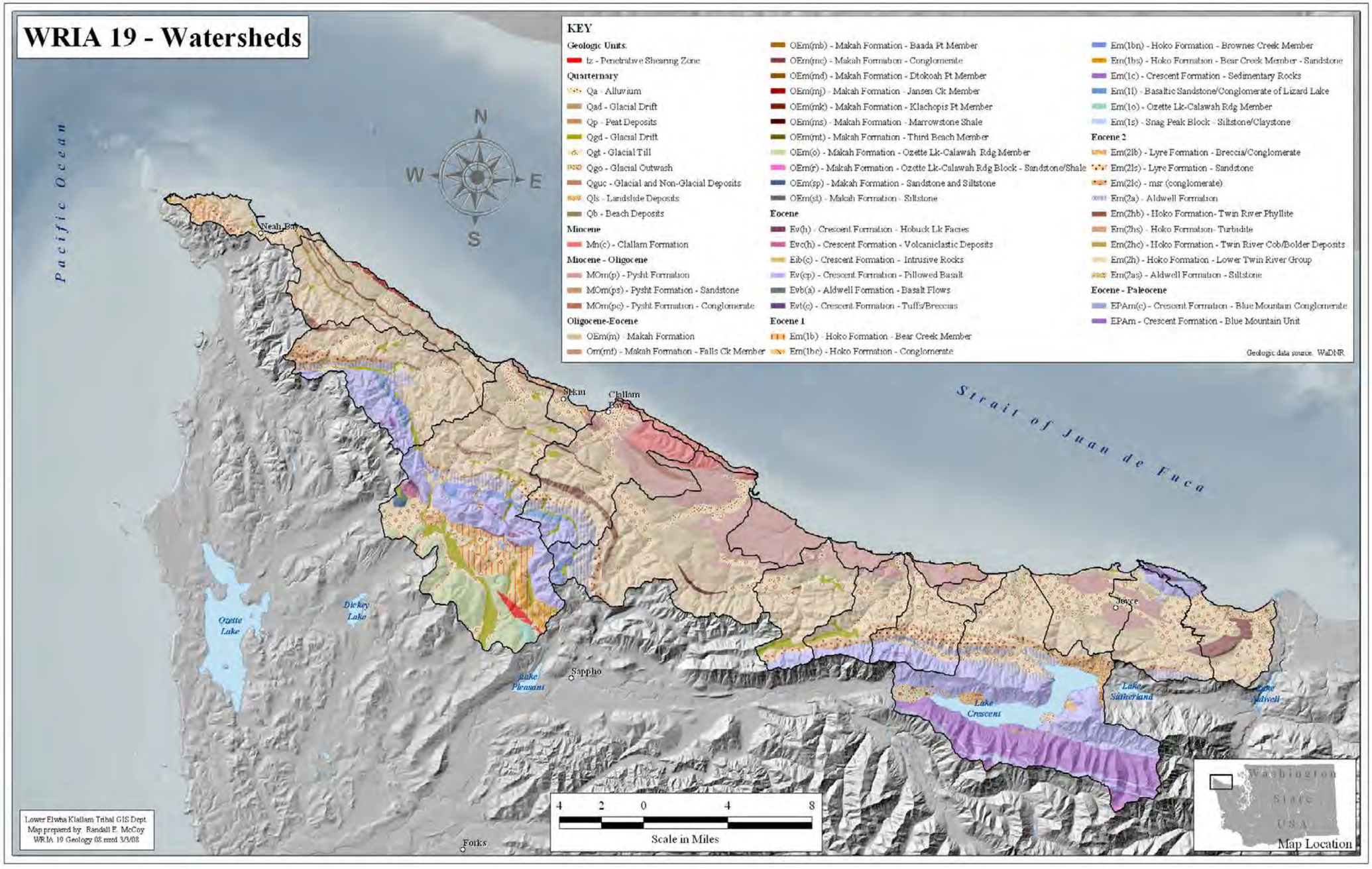

Figure 2. Geologic map of the WRIA 19 watershed (source: WDNR geologic data from Schasse 2003 *in* NOPLE 2011).

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2.2 LAND USE

2.2.1 Historical Land Use

The area comprising WRIA 19 was ceded to the United States by the Makah Indian Tribe in the Treaty of Neah Bay in 1855 and by the Klallam Tribe in the Treaty of Point No Point in 1855. Year round and seasonal tribal villages existed at the mouths of several of the major streams (Salt and Deep creeks, Pysht River, Hoko River), as well as along Strait of Juan de Fuca at strategic beaches (Clallam Bay, Neah Bay) and points.

Euro-American settlement within the watershed began in the late-nineteenth century. By the late-1800s tannin extraction, logging, coal mining, and farming appear to have been the main economies of the Clallam Bay/Sekiu area. The introduction and extension of logging railroads arrived on Western Olympic Peninsula around 1900 (Wright date unknown).

Logging railroads and the use of high-lead logging opened new territory up to logging and aided in the formation of coastal logging communities such as Port Crescent, Gettysburg, Twin, and Pysht. Much of the early day logging communities were booming until the stands served by the railroads were logged out. By the early 1950s most logging operations were accessed by roads and logs were trucked to mills or log dumps.

2.2.2 Current Land Use

NOPLE (2011) summarized landownership in ten landownership types: private, U.S. Forest Service (USFS), Washington State Department of Natural Resources (WDNR), Olympic National Park (ONP), Indian Reservation, church, Port of Port Angeles, Clallam County, other Federal lands, other State lands, and easements/right of way (see Figure 3). The Clallam County land parcel database includes 19 different zoning classifications within the planning area. NOPLE (2011) simplified these classifications by grouping similar zoning types together to provide a basic summary of the land use types within the watershed. The Draft WRIA 19 Salmonid Restoration Plan summarized zoning/land use types within following land use types: commercial forest, rural, Olympic National Park, urban/industrial, Indian Reservation, other public land, easements/right of way, and other.

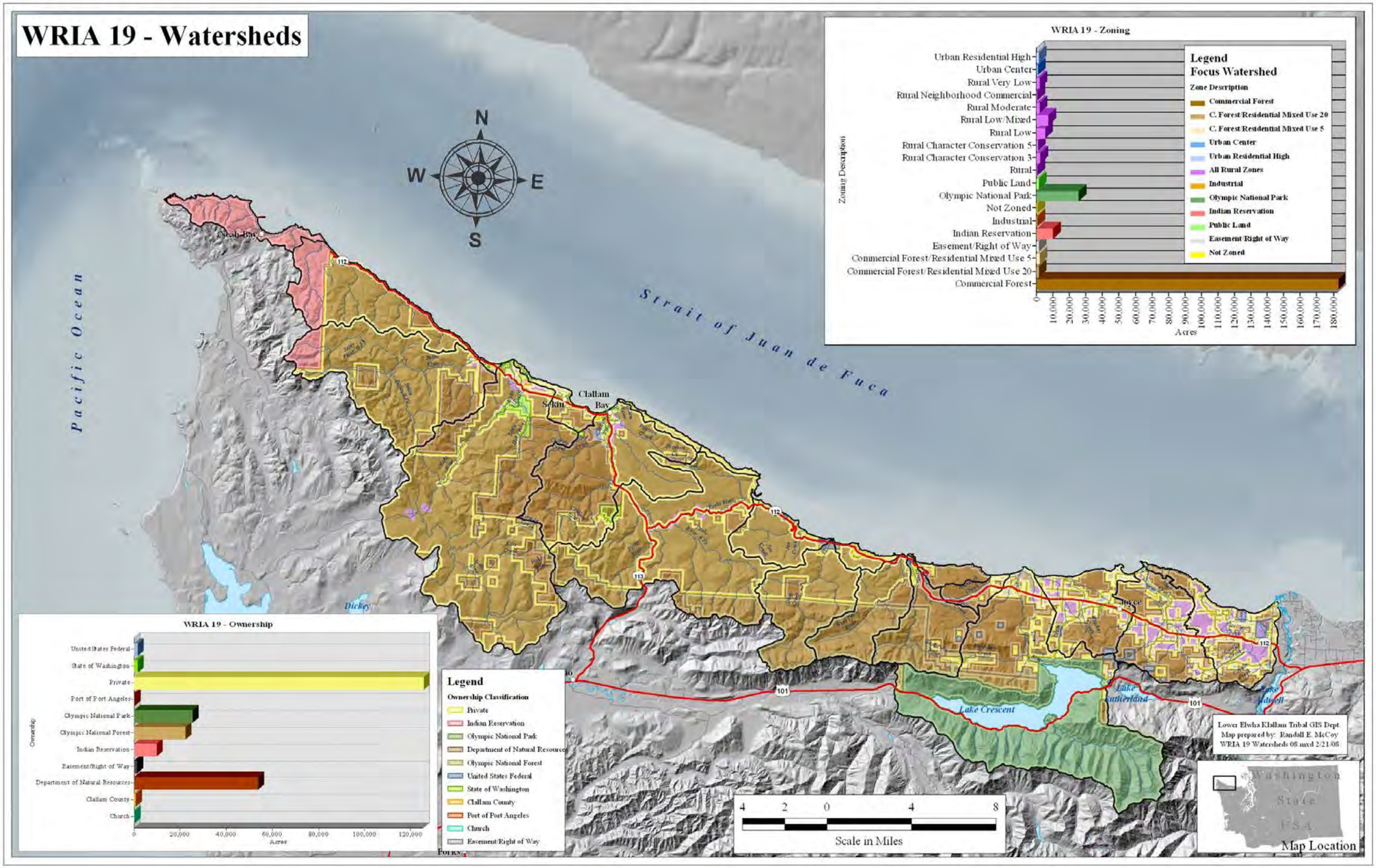

Figure 3. WRIA 19 landownership types and Clallam County zoning (source: NOPLE 2011). Note colored polygons represent zoning and polygon edge colors indicate ownership type.

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Over 51 percent of the watershed is privately owned. Public ownership, including WDNR (22.3%), ONP (11.6%), and the USFS (9%) comprise nearly 43 percent of the remaining land area. Less than 7 percent of the watershed is within the following ownership categories: Indian Reservation, county, other State land, other Federal land, easements/right of way, and other miscellaneous (see Table 2). Landownership type varies significantly by watershed, for example, nearly 77 percent of the Pysht River subbasin is privately owned while less than 7 percent of the East Twin River subbasin is privately owned. Private land includes large industrial forest landowners and small forest, residential, and agricultural landowners. **Appendix A** includes detailed subbasin maps depicting classified landownership and land use types.

Table 2. Landownership types summarized as a percentage of watershed area by subbasin.

	Percentage of subbasin area within specified landownership types										
Subbasin	**Private**	**WDNR**	**ONP**	**USFS**	**Indian Res.**	**County**	**Other State Land**	**Other Federal Land**	**Ease. / ROW**	**Other**	**Total**
Salt	50.2%	44.3%	0.00%	0.0%	0.0%	1.1%	0.0%	3.1%	1.3%	0.0%	100%
Lyre	10.4%	17.5%	65.5%	5.7%	0.0%	0.0%	0.0%	0.6%	0.3%	0.0%	100%
East Twin	6.8%	46.1%	0.01%	46.2%	0.0%	0.3%	0.0%	0.5%	0.3%	0.0%	100%
West Twin	29.0%	9.9%	0.0%	60.9%	0.0%	0.0%	0.01%	0.0%	0.2%	0.0%	100%
Deep	43.2%	4.9%	0.0%	50.4%	0.0%	0.6%	0.0%	0.8%	0.1%	0.0%	100%
Pysht	76.7%	5.9%	0.0%	16.6%	0.0%	0.03%	0.2%	0.0%	0.5%	0.0%	100%
Clallam	49.6%	47.6%	0.0%	0.1%	0.0%	0.1%	2.1%	0.02%	0.6%	0.01%	100%
Hoko	72.5%	24.6%	0.0%	0.9%	0.0%	0.2%	1.7%	0.0%	0.1%	0.02%	100%
Sekiu	75.7%	17.3%	0.0%	0.0%	7.1%	0.0%	0.01%	0.0%	0.01%	0.0%	100%
WSI	57.1%	23.0%	0.0%	0.0%	16. 8%	0.6%	0.4%	1.2%	1.0%	0.06%	100%
Total WRIA 19	**51.4%**	**22.3%**	**11.6%**	**9.1%**	**3.9%**	**0.3%**	**0.6%**	**0.5%**	**0.4%**	**0.02%**	**100%**

Almost 76 percent of the watershed is classified as commercial forest land. The next highest land use type within the watershed is Olympic National Park (11.6%). The remaining 12.4 percent of the watershed area's land use is classified as one of the following land use types: rural, urban and industrial, Indian Reservation, other public lands, easements and right of ways, and other miscellaneous. Table 3 depicts the percentage of subbasin area within each of the 8 land use types.

As described above nearly 76 percent of the watershed area is zoned as commercial forest land. Ownership of this commercial forest land is mixed with 56 percent owned by private timber companies, 28 percent owned/managed by WDNR, 12 percent is national forest service land, and the remaining owned by small landowners, Clallam County, and miscellaneous other owners. This is an important point since land use and timber harvest practices vary by ownership.

Table 3. Land use types summarized as a percentage of watershed area by subbasin.

Subbasin	Percentage of subbasin area within land use type							
	Commercial Forestry	**Rural**	**ONP**	**Urban / Industrial**	**Indian Res.**	**Other Public Land**	**Easements**	**Other**
Salt	55.5%	42.3%	0.0%	0.0%	0.0%	0.7%	1.3%	0.2%
Lyre	31.0%	2.7%	65.9%	0.0%	0.0%	0.0%	0.3%	0.1%
East Twin	99.9%	0.0%	0.02%	0.0%	0.0%	0.0%	0.1%	0.0%
West Twin	99.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%
Deep	99.95%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
Pysht	98.1%	1.4%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%
Clallam	94.3%	2.4%	0.0%	2.6%	0.0%	0.2%	0.6%	0.01%
Hoko	95.5%	3.0%	0.0%	0.3%	0.0%	1.1%	0.1%	0.0%
Sekiu	92.0%	1.0%	0.0%	0.00%	7.1%	0.00%	0.01%	0.0%
WSI	60.8%	19.6%	0.0%	1.6%	16.8%	0.2%	0.9%	0.2%
Total WRIA 19	**76.0%**	**7.2%**	**11.6%**	**0.6%**	**3.9%**	**0.3%**	**0.4%**	**0.1%**

2.3 SALMONID RESOURCES

Within the planning are there are 19 WDFW stock complexes which belong to 5 distinct evolutionarily significant units (ESUs) as defined by the National Marine Fisheries Service, these include:

- The Washington Coast Chinook ESU
- The Pacific Coast Chum ESU
- The Olympic Peninsula Coho ESU
- The Olympic Peninsula steelhead trout ESU
- The Olympic Peninsula coastal cutthroat trout ESU

Within the freshwater portion of the planning area there are no ESA-listed salmonid populations. ESA-listed salmonids do occur within the nearshore and estuarine portions of the planning area. The 2004 North Olympic Peninsula Lead Entity status review results are summarized in Table 4. Chinook salmon populations are present in the Sekiu, Hoko, and Pysht watersheds. No Chinook population's status is currently considered healthy. The largest spawning population occurs in the Hoko River. Chum salmon spawning occurs within all ten geographic units. The largest spawning populations occur in the Pysht and Lyre rivers. No chum salmon population's status is currently considered healthy; six spawning populations were classified as critical (see Table 4).

Coho salmon spawning occurs in all ten geographic units. The largest spawning populations occur in the Hoko, Pysht, and Clallam rivers. Only one coho salmon population's status was considered healthy, seven were classified as depressed, and two were classified as critical. Steelhead spawning also occurs in all ten geographic units.

The largest spawning population is in the Hoko River. Three populations were classified as healthy, five as depressed, and two as unknown.

Table 4. Summary of the NOPLE 2004 stock status review (as modified in NOPLE 2011).

Species	Number of populations and population status				
	Healthy	Depressed	Critical	Unknown	Total Number of Populations
Chinook	0	1	2		3
Chum	0	3	6	1	10
Coho	1	7	2		10
Steelhead	3	5	0	2	10
Total	4	16	10	3	33

3 METHODS

This chapter describes the approach and methods used to classify and prioritize habitats for potential conservation. This chapter is divided into three main sub-sections: habitat classification (Section 3.1), conservation prioritization (Section 3.2), and stakeholder participation and feedback (Section 3.3).

3.1 HABITAT CLASSIFICATION

Within the planning area all land and aquatic habitats were categorized into one of two broad categories: nearshore or freshwater. Habitat features such as estuaries were included within both categories. The following subsections below describe, in detail, the methods used to generate GIS data layers for describing and prioritizing habitats across the planning area.

3.1.1 Nearshore Habitats

Primary nearshore habitats were divided into three board categories: estuaries, shoreline habitats, and nearshore uplands. Estuaries were defined as the interface between fresh and marine environments and were delineated based upon the approximated upper extent of tidal mixing. Shoreline habitats occur within the marine environment and were bound on the landward side by the WDNR shore-zone poly line (an approximation of the ordinary high water) and extended water ward to a depth of 10 meters. Nearshore uplands were divided into two zones: zone 1 (zone within 0-200 feet of shoreline), and zone 2 (from zone 1 landward to a total distance of 656 feet from shoreline).

ArcMap 10 was used to delineate nearshore habitats throughout the planning area. Existing nearshore datasets and geospatial data were used to develop the WSJF nearshore dataset used for conservation planning. The existing datasets used included the following:

- Puget Sound Nearshore Ecosystem Restoration Program's (PSNERP) geospatial dataset developed for their comprehensive change analysis of Puget Sound. This is a very comprehensive geodatabase. Primary data layers used in our assessment include:
    - Nearshore geographical scale units
    - Historic and current shoreform
    - Updated DOE drift cells
- Washington State Department of Natural Resources Shorezone geodatabase. Primary data layers used included:
    - Shoreline characteristics: substrate type, shoreline type, shoreline modification, and exposure class.

    - Nearshore vegetation: seagrass, kelp, sargassum, dune-grass, and salt marsh.
- Local LiDAR data (2002 Clallam County LiDAR from eastern planning area boundary to just west of the Lyre River. 2005 WDNR/WDOT LiDAR- partial dataset from Pysht River to Sekiu River).
- 2006 and 2009 USDA orthophotos; other aerial photos
- DOE oblique shoreline photos
- USGS 7.5 minute maps, 10 and 30 meter USGS DEMs
- Clallam County Critical Areas dataset (primarily wetlands and wetland delineations)
- DOE drift cells
- WDFW forage fish database
- Other assessments (e.g. Pysht River Floodplain Assessment)

3.1.1.1 Habitat Types

The first step in developing a geospatial representation of habitat units within the planning area required defining habitat unit criteria. The steps and criteria used are described below.

Estuary Habitat Units (E)

Estuary habitats were categorized within three main estuary habitat units:

- Primary estuary channel (primary river or stream channel within the estuarine mixing zone).
- Estuarine wetland channel (secondary channel within the estuarine mixing zone).
- Estuarine wetland (wetland within the estuarine mixing zone).

Shoreline Habitat Units (SH)

Habitat units were defined by combining shoreline type, net shore drift, and substrate type. Shoreline types were based upon polygons included in PSNERP (2009) geospatial database and defined as one of the following:

- Artificial
- Barrier beach
- Bluff backed beach
- Open coastal inlet
- Plunging rocky shoreline
- Pocket beach
- River delta
- Rocky ramp-platform

A definition for each shoreline type is included below:

Artificial: Shorelines that are significantly modified by humans (for example see Figure 4).

Barrier beach: A sediment dominated beach that has net longshore drift (L to R, R to L, DZ, CZ) and shows indications of accretion of sediment seaward of a previous shoreline, including: cuspate forelands, spit, wetlands behind the beach, and/or low elevations behind the beach (for example see Figure 5).

Bluff backed beach: A sediment-dominated beach that has net longshore drift (L to R, R to L, DZ, CZ) and does not meet the criteria for delta, rocky coast, or barrier beach shoreforms (for example see Figure 6).

Open coastal inlet: Usually associated with valleys in the terrestrial landscape and can be associated with a coastal stream or river mouth. Open coastal inlets lack longshore drift (NAD) and are without a barrier to significantly enclose them; their size or configuration minimizes wave action (for example see Figure 7).

Plunging rocky shoreline: Rocky coasts with no significant intertidal or subtidal platforms. Plunging rocky shorelines drop directly into deeper water with little break in slope (for example see Figure 8).

Pocket beach: A sediment-dominated beach isolated from longer reaches of shoreline by rocky headlands or promontories that restrict longshore sediment transport (for example see Figure 9).

River delta: large fluvial dominated delta. Only one example exists within the planning area which includes a small portion of the Elwha River delta (west of the west Elwha River dike).

Rocky ramp-platform: Shorelines with exposed bedrock that are low gradient. The intertidal/subtidal surfaces are formed by wave erosion. There may be some unconsolidated material (cobbles, boulders), but it usually lacks fine sediment (for example see Figure 10).

Each shoreline habitat unit can only have **one** shoreline type, one net shore drift category, and one substrate type category. Net shore drift was assigned to one of five categories: right-to-left (R to L), left-to-right (L to R), convergence zone (CZ), divergence zone (DZ), or NAD (no appreciable drift). Drift cell direction was determined using the updated DOE drift cell data in PSNERP (2009). Substrate type was assigned to one of seven categories: rock, rock/gravel/sand, gravel, gravel and sand, sand, mud and fines, and man-made (based on the WDNR [2006] data in the Shorezone geodatabase).

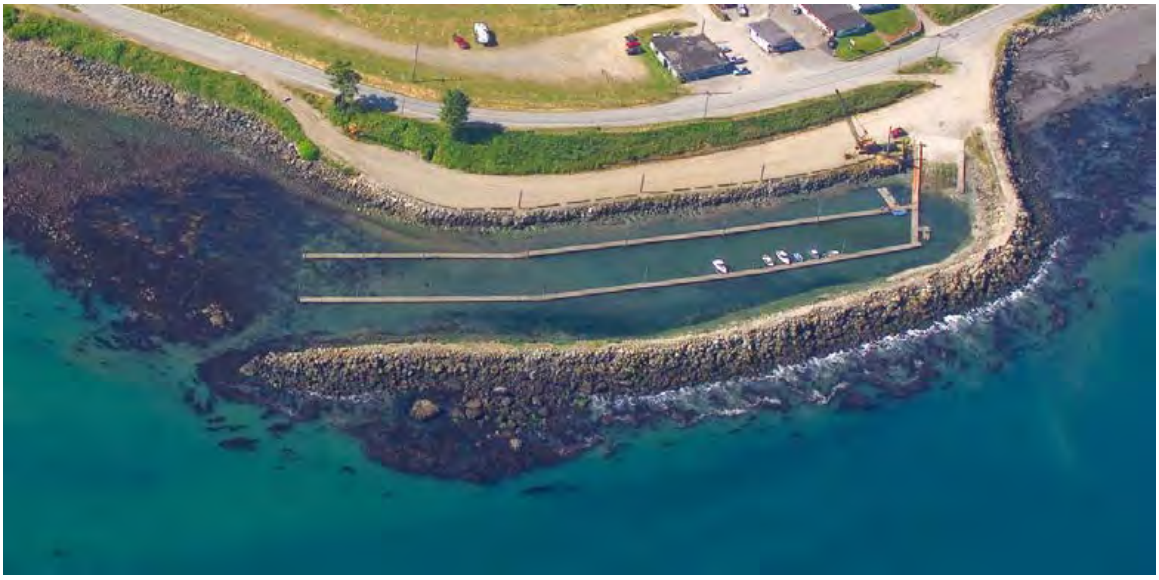

Figure 4. Example of artificial shoreline, this feature between Clallam Bay and Sekiu (source: DOE 2006).

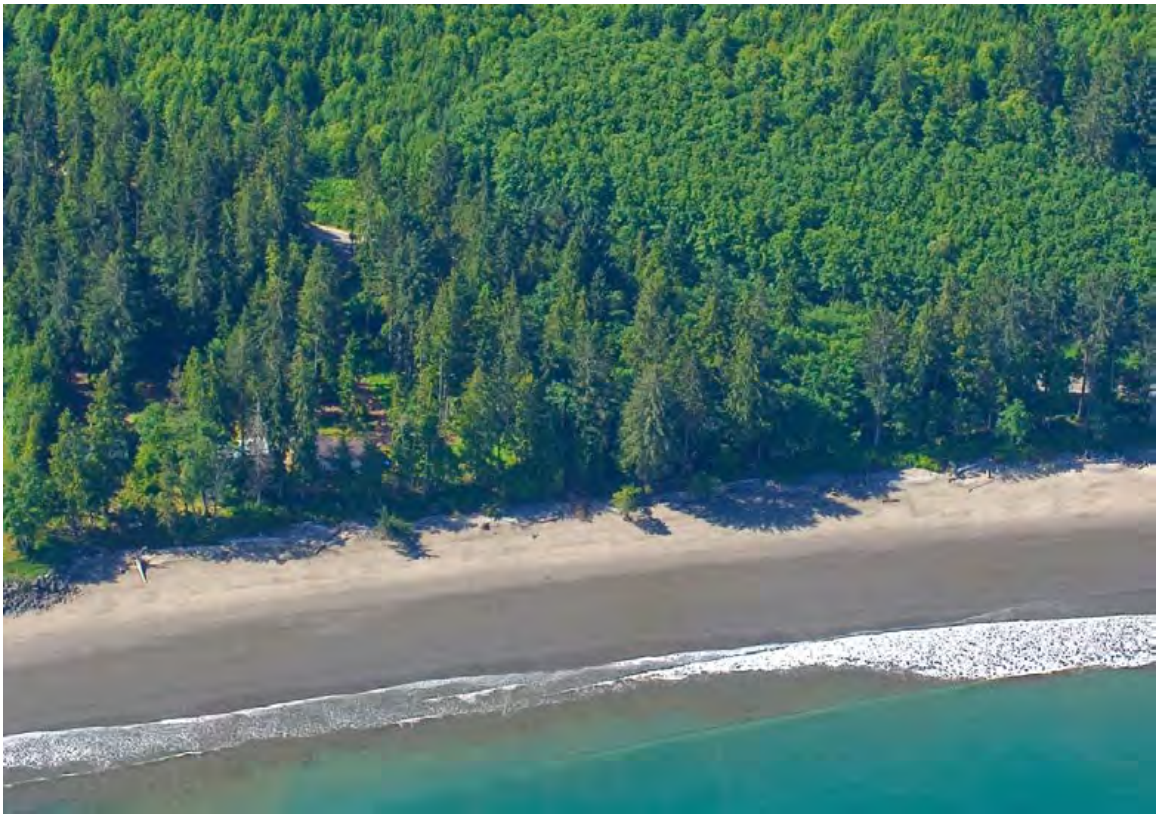

Figure 5. Example of barrier beach shoreline type near Lyre River (source: DOE 2006).

Figure 6. Example of bluff backed shoreline type near Whiskey Creek (source: DOE 2006).

Figure 7. Example of open coastal inlet shoreline type at Sail River (source: DOE 2006).

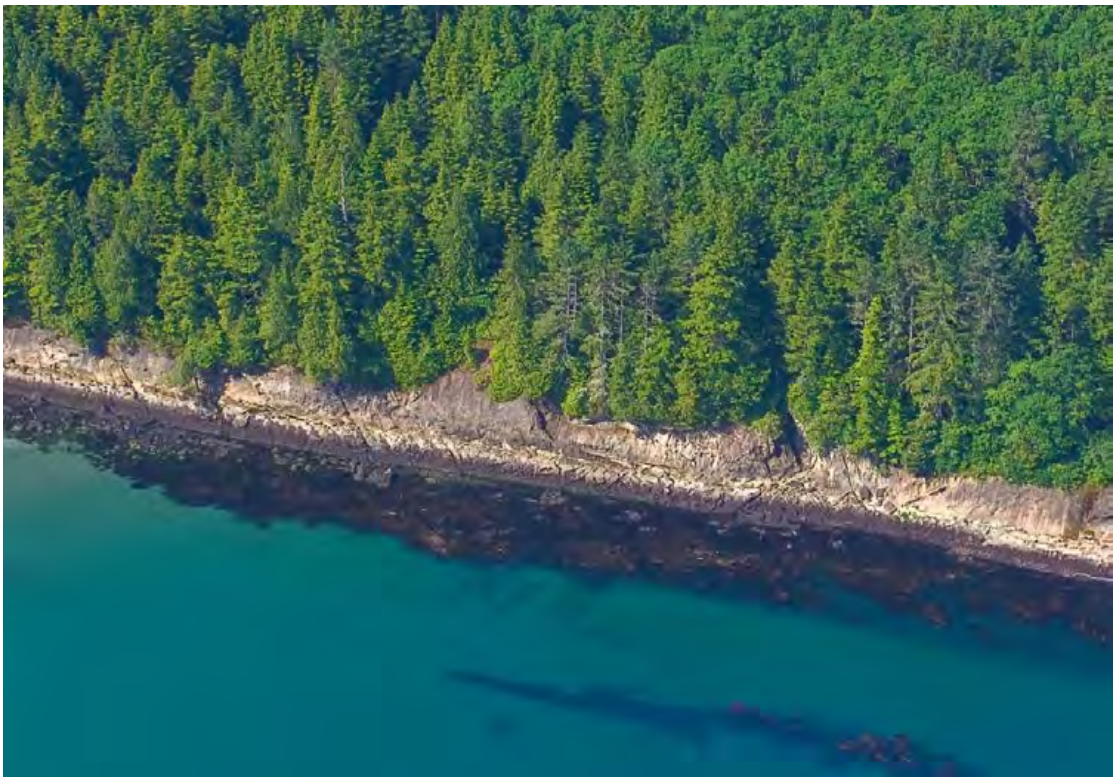

Figure 8. Example of plunging rocky shoreline near Neah Bay (source: DOE 2006).

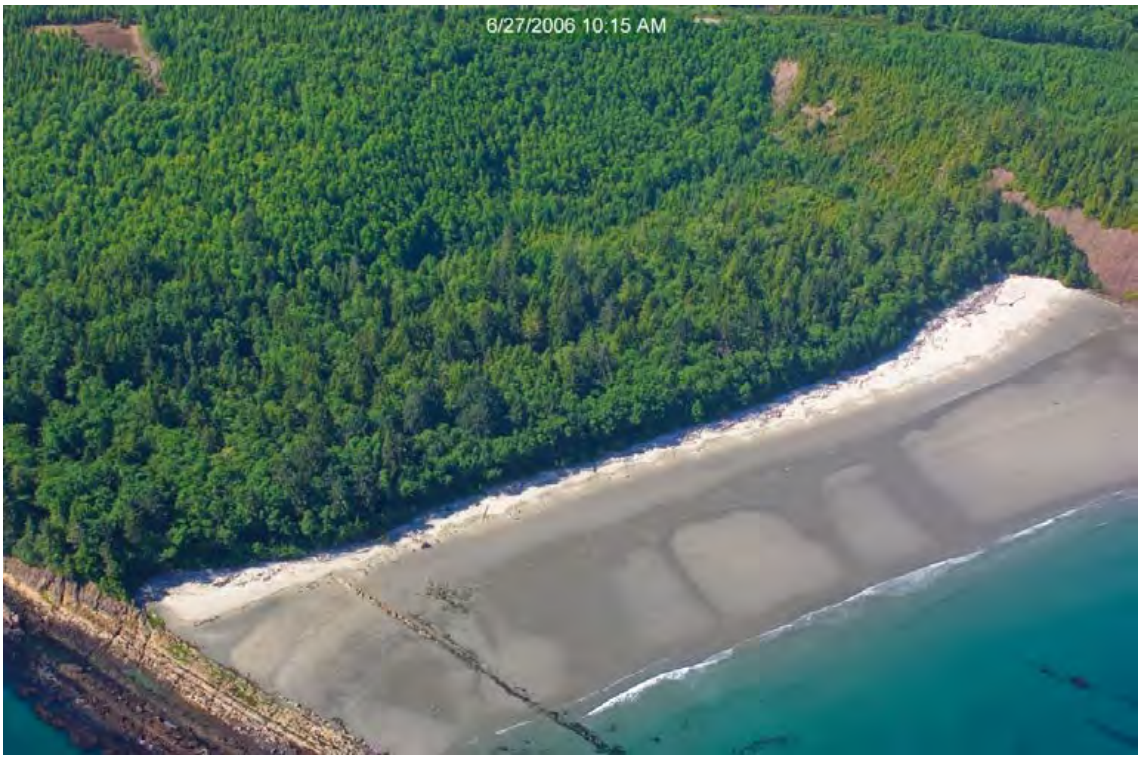

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Figure 9: Example of pocket beach shoreline type near Neah Bay (source: DOE 2006).

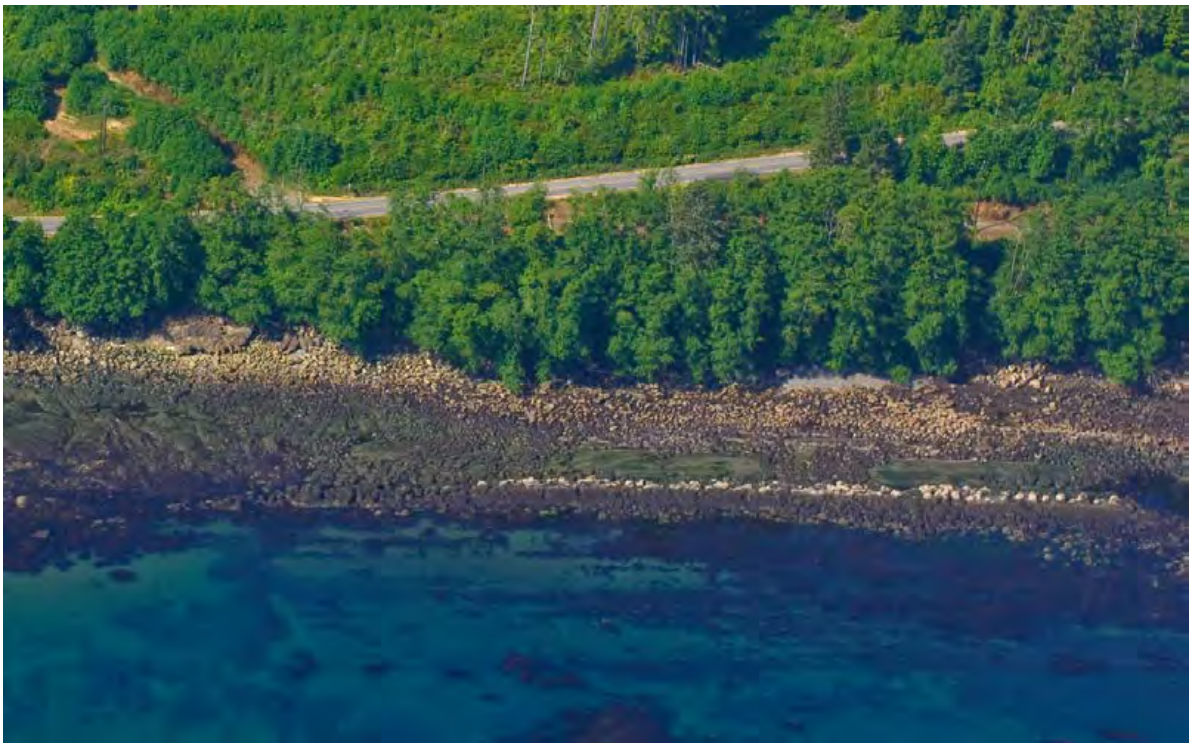

Figure 10. Example of rocky ramp platform shoreline type near Bullman Creek (source: DOE 2006).

3.1.1.2 Defining Nearshore Habitat Process Units (HPUs)

Nearshore ecosystems are dynamic and continuously changing as a result of the interactions between physical processes and structures, and functions and responds to different types and intensities of natural and anthropogenic disturbances (Fresh et al. 2004). Processes that define the nearshore ecosystem of the Western Strait of Juan de Fuca are diverse (Shaffer et al. 2008). The Strait is a dynamic, high energy environment and has high variability in its physical and biological features. Sedimentation is a critical process in defining nearshore habitats within the central Strait (Downing 1983 *In* Shaffer et al. 2008). Sediment within the nearshore ecosystem is derived from a combination of sources including coastal bluffs and rivers/streams.

Hydrologic and sediment processes are often the dominant habitat forming processes within the Strait nearshore (NOPLE 2004). Forage fish, including surf smelt, sand lance, and herring, use Strait shorelines for spawning, feeding, and migration. Therefore each shoreline habitat unit was assigned to a habitat process unit to account for factors and processes affecting the habitat unit. Habitat process units were most typically defined by drift cell(s) dimensions. An example of habitat process unit delineation is included below in Figure 11.

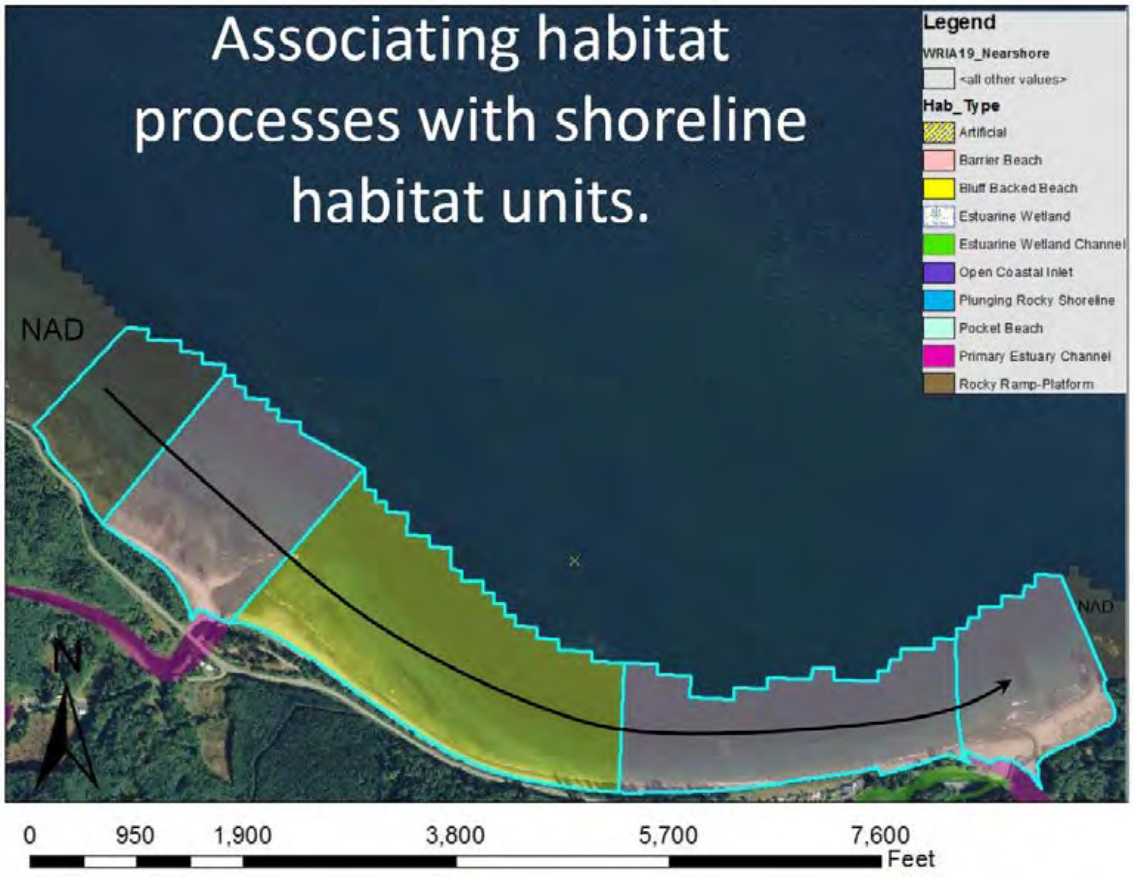

Figure 11. Map depicting example of habitat process unit delineation for the Sekiu/Hoko River habitat process unit (HPU 13). The black arrow represents net shore drift direction; the green highlighted polygons are individual habitat units.

3.1.1.3 Attributing Nearshore Habitat Units

Each habitat unit contains 14 attributes, these include: Area, primary habitat type, habitat type, substrate type , HPU, net shore drift direction, percent armored, habitat name, kelp, eel grass, forage fish survey, documented sand lance spawning, and document surf smelt spawning. The methods used to determine the attributes and attribute definitions for each data field are included below.

Area: area is reported in U.S. acres and is calculated using the calculate geometry tool in ArcMap 10.

Primary habitat type: Estuary (E), Shoreline Habitat (SH), or Upland (U).

Habitat type:

- For estuary units: primary estuary channel, estuarine wetland channel, and estuarine wetland.

- For shoreline habitat units: artificial, barrier beach, bluff backed beach, open coastal inlet, plunging rocky shoreline, pocket beach, river delta, and rocky ramp-platform.
- For nearshore uplands: Zone 1 (0-200ft) and Zone 2 (200-656ft).

Substrate type: substrate type attributes were assigned to one of eight categories (from WDNR Shorezone geodatabase 2006) - rock, rock/gravel/sand, gravel, gravel and sand, mud and fines, and man-made. This attribute was left blank for estuarine and upland habitat types.

Habitat process unit: each shoreline habitat unit is assigned to a habitat process unit, most typically defined by drift cell(s) dimensions. IDs were assigned from west to east.

Net shore drift: is assigned to one of five categories: right-to-left (R to L), left-to-right (L to R), convergence zone (CZ), divergence zone (DZ), or NAD (no appreciable drift).

Percent armored: is assigned to one of five categories based on the shoreline length armored (used a combination of data, WDNR Shorezone geodatabase, PSNERP armoring layer, and DOE shoreline photos): very high (VH>75%), high (H 50-75%), moderate (M 25-49.9%), low (L 5-24.9%), and none to very little (n<5%).

Habitat name: local or proper landmark name for a given feature (e.g., Slip Point)

Kelp: these attributes were assigned to one of three categories (from WDNR shorezone geodatabase 2006) - Continuous (C), Patchy (P), and Absent (A).

Eel grass: these attributes were assigned to one of three categories (from WDNR Shorezone geodatabase 2006) - Continuous (C), Patchy (P), and Absent (A).

Forage fish survey: these attributes were assigned to one of two categories (from WDFW Priority Marine Resources Digital Data 2011): Yes (Y) or No (N).

Documented sand lance spawning: these attributes were assigned to one of two categories (from WDFW Priority Marine Resources Digital Data 2011): Yes (Y) or No (N).

Document surf smelt spawning: these attributes were assigned to one of two categories (from WDFW Priority Marine Resources Digital Data 2011): Yes (Y) or No (N).

Nearshore habitat values: see Section 3.1.1.4.

3.1.1.4 Assigning Nearshore Habitat Values

In order to help prioritize habitats for conservation a system of comparative habitat values was developed. Habitat values ranged from -1 (lowest habitat value) to 5 (highest habitat value). Habitat values were applied to each habitat unit. This was done differently for each primary habitat type (estuary, shoreline, and upland habitat unit types). Estuarine habitat unit habitat values are contained within both the nearshore and freshwater habitat databases. For simplification, estuary unit prioritization for conservation planning was completed within the freshwater habitat section.

Estuarine Habitats

The habitat unit values from the freshwater habitat section were assigned to each of the estuarine habitat polygons.

Shoreline Habitats

The first step in assigning habitat values to shoreline habitat units (artificial, barrier beach, bluff backed beach, open coastal inlet, plunging rocky shoreline, pocket beach, river delta, and rocky ramp-platform) involved applying default habitat values based upon shoreline habitat unit type. Table 5 depicts the default habitat values applied to each shoreline habitat type. Habitat values were not adjusted downward; the adjustments were only made in the upward direction.

Table 5. Default habitat values for shoreline habitat units.

Shoreline Habitat Type	Habitat Value
Open coastal inlets	4
Barrier, bluff backed, and pocket beaches	3.75
Rocky ramp platform, plunging shoreline	3
Artificial	-1

Default habitat values for each habitat unit were adjusted based on several factors, including:

- Confirmed forage fish spawning.
- Proximity to known forage fish spawning locations and potential for forage fish spawning within the habitat unit.
- Proximity to known forage fish spawning and relative position within drift cell.
- Proximity to other high value nearshore shoreline and estuarine habitats.

Nearshore Uplands

Nearshore uplands are divided into two zones: zone 1 (0-200ft) and zone 2 (200-656ft). The nearshore upland habitat type units were initially delineated at the habitat process unit scale. However, the process of applying habitat unit values necessitated finer scale mapping to further separate nearshore uplands where habitat forming processes varied within an individual habitat unit.

The first step in assigning habitat values to the nearshore upland habitat units was to assign the adjusted habitat values from the adjacent shoreline habitat units to the corresponding nearshore upland habitat units. Where different habitat values existed within a given nearshore upland habitat unit, the dominant habitat value (based on length) was used. If significantly different habitat values existed and the habitat process unit net shore drift was assigned to the NAD (no appreciable drift) category then the zone was divided between shoreline habitat units.

The final step in assigning habitat values to the nearshore upland units was to evaluate the percent armoring from each shoreline habitat unit. Where significant shoreline armoring was documented the habitat value scores were lowered. Shoreline armoring directly affects the habitat forming potential and values of nearshore upland habitats. Roads which also affect habitat forming processes were not included in this portion of the habitat valuation process.

3.1.1.5 Summary of Habitat Unit Delineation

A total of 270 nearshore habitat units were delineated. Of these 173 were classified as either estuary or shoreline habitat units. The remaining 97 units were nearshore adjacent upland units. The rocky ramp-platform shoreline type was by far the most common shoreline habitat type based on both number of habitat units and area. Table 6 depicts the number of habitat units within each habitat type, as well as the area contained within each type. Habitat units classified as nearshore uplands encompassed 1,932 and 3,214 acres in zones 1 and 2 respectively. Maps depicting upland habitat values and habitat process units are included in Figure 12 through Figure 17.

Table 6. Estuary and shoreline habitat types summarized by the number of habitat units and area.

Habitat Types	Number of Habitat Units	Total Acres within Habitat Type	Percentage by Number of Units	Percentage by Area
Artificial	8	481	4.6%	3.7%
Barrier Beach	12	1,401	6.9%	10.8%
Bluff Backed Beach	22	3,801	12.7%	29.4%
Estuarine Wetland	16	185	9.2%	1.4%
Estuarine Wetland Channel	15	21	8.7%	0.2%
Open Coastal Inlet	1	9	0.6%	0.1%
Plunging Rocky Shoreline	10	125	5.8%	1.0%
Pocket Beach	19	697	11.0%	5.4%
Primary Estuary Channel	12	152	6.9%	1.2%
River Delta	2	81	1.2%	0.6%
Rocky Ramp-Platform	56	5,970	32.4%	46.2%
Total	**173**	**12,923**	**na**	**na**

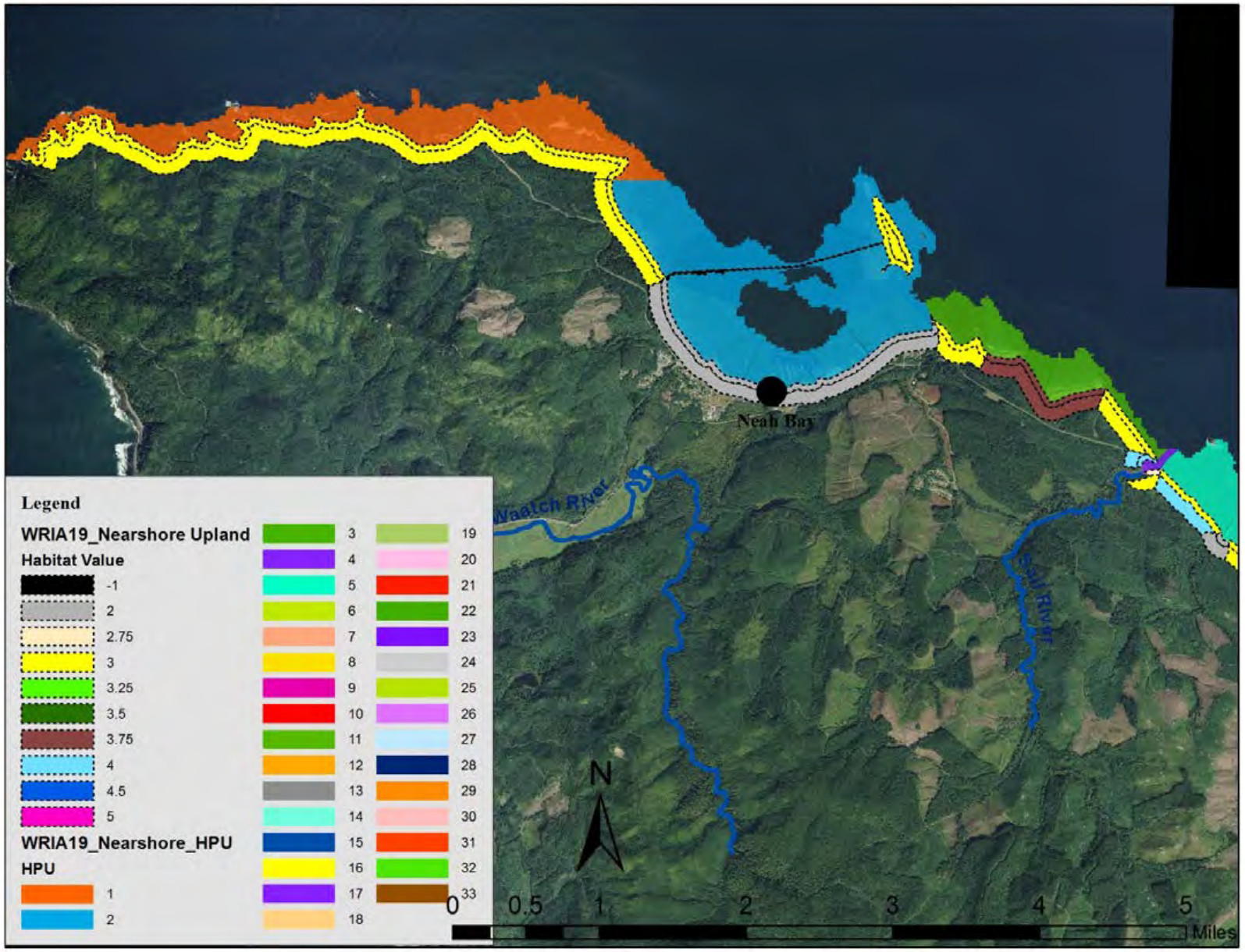

Figure 12. Map depicting nearshore upland habitat values and the location of HPUs 1 through 4 (Cape Flattery and Neah Bay area). Note: nearshore uplands Zone 1 and 2 are bound by dashed lines and HPUs are waterward of the dashed lines.

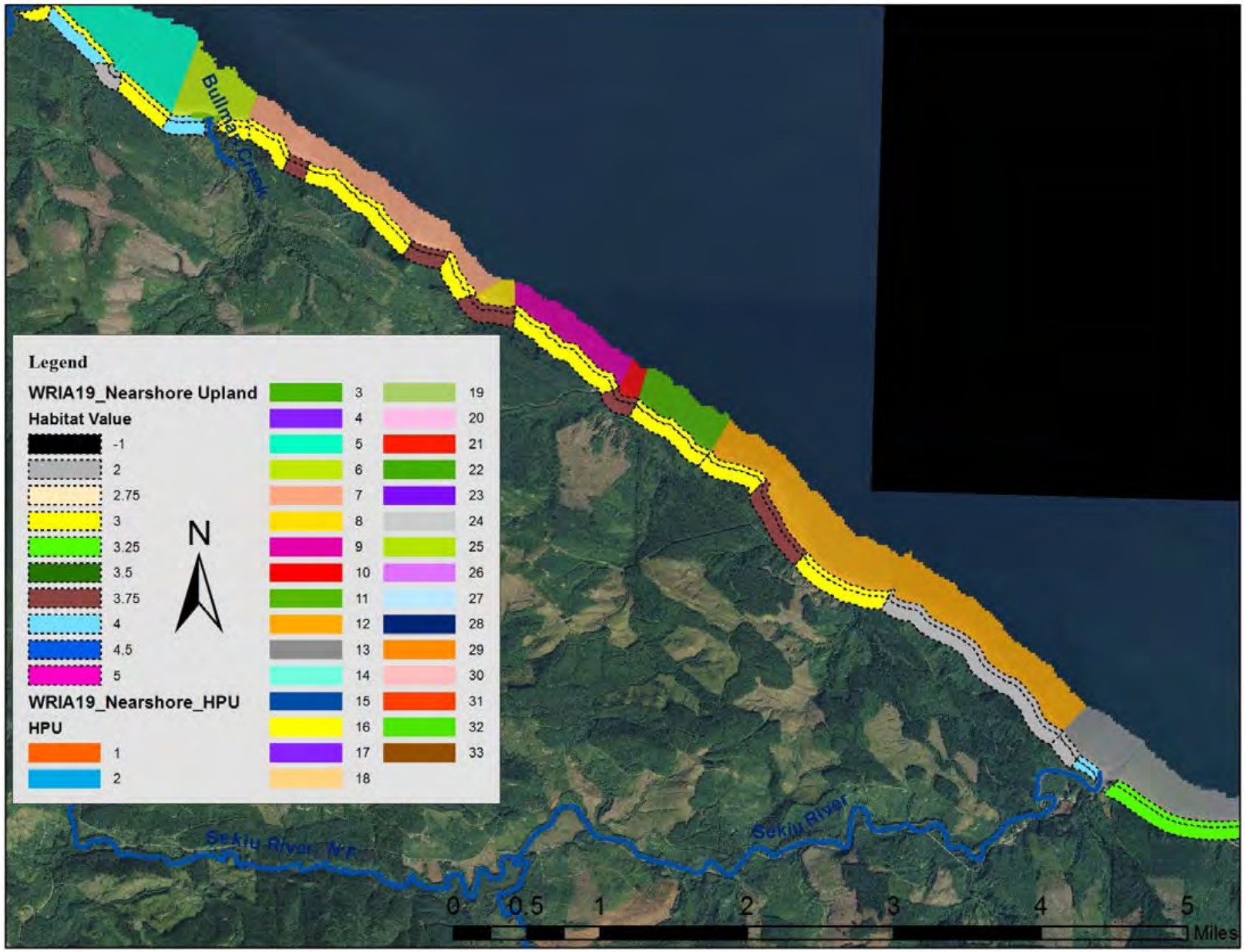

Figure 13. Map depicting nearshore upland habitat values and the location of HPUs 5 through 13 (Bullman Beach and Sekiu River area). Note: nearshore uplands Zone 1 and 2 are bound by dashed lines and HPUs are waterward of the dashed lines.

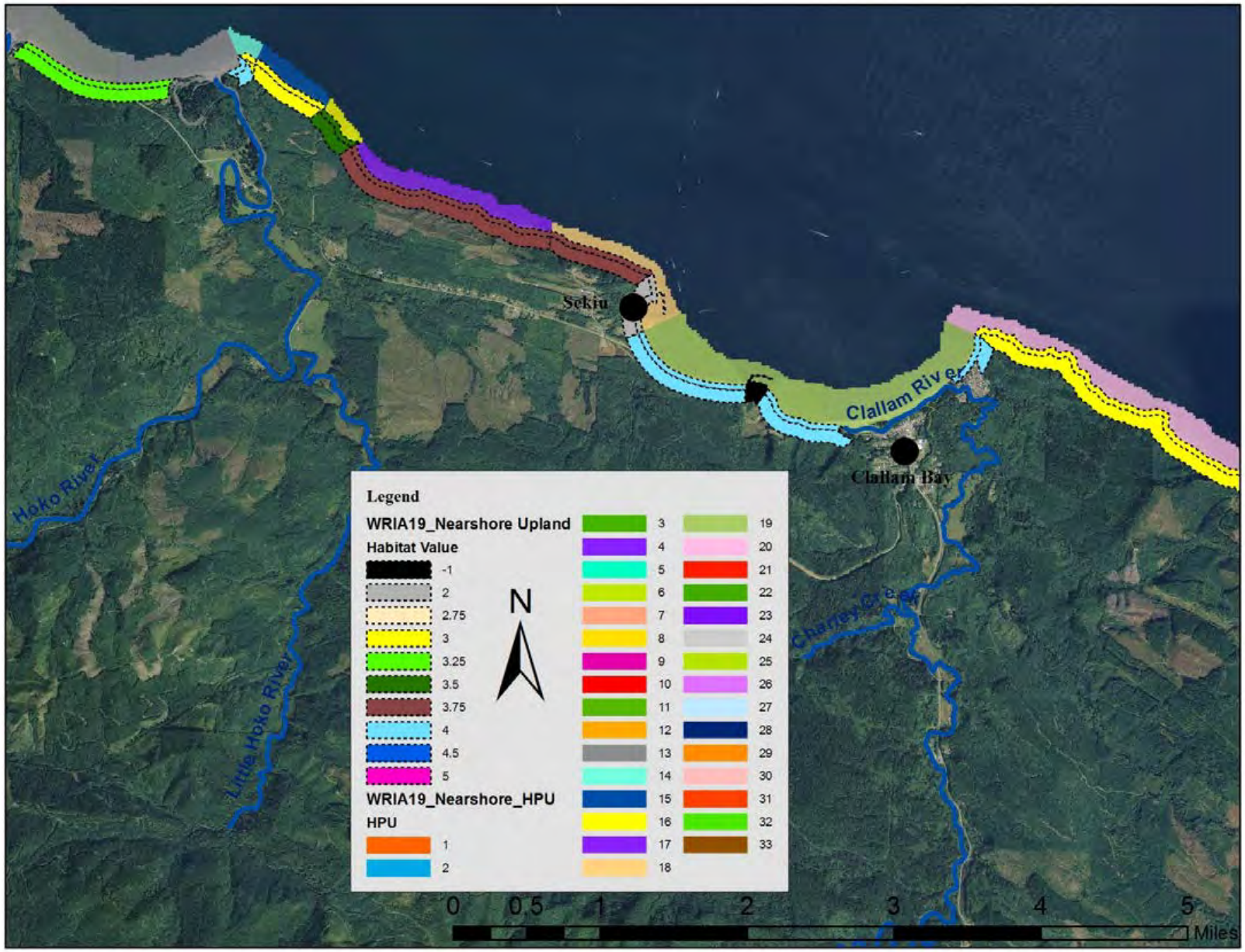

Figure 14. Map depicting nearshore upland habitat values and the location of HPUs 13 through 20 (Hoko and Clallam River area). Note: nearshore uplands Zone 1 and 2 are bound by dashed lines and HPUs are waterward of the dashed lines.

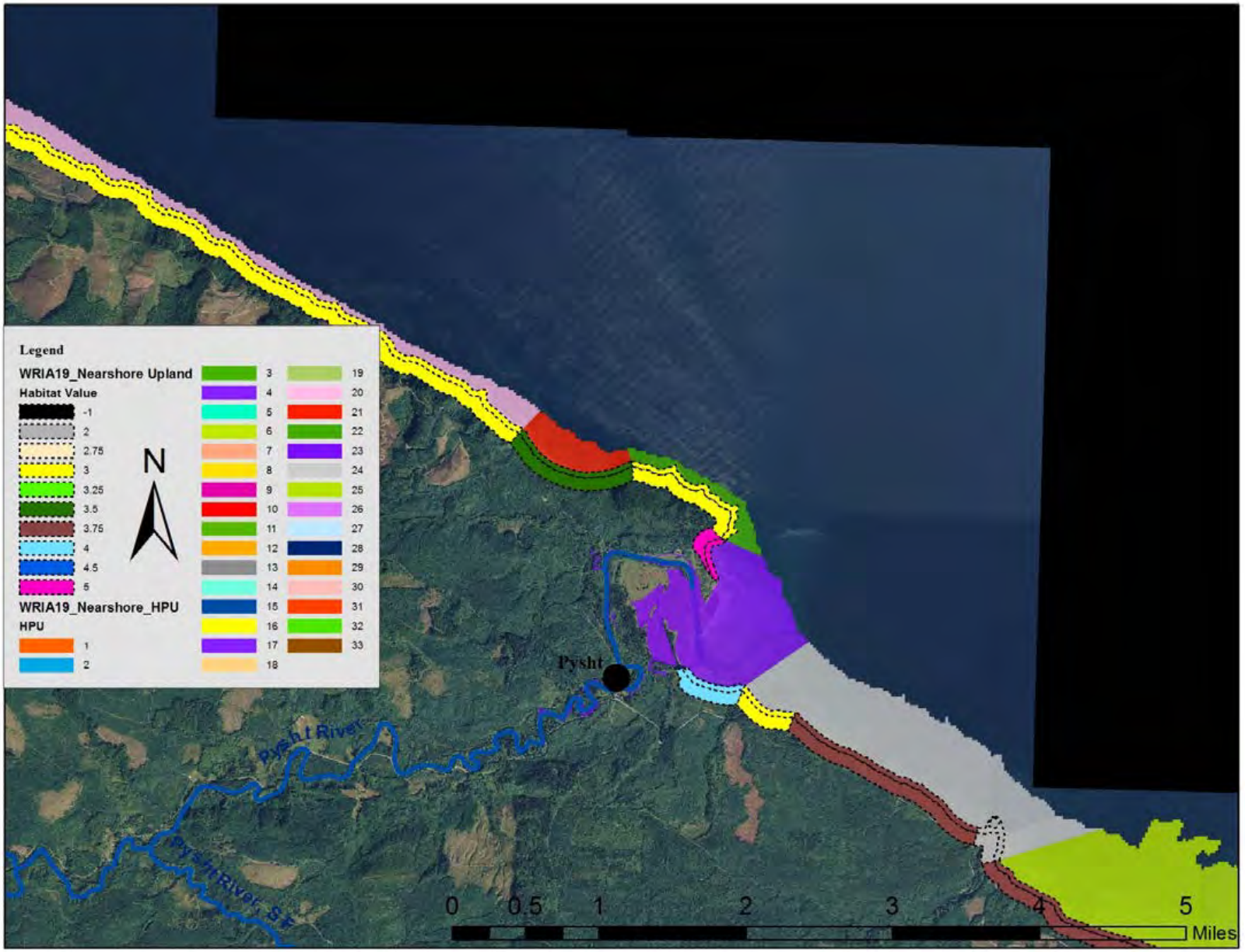

Figure 15. Map depicting nearshore upland habitat values and the location of HPUs 20 through 25 (Pillar Point and Pysht River). Note: nearshore uplands Zone 1 and 2 are bound by dashed lines and HPUs are waterward of the dashed lines.

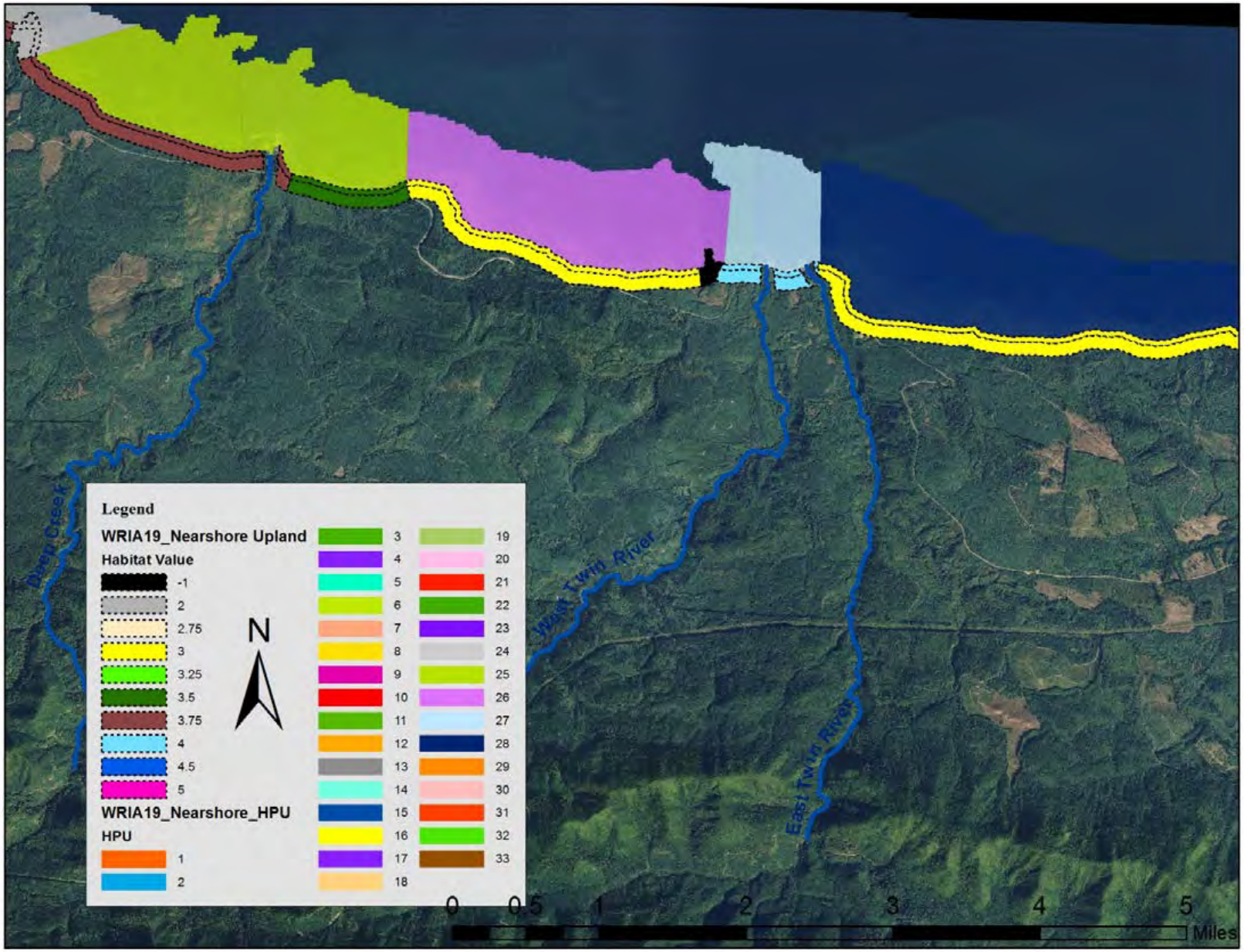

Figure 16. Map depicting nearshore upland habitat values and the location of HPUs 25 through 28 (Deep Creek and Twin Rivers area). Note: nearshore uplands Zone 1 and 2 are bound by dashed lines and HPUs are waterward of the dashed lines.

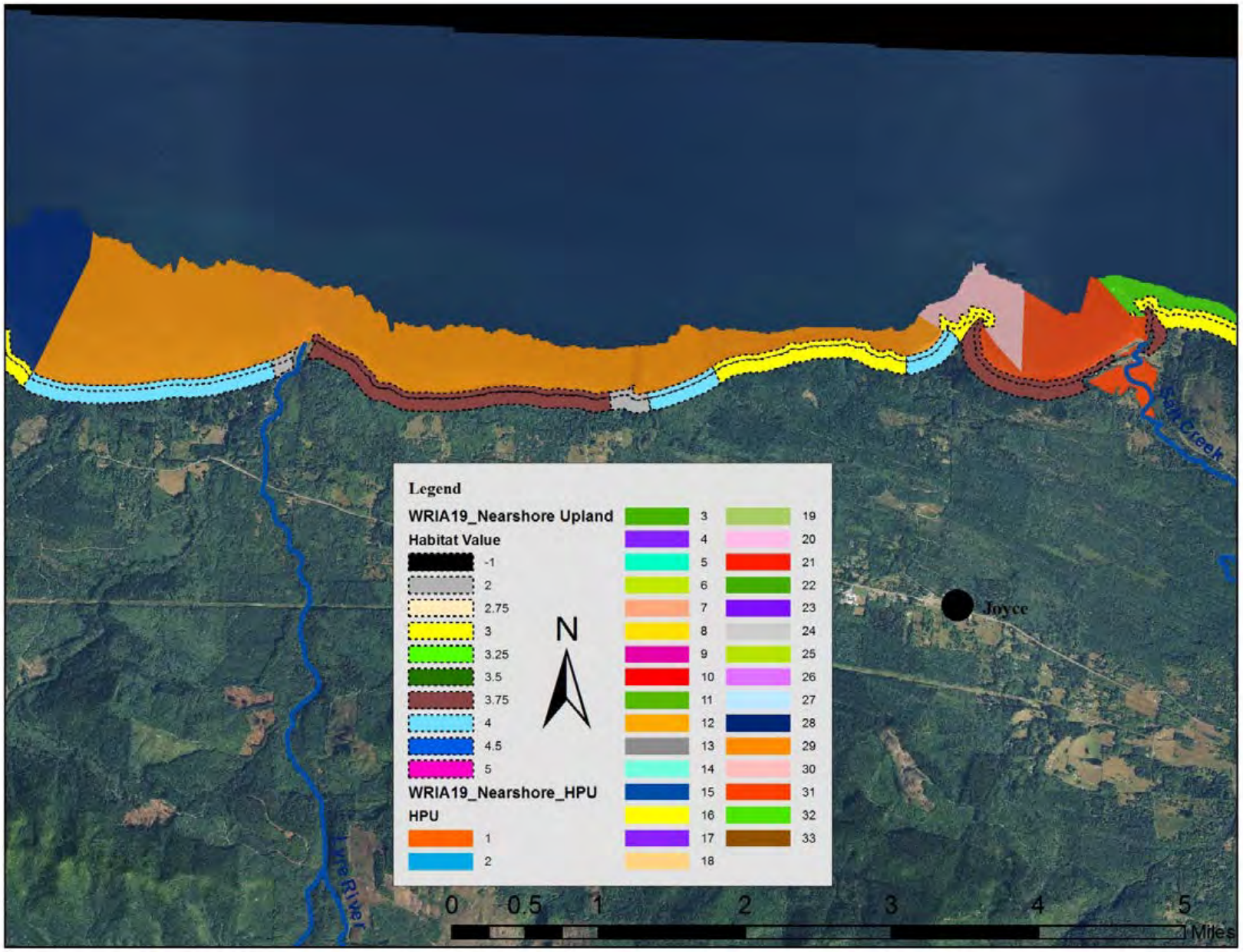

Figure 17. Map depicting nearshore upland habitat values and the location of HPUS 29 through 32 (Lyre River, Agate Beach and Salt Creek area). Note: nearshore uplands Zone 1 and 2 are bound by dashed lines and HPUs are waterward of the dashed lines.

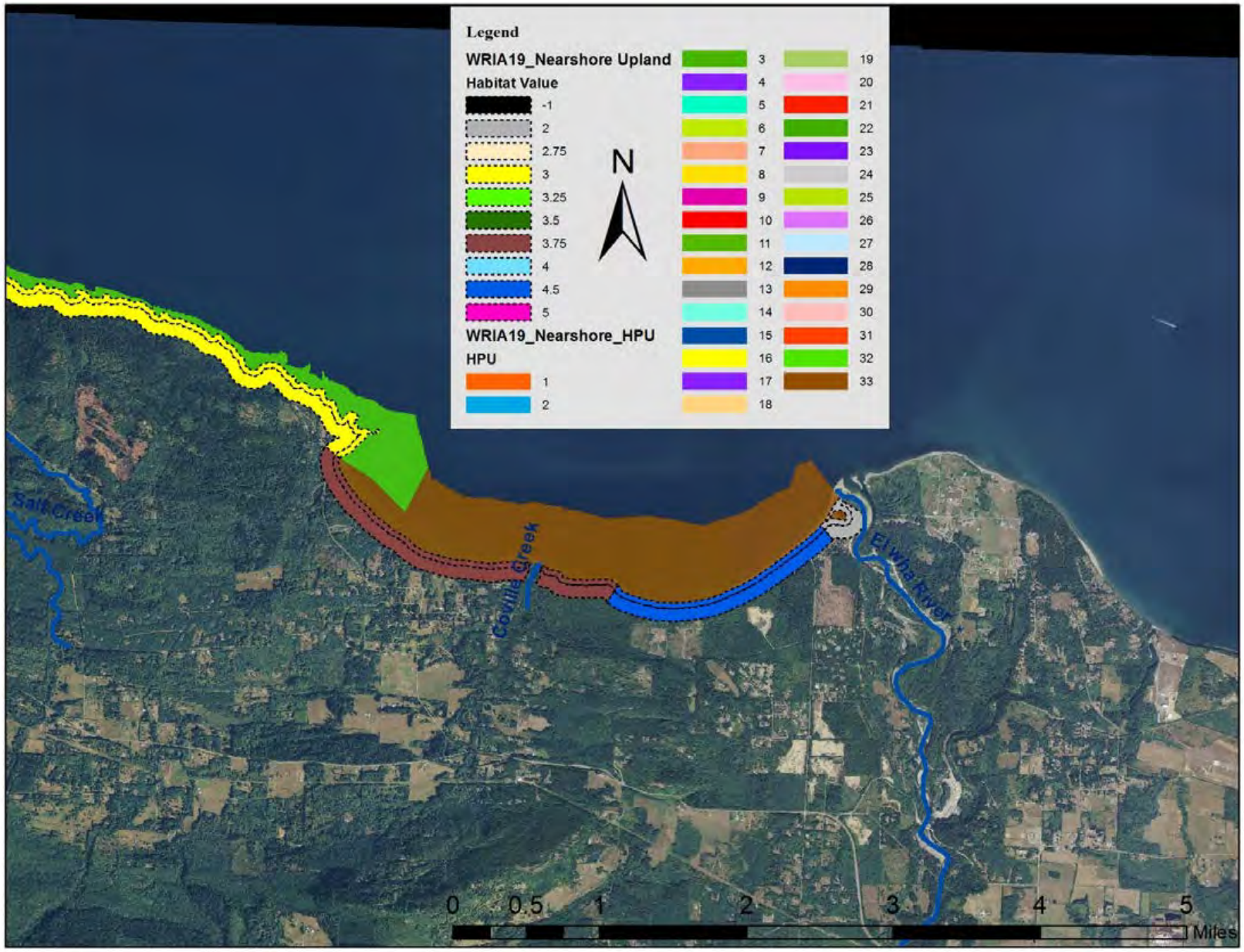

Figure 18. Map depicting nearshore upland habitat values and the location of HPUs 32 through 33 (Freshwater Bay and Elwha River area). Note: nearshore uplands Zone 1 and 2 are bound by dashed lines and HPUs are waterward of the dashed lines.

3.1.2 Freshwater Habitats

The first step used to prioritize parcels for potential conservation was to delineate the highest priority habitats. This plan specifically focuses on the most important floodplain, riparian, and nearshore habitats. Each stream system within the planning area was processed through the habitat classification filter depicted in Figure 19. The habitat filtering process determined which streams, rivers, and wetlands would be included in the conservation assessment.

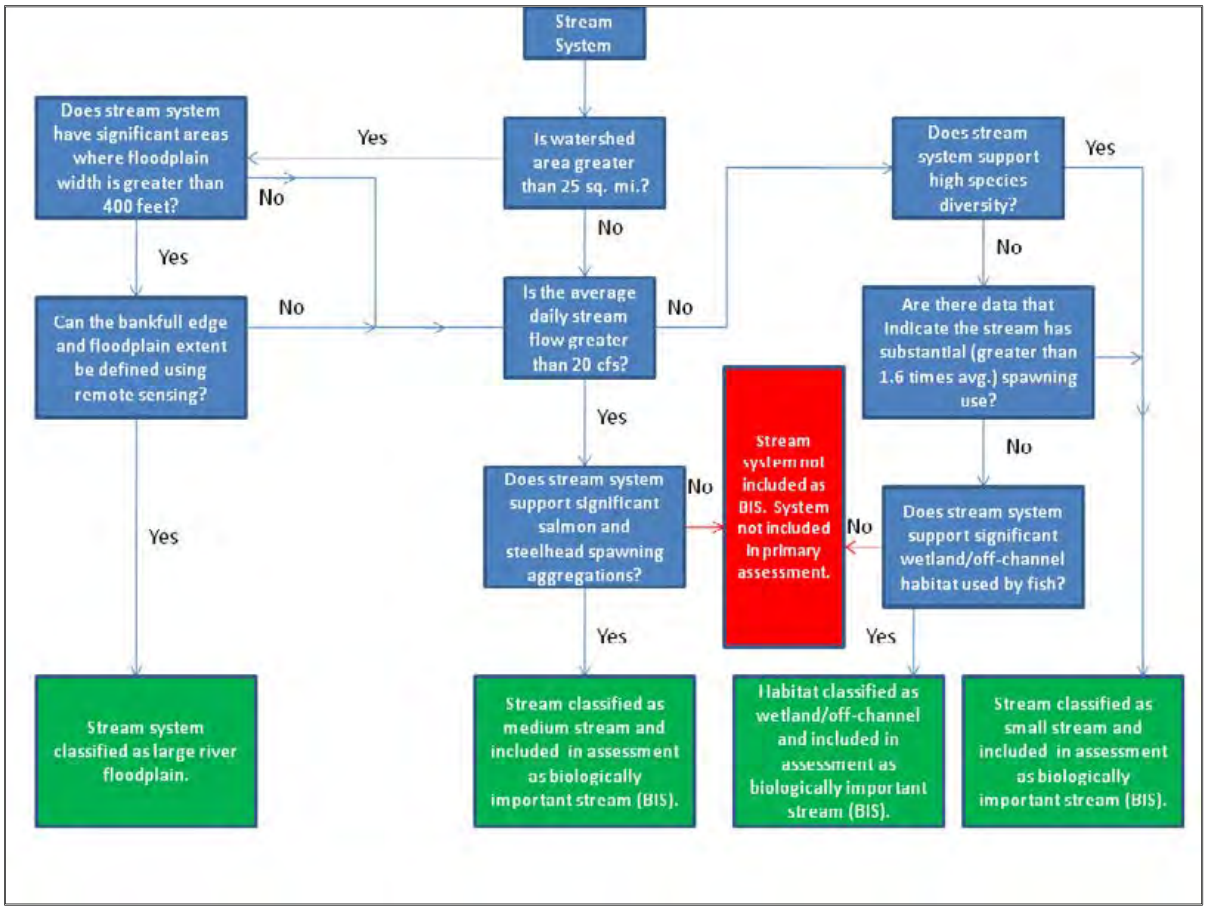

Figure 19. Habitat classification filter used to define large river floodplain habitats and biologically important streams.

3.1.2.1 Habitat Types

As can be seen in Figure 19 stream systems and segments were divided into two main habitat categories: large river floodplain and biologically important streams. Within the two main habitat categories existed several different habitat types. Sections 3.1.2.1.1 and 3.1.2.1.2 summarize the two main habitat categories used in this portion of the assessment and define the habitat types included in the GIS layer. Section 3.1.2.1.3

describes the GIS definitions and field codes used. Section 3.1.2.1.4 summarizes the different habitats and areas included within the GIS layer. **Appendix B** includes detailed stream channel segment maps for all stream segments included in the analysis.

3.1.2.1.1 Large River Floodplains

Large river floodplains occurred where watershed area was greater than 25 square miles and the stream system had significant area where floodplain width was greater than 400 feet. In addition, to qualify as a large river floodplain the bankfull edge of channels needed to be remotely defined. The channel's bankfull edge was delineated using 2003 LiDAR data. For small areas where these data did not exist, aerial photographs were used.

A GIS shapefile including all large river floodplains and channels, all biologically important streams, and all estuary segments was developed (see Section 3.1.2.1.3). This layer was used to define the edge of each habitat, as well as to define the spatial proximity of lands and other aquatic features to the edge of each aquatic habitat.

The floodplain extent was delineated using a combination of LiDAR, DEMs, and FEMA data. Channel and floodplain extent were classified into the following categories: large river channels (area within bankfull width) , estuary channel segments, floodplain habitat within 200ft, floodplain/riparian habitat within 200ft (indeterminate), riparian habitat within 200ft, floodplain habitat between 200-400ft, floodplain habitat between 400-600ft, floodplain habitat between 600-1,000ft, floodplain habitat between 1,000-2,000ft, and terraces/alluvial fans.

NOTE: the large river floodplains delineated using these methods may not include all floodplains or may include areas outside of the FEMA defined 100 year floodplain. These areas are not jurisdictional floodplains, nor are they channel migration zones (CMZs). The delineated floodplain areas are not intended to be used for regulatory purposes.

3.1.2.1.2 Biologically Important Streams (BIS)

Stream systems that did not meet the above criteria for large river floodplains were tested to determine whether they met the criteria to be included as BIS. The first test within this portion of the stream filter was to determine whether the stream system met the streamflow requirement of having a daily stream flow greater than 20cfs (meeting the criteria as a shoreline of the state). We examined each stream segment using the DOE Suggested Shoreline Management Arc GIS shapefile (downloaded spring 2011) to determine whether the stream segment in question met the 20 cfs flow requirement. In one case (Last Creek), we used LiDAR derived watershed area, PRISM data, and regression equations from USGS (1998) to determine the 20cfs break point.

The next step in the BIS filter was to determine if the stream supported salmon and steelhead. If the stream system did support salmon and steelhead spawning it was classified as a medium size BIS. If the stream did not meet 20cfs criteria the next step in the filter was to determine whether or not the stream system supports high species diversity. A stream that supports spawning Chinook, coho, chum, steelhead, and cutthroat was considered to have high species diversity and therefore the stream was classified as a small biologically important stream.

In order to determine whether a stream system had substantial spawning use we used coho spawning ground survey data. We examined coho spawning ground survey data from 1998 through 2009 for over 180 channel segments. Data were grouped into two time periods: 1998-2004 (period of moderate to high spawning abundance) and 2005-2008 (period of low abundance). Redds per mile were calculated for each stream segment annually, as well as averaged for each of the two abundance periods. Average redds per mile were then converted to average annual escapement (each redd representing two fish). The average annual escapement at the segment level was then divided by the average annual coho escapement for the Western Strait of Juan de Fuca (Equation 1).

Equation 1

$$PSEGx = \frac{SEGxE}{WSJFE}$$

Where,

PSEGx=average percent of Western Strait coho escapement from Segment x.
SEGxE= the average escapement in Segment x.
WSJFE= average WSJF coho escapement.

This resulted in the average coho salmon escapement contribution by segment. The length of each stream segment was then divided by the total length of spawning habitat used to derive the Western Strait coho escapement estimate, this resulted in a value equal to the percent of habitat represented by each segment (Equation 2).

Equation 2

$$HSEGx = \frac{LSEGx}{LWSJF}$$

HSEGx= percent of habitat represented in segment x.
LSEGx= length of habitat in segment x.
LWSJF= length of habitat used in WSJF coho escapement model

The average percent of Western Strait coho escapement for each segment was then divided by the percent of habitat that occurs in each segment (Equation 3). This resulted in a variable we called the Western Strait coho scalar and is a metric that compares

relative coho spawning contribution for each stream segment (where surveys have occurred).

Equation 3

$$COHOSCALARx = \frac{PSEGx}{HSEGx}$$

Where,

COHOSCALARx= relative coho spawning contribution for stream segment x.
PSEGx= average percent of Western Strait coho escapement coming from Segment x.
HSEGx= percent of habitat represented in segment x.

After comparing the results from the two abundance periods and a different range of coho scalar cut-offs it was decided that all stream segments that had a coho scalar greater than 1.6 in the 1998-2004 time period were classified as BIS. We used a secondary filter screen where we reviewed all spawning ground survey records from 1952-2004 looking for stream segments that had at least 10, 15, and 20 redds (all species) within a single survey.

If the stream did not meet the substantial spawning ground use criteria it was then processed through the last part of the filter. If the stream system supports significant wetland/off channel habitat used by salmonids it was classified as a wetland/off-channel BIS. Stream systems that did not meet criteria there were not included as BIS. The stream system was not included in the primary assessment and no data were included within the FP-BIS GIS layer.

For streams and wetlands that were classified as biologically important streams the habitat extent was delineated using a combination of LiDAR, field and GIS data from previous studies and reports, and time-series aerial photos. Channel and riparian extent were classified into the following categories: BIS, BIS riparian (BIS_RP), and BIS riparian on large river floodplain (BIS_RP_LRFP). The riparian extent for a biologically important stream was defined as 200 feet on either side of the habitat's bankfull edge. Where biologically important stream channels flowed across and into large river floodplain habitat only the biologically important stream channel was delineated within 200 feet of the large river's bankfull edge. Once the biologically important stream channel was 200 feet away from the large river's bankfull edge its riparian area was delineated. Where this type of delineation occurred it over-road the large river floodplain zonation and the zone was classified as BIS riparian on a large river floodplain.

3.1.2.1.3 Floodplain(FP)-Biologically Important Stream (BIS) GIS Layer

This is the primary GIS layer that defines the freshwater and estuarine habitats included in the assessment. This GIS layer has 10 primary data fields which indentify and describe the polygons included in the dataset. Attribute definitions and the methods used to determine the attribute values are included below. Attribute geodatabase names are in parentheses.

Stream Name (stream_nam): stream names were first based on official names included in the WDNR 2011 watercourse hydrography data for Clallam County. If no name was present within the WDNR data then the Salmon Steelhead Habitat Assessment Project (SSHIAP) stream segment names were used. If no name was present within the SSHIAP data then the Strait of Juan de Fuca Coho spawning escapement database segment ID name was used. If no name was present within the Strait of Juan de Fuca Coho spawning escapement database then the WRIA number was used. If no WRIA number existed for the stream then names from other studies or GIS datasets were used.

Gradient Confinement Class (G_C_Class): gradient and confinement class were taken directly from the WSJF coho spawning ground survey database (based on SSHIAP data with field verification). If no data were included within the WSJF coho spawning ground survey database then the gradient and confinement class were determined from previous studies, or LiDAR, DEMs, and/or USGS topographic map. Gradient and confinement were classified based on the parameters in Table 7. Confinement is defined as the ratio of valley and/or floodplain width to bankfull width (BFW).

Table 7. SSHIAP channel classification coding system.

GRADIENT	CODE	CONFINEMENT	CODE
<1%	1	Confinement > 4 BFWs	U
1-2%	2	2BFW<Confinement<4BFWs	M
2-4%	3	Confinement < 2BFWs	C
4-8%	4		
8-12%	5		
>20%	6		

Habitat Type (Hab_type): note these habitat types are defined above in Sections 3.1.2.1.1 and 3.1.2.1.2.

- large river channels (Large River)
- estuary channel segments (Estuary)
- floodplain habitat within 200ft (FP within 200ft)
- floodplain/riparian habitat within 200ft (FP-RIP w/ 200ft)
- riparian habitat within 200ft (RIP w/ 200ft)
- floodplain habitat between 200-400ft (FP within 400ft)
- floodplain habitat between 400-600ft (FP within 600ft)
- floodplain habitat between 600-1,000ft (FP w/1000ft)

- floodplain habitat between 1,000-2,000ft (FP w/2000ft)
- terraces/alluvial fans (Terrace)
- biologically important streams (BIS)
- BIS riparian (BIS_RP)
- BIS riparian on large river floodplain (BS_RP_LRFP)

Segment ID: stream segment ID is based on the stream name and the segment number. Stream segment numbering started at 0 in the estuary or 1 within the freshwater environment. Stream segments were based on the 2005 SSHIAP GIS Layer or the updated WSJF coho segments. Where segmentation was missing or differed from the sources described above the SSHIAP channel classification system was used to define channel segment boundaries.

Floodplain segment ID (FP_ID): floodplain segment ID is based on the floodplain segment a polygon occupies. This is mostly a tool that helps account for floodplain habitats that are included as BIS or BIS riparian on large river floodplain. Segment coding is two letters abbreviating the large river, underscore, followed by the Segment ID.

Watershed: this unit corresponds to the Western Strait geographic units.

Habitat Value (Hab_Value): habitat values for large river floodplains were assigned to each river segment based on channel geomorphology, biological diversity (mainly number of species present), documented spawning and rearing use, and habitat quality. Large river habitat values ranged from 2.5 (lowest value) to 5 (highest value). For biologically important streams the coho spawning scalar values (from 1998-2004) were used to assign default habitat values (Table 8). These values were then adjusted based on Chinook, chum, and/or steelhead usage (if applicable) and proximity to high value habitat. Habitat values for wetlands and off-channel habitat were assigned based on significance of known fish use (high, moderate, low, or unknown use). Quality and connectivity of off-channel habitat were also used to assign relative habitat values.

Table 8. Coho scalar and default habitat values.

COHO SCALAR	DEFAULT VALUE
>6	5
5.9-4.2	4.5
4.1-3.7	4
3.6-2.7	3.5
2.6-1.7	3
1.6-1.1	2.5
1-0.5	2
<0.5	1

Strait of Juan de Fuca Coho Segment ID (SJFCoho_ID): Strait of Juan de Fuca Coho spawning escapement database segment ID.

Strait of Juan de Fuca Coho Segment ID (SJFCoho_ID): notes relating to the Strait of Juan de Fuca Coho segment.

Area: area in US acres.

3.1.2.1.4 Summary of Habitats and Areas in FP-BIS Layer

FLOODPLAIN

A total of 20 large river floodplain habitat channel segments of were delineated within the Sekiu, Hoko, Clallam, and Pysht river watersheds. In addition four large-river estuarine segment were also delineated. A total of 3,813 acres were classified as large river habitat. The Pysht River had the largest area with 1,497 acres classified as large river floodplain (includes in-channel, estuary, and floodplain/riparian acres). The Hoko River had the highest number of large river habitat acres (140ac; area within the bankfull edge), while the Pysht River had greatest number of acres classified as estuary (201ac, including estuarine wetlands). Figure 20 depicts the acreage within large river habitat (includes acres within the bankfull of each channel segment), estuarine habitat (including estuarine channels and wetlands), and total floodplain habitat includes riparian and floodplain habitats, as well as in-channel and estuarine habitat.

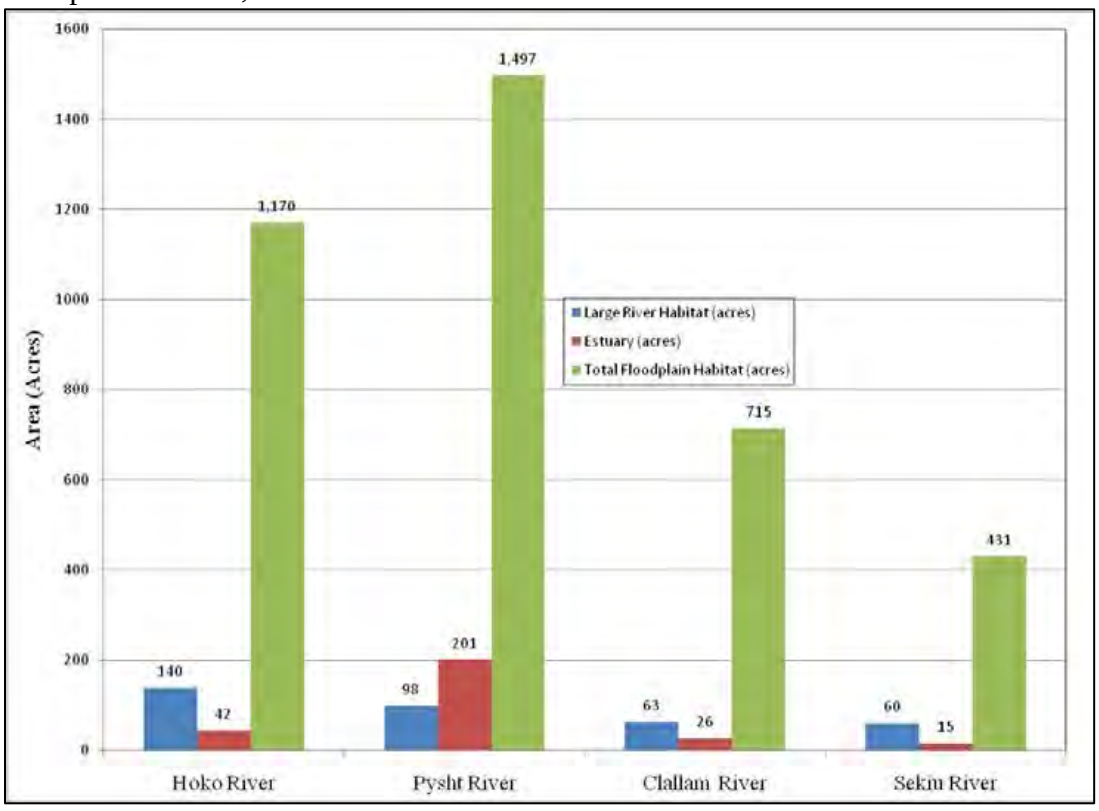

Figure 20. Summary of acreage classified as large river floodplain habitat within the Hoko, Pysht, Clallam, and Sekiu rivers.

All Freshwater Habitats

A total of 239 freshwater habitat segments were delineated to determine the potential for habitat conservation. As described above, 24 segments were classified as large-river habitats, the remaining 215 channel segments were classified as biologically important streams/wetlands. Collectively these 239 habitat segments encompassed 10,098 acres (~4% of the watershed area). These stream segments varied in size. For example, the smallest BIS in-channel habitat was only 0.01 acres and the largest was 45.6 acres, the average was 4.2 acres.

Habitats considered for conservation were not evenly distributed across the planning area (Figure 21). The Pysht and Hoko watersheds contained 128 channel segments (54%) and 5,631 acres (56%) classified as large rivers, BIS, estuarine, riparian, and floodplain habitat, but these watersheds only account for 30% of the total planning area. Maps depicting the location of estuarine, large river, and BIS habitats included in the floodplain-BIS GIS layer are included in Figure 22 through Figure 26. **Appendix B** includes detailed stream channel segment maps for all stream segments included in the analysis.

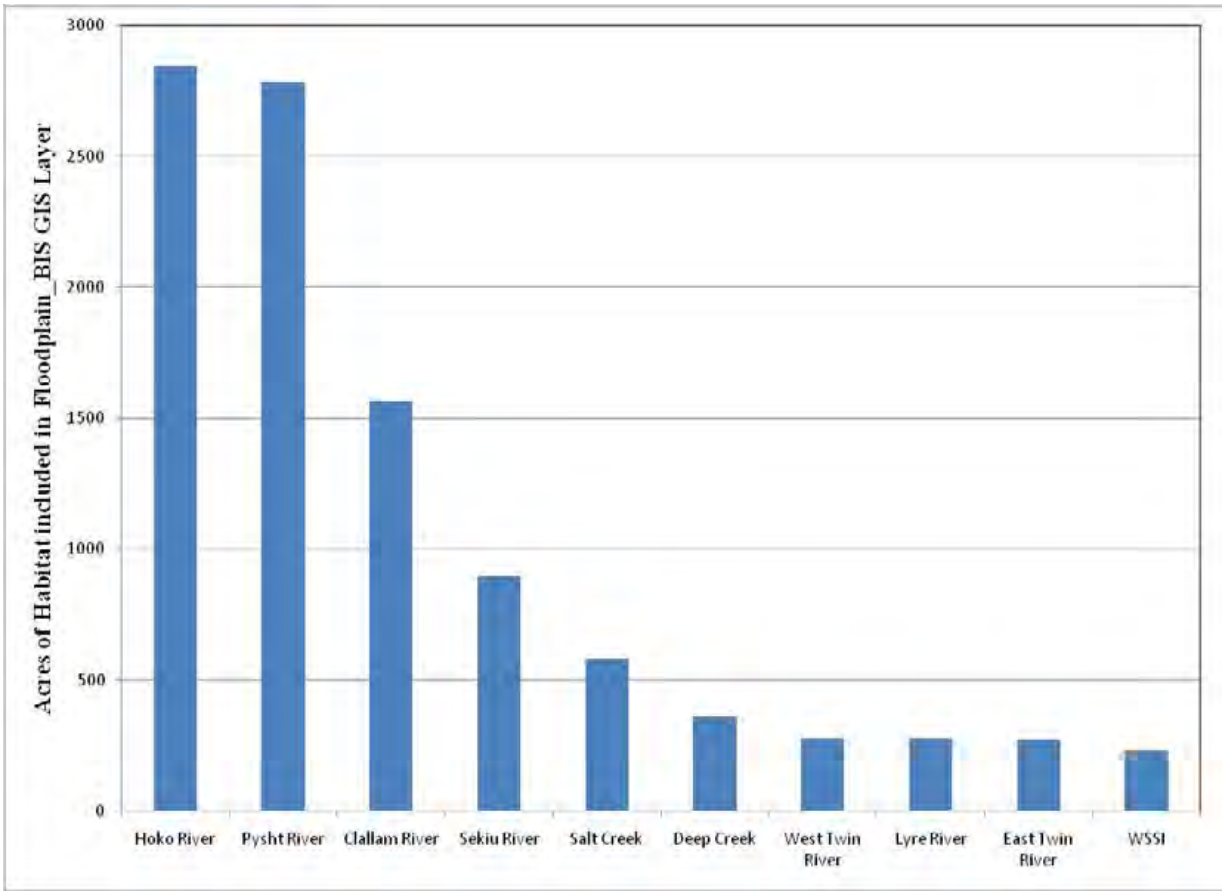

Figure 21. Acres of habitat included in the floodplain-BIS GIS layer by geographic unit.

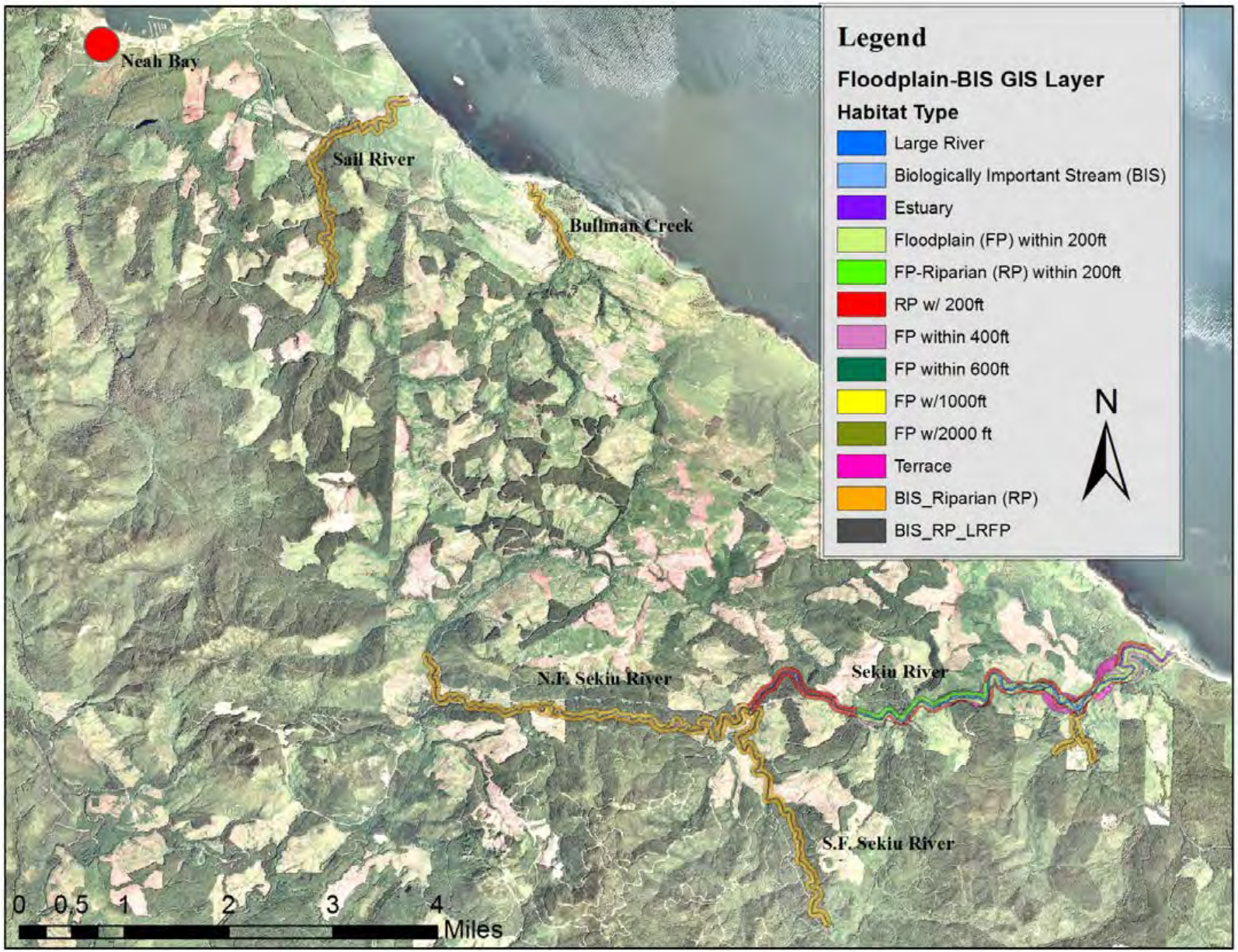

Figure 22. Map depicting habitats and habitat types included in the Sail River, Bullman Creek, and Sekiu River area.

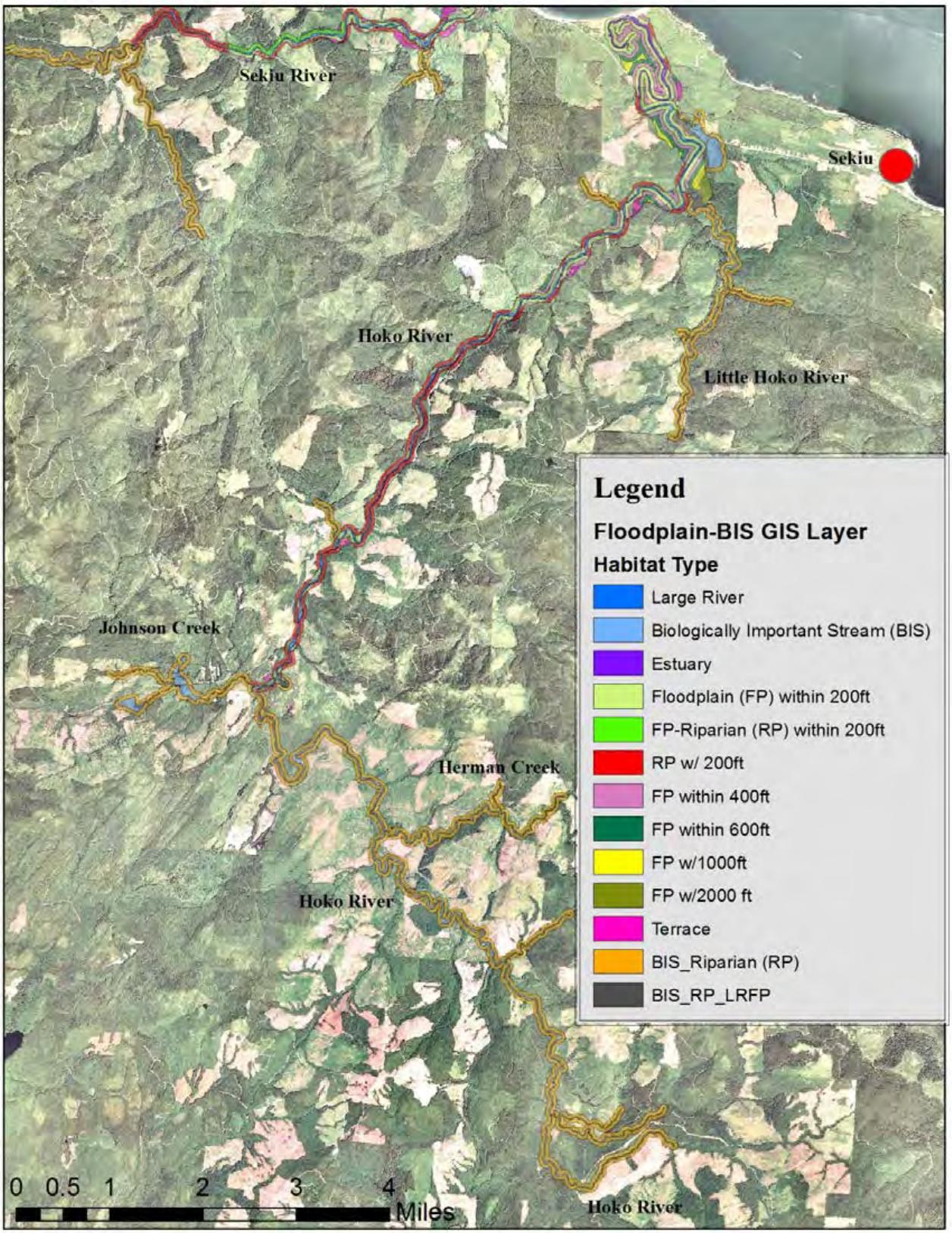

Figure 23. Map depicting habitats and habitat types included in the Hoko watershed.

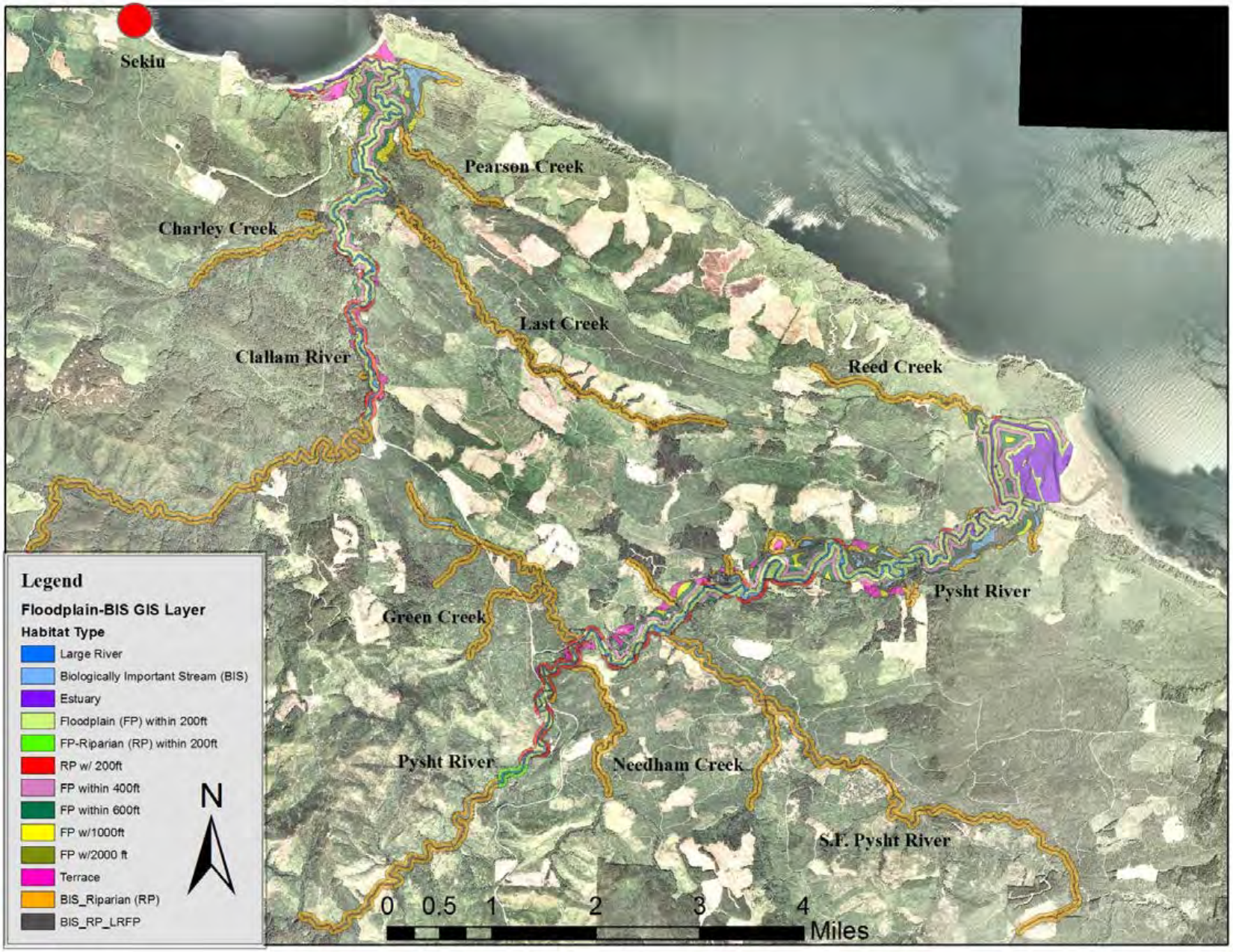

Figure 24. Map depicting habitats and habitat types included in the Clallam and Pysht river area.

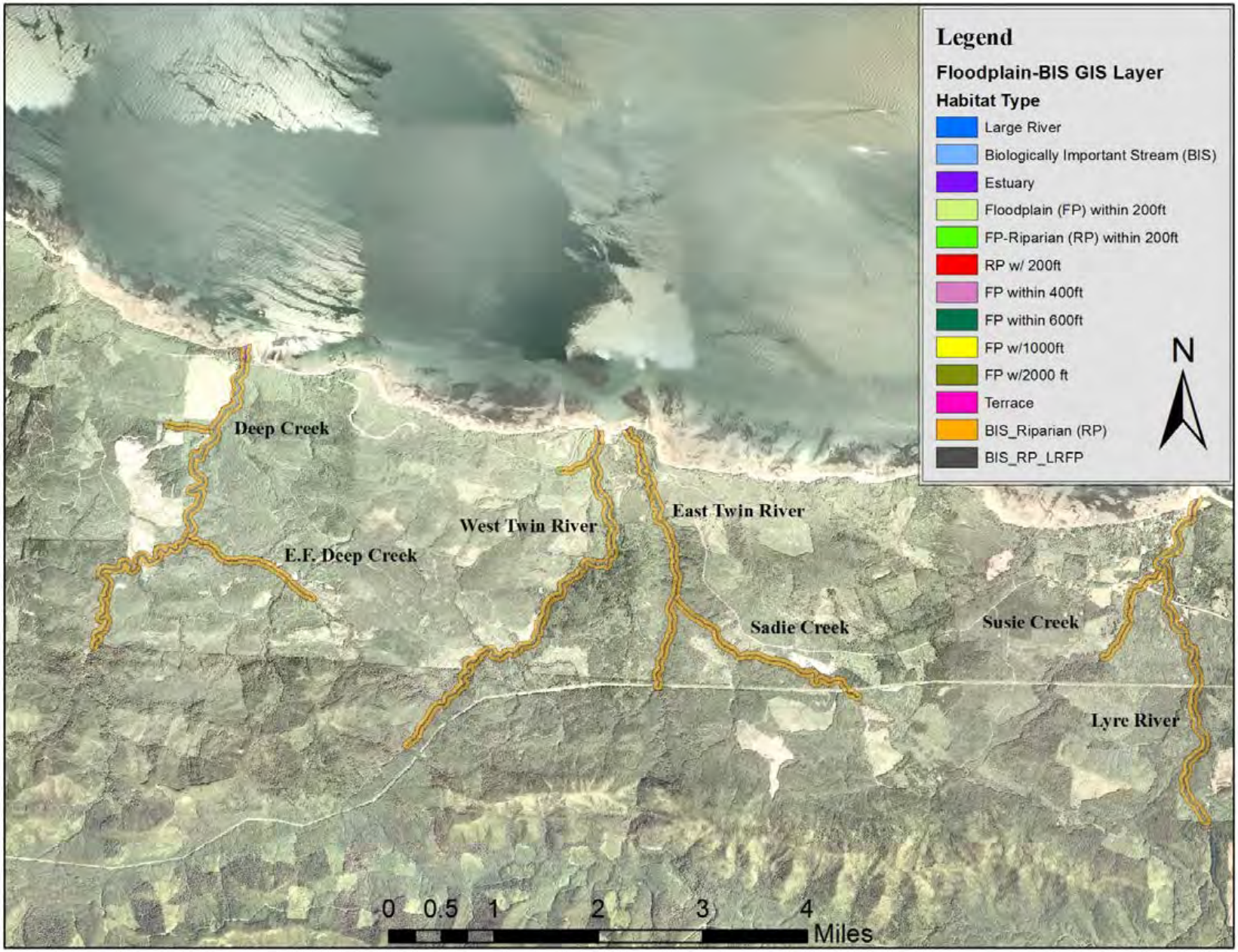

Figure 25. Map depicting habitats and habitat types included in the Deep Creek, Twin and Lyre rivers area.

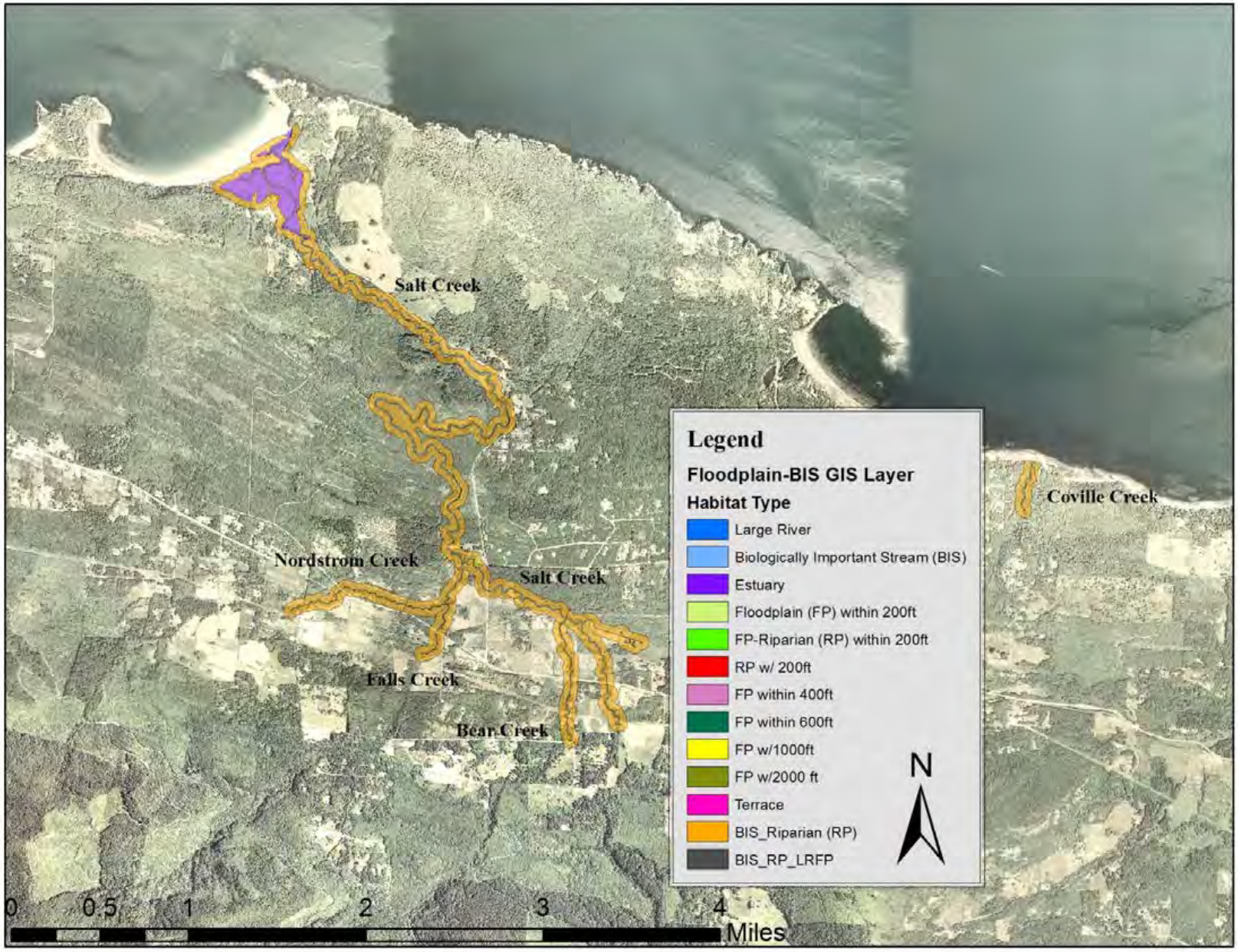

Figure 26. Map depicting habitats and habitat types included in the Salt and Coville creeks area.

3.1.2.2 Floodplain-Riparian Features

Floodplain and riparian features are discrete features that occupy areas within the large river-BIS GIS coverage. We documented and mapped these features in a dataset named Floodplain-Riparian Features GIS Layer. There are five different categories of feature types: estuaries, streams, wetlands, forested areas, and non-forested areas. Each feature type has multiple different feature sub-types. Details about each of the five categories of feature types and their respective sub-types are included below in Sections 3.1.2.2.1 through 3.1.2.2.5.

3.1.2.2.1 Estuarine Features

Estuaries are the interface between fresh and salt water environments; we approximated their upper extent as the zone of tidal mixing. Where LiDAR data were available we assumed that the upper extent of tidal mixing occurred at an elevation of approximately 8.5 feet. The floodplain-riparian feature layer classifies estuarine features into three different feature types: primary estuary channel, estuarine wetland channels, and estuarine wetlands.

Primary Estuary Channel: a primary estuary channel is the mainstem of a river or biologically important stream within the zone of tidal mixing. It does not include associated wetlands or tributary channels within the estuary.

Estuarine Wetland Channel: these are secondary channels of a river or stream within the zone of tidal mixing. They do not include the mainstem of a river or stream.

Estuarine Wetlands: these are typically wetlands near the upper extent of tidal mixing. These features typically include poorly defined channels or wetland features without well defined channels.

3.1.2.2.2 Stream Features

Stream features were classified as large rivers, medium streams, or small streams. Large river features were defined using the same definition as presented above in Section 3.1.2.1.1. Medium and small streams that were also BIS followed the definitions presented above in Section 3.1.2.1.2. Habitat values for all stream features that are included in the FP-BIS GIS layer were assigned their respective values from that dataset. In many cases streams segments were delineated as features that were not defined in the FP-BIS GIS layer but flowed across floodplain and riparian habitat included in the FP-BIS GIS.

3.1.2.2.3 Wetland Features

Wetland features were classified as one of the following wetland types:

Open Water Wetlands (OWW): low gradient, very low energy wetland habitat that consists of shallow open water wetland(s), mostly non-forested.

Forested Wetlands (FW): low gradient, very low energy habitat with very poorly defined banks and channels (average depth < 1m), mostly forested.

Forested Wetlands/Open Water Wetlands (FW/OWW): habitat units that are either intermediate between open water wetlands and forested wetlands, or habitat units containing both wetland habitat types.

For wetland habitats classified as BIS the habitat values from the Large River-BIS GIS coverage were used to assign habitat values to the Floodplain-Riparian Feature GIS layer. In other cases habitat values for wetlands and off-channel habitat were assigned based on significance of known fish use (high, moderate, low, or unknown use). Wetlands without fish use were rated in forested habitat value field. Quality and connectivity of off-channel habitats were also used to assign relative habitat values.

3.1.2.2.4 Forested Features

Riparian and floodplain forested areas were delineated using geo-rectified high resolution aerial photographs, non-rectified aerial photos, color and black and white orthophotos, field observations and photos, previously implemented riparian assessments, and Google Earth Streetview. The data source used for interpretation varied depending upon watershed and site. All forested areas within the boundaries of large river floodplains and BIS riparian zones were delineated. Stand types were classified using the methods outlined in WFPB (1997). Table 9 summarizes the forest stand type classification system used to define forested feature type.

Table 9. Summary of watershed analysis riparian habitat classification (source: WFPB 1997).

Dominant Riparian Condition	Dom. Veg. Type	C > 70%Conifer Dominated	First letter code used in series of three
	Dom. Veg. Type	D > 70% Deciduous	
	Dom. Veg. Type	M = all other cases	
	Average tree size	(S) small < 12 inches DBH	Second letter code used in series of three
	Average tree size	(M) medium >12 in. DBH < 20 in. DBH	
	Average tree size	(L) large > 20 inches DBH	
	Stand density	(D) dense > two-thirds canopy closure	Third letter
	Stand density	(S) Sparse < two-thirds canopy closure	

Forest types were further classified based upon riparian function. There were three broad based categories: Non-impaired/slightly impaired, impaired function, and non-functioning. Non-impaired/slightly impaired forest types included: CLD (conifer large dense), MLD (mixed large dense), and FBD (forested beach deposits). Impaired forest types included: CLS (conifer large sparse), CMD (conifer medium dense), CMS (conifer medium sparse), DLD (deciduous large dense), DMD (deciduous medium dense), MLS (mixed large sparse), MMD (mixed medium dense), and MMS (mixed medium sparse). Non-functioning forest types included: CSD (conifer small dense), DSD (deciduous small dense), MSS (mixed small sparse), and MSD (mixed small dense). Forest types were then assigned a habitat value ranging from 0.5 to 5 based on stand type (see Table 10).

Table 10. Forest type codes and assigned habitat values.

Forest Type	Habitat Value		Forest Type	Habitat Value
CLD	5		DSD	0.5
CLS	4		FBD	4
CMD	3.5		MLD	4.5
CMS	2.5		MLS	3.5
CSD	1.5		MMD	3
CSS	1.5		MMS	2
DLD	4		MSD	1.0
DMD	2.5		MSS	0.5
DMS	1.5			

3.1.2.2.5 Non-forested Features

Riparian and floodplain non-forested areas were delineated using the same methods described above for forested features (see Section 3.1.2.2.4). Non-forested areas were classified as one of the following: pasture (P), pasture with planted trees (PPT), other disturbed non-forested area (ODNF), state highway (SH), rural residential (RR), high density housing (HD), private road (PVR), railroad grade (RRG), or other public road (OPR). Non-forested areas were then assigned a habitat value ranging from 1 to -5 based on impairment to riparian and floodplain process functionality (Table 11).

Table 11. Non-forested area codes and assigned habitat values.

Non-Forest Type	Habitat Value		Non-Forest Type	Habitat Value
HD	-5		PVR	-3
ODNF	-1		RR	-3
OPR	-4		RRG	-1
P	-1		SH	-5
PPT	1			

3.1.2.2.6 Summary of Floodplain and Riparian Features

A total of 1,720 acres of stream, wetland, and estuary habitat were delineated within the Floodplain-BIS GIS layer. A total of 1,042 acres were classified as stream habitat (area includes only habitat within the bankfull edge of the stream or river channel). The Hoko River and Pysht River watersheds had the most habitat acres classified as streams, with 371 (36%) and 210 (20%) acres respectively. Figure 27 depicts that total number of habitat acres by habitat sub-type within the Floodplain-BIS GIS layer. A total of 338 acres were classified as estuary habitat. Of this habitat area 173 acres were classified as estuarine channels. The Pysht and Hoko watersheds had the most estuarine channel habitat with 76 (44%) and 39 (23%) acres respectively. The Pysht River and Salt Creek watershed had the most total estuary habitat with 184 (54%) and 62 (18%) acres respectively.

A total of 340 acres were classified as freshwater wetland habitat. The vast majority of this area was classified as biologically important off-channel habitat. It is important to note that not all of the planning area's geographic units have had the same level of field surveys targeting off-channel habitat delineation. Almost all of the wetland habitats inventoried occurred on large-river floodplains. The Pysht, Hoko, and Clallam watersheds had nearly 100 percent of the wetland habitat inventoried with 123 (36%), 119 (35%) and 97 (29%) acres respectively.

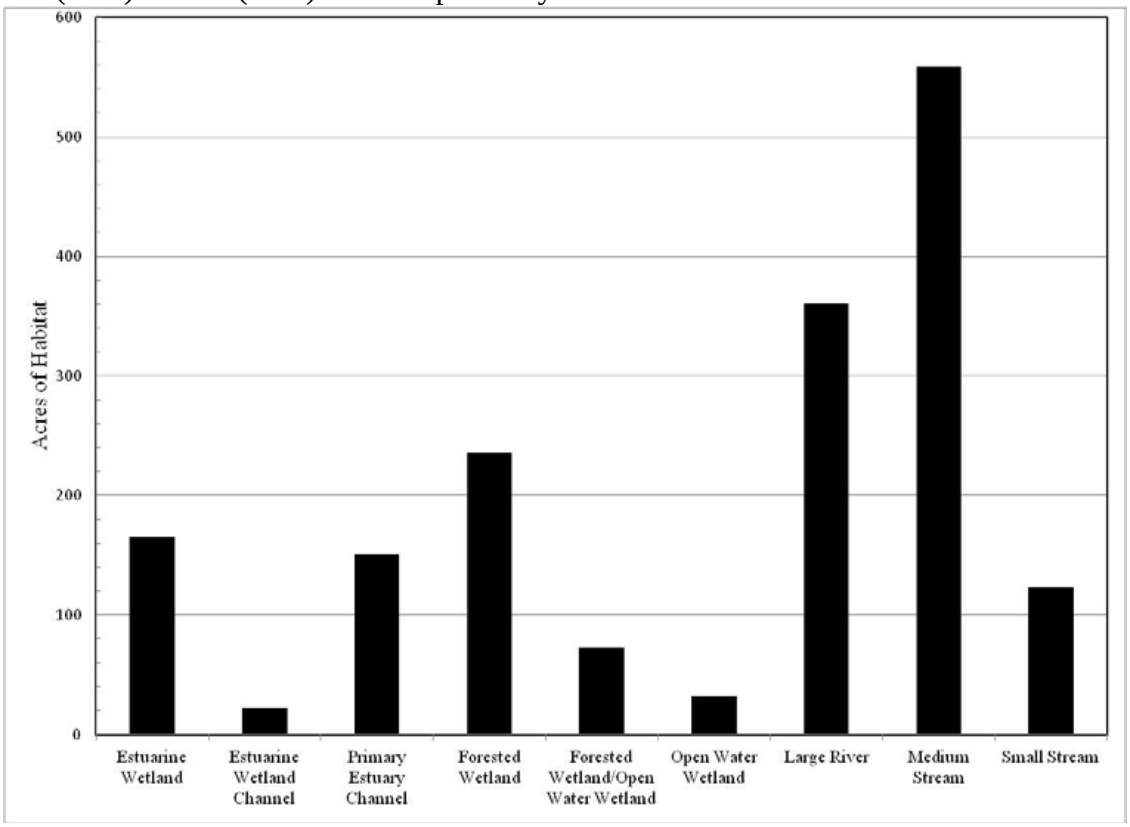

Figure 27. Total number of habitat acres by habitat sub-type within the Floodplain-BIS GIS layer.

Riparian conditions based on the Floodplain-Riparian Features GIS layer were summarized at the stream segment and watershed spatial scales. For this summary we simplified the riparian classification into four categories (see Section 3.1.2.2.4): non-impaired/slightly impaired function, impaired function, non-functioning, and non-forested. Stream segments with 10 acres or more riparian habitat were evaluated based on the percent of riparian/floodplain area classified as non-impaired/slightly impaired. Only 8 stream segments had greater than 60% of their respective habitat area classified as non-impaired/slightly impaired. The highest percent of riparian/floodplain area classified as non-impaired/slightly impaired occurred in the following stream segments: unnamed tributary 19.0135 Segment 1 (96%; tributary to Charley Creek), Deep Creek Segment 4 (84%), West Twin River Segment 4 (72%), West Twin River Segment 3 (71%), Sadie Creek Segment 1 (Segment 66%), Sail River Segment 2 (65%), Clallam River Segment 6 (62%), and West Twin River Segment 5 (62%). For segment locations see **Appendix B** which includes detailed stream channel segment maps for all stream segments included in the analysis.

At the watershed scale we evaluated riparian and floodplain function at two scales, the entire riparian/floodplain area (Table 12) and within 200 feet of the bankfull edge (Table 13). The highest number of acres of riparian/floodplain area classified as non-impaired/slightly impaired occurred in the Hoko (480 acres) and Pysht (392 acres) watersheds. The highest percent of riparian/floodplain area classified as non-impaired/slightly impaired occurred in the WSSI (46%) and West Twin River (43%) watersheds.

Table 12. Number of floodplain-riparian acres classified as non/slightly impaired, impaired, non-functioning, and non-forested. This summary includes the entire riparian and floodplain extent.

Watershed	Non or Slightly Impaired Acres	Impaired Acres	Non-Functioning Acres	Non-Forested Acres	Total
Clallam River	299	440	344	214	1,297
Deep Creek	98	74	131	9	313
East Twin River	100	110	28	10	249
Hoko River	480	845	677	312	2,315
Lyre River	98	74	44	25	241
Pysht River	392	664	951	248	2,255
Salt Creek	67	167	124	124	481
Sekiu River	118	376	217	49	760
West Twin River	104	66	72	3	245
WSSI	95	55	49	6	205
Total	1,852 (22%)	2,871 (34%)	2,635 (32%)	1,002 (12%)	8,360

Table 13. Number of floodplain-riparian acres classified as non/slightly impaired, impaired, non-functioning, and non-forested. This summary includes only areas within 200 feet of streams.

Watershed	Non or Slightly Impaired Acres	Impaired Acres	Non-Functioning Acres	Non-Forested Acres	Total
Clallam River	266	395	302	127	1,090
Deep Creek	98	74	131	9	313
East Twin River	100	110	28	10	249
Hoko River	440	761	627	199	2,027
Lyre River	98	74	44	25	240
Pysht River	353	610	770	157	1,889
Salt Creek	67	167	124	124	481
Sekiu River	113	353	183	36	684
West Twin River	104	66	72	3	245
WSSI	95	55	49	6	205
Total	1,735 (23%)	2,664 (36%)	2,328 (31%)	696 (9%)	7,423

3.2 CONSERVATION PRIORITIZATION

Parcels considered for habitat conservation were prioritized based on several factors including:

- Habitat classification
- Habitat potential and current habitat quality
- Habitat forming processes
- Biological indicators
- Riparian and floodplain conditions
- Ownership type (e.g., private versus publicly owned)
- Parcel size and relative proportion of parcel classified as habitat
- Relative position to other protected parcels

The primary criteria for identifying the highest priority parcels for conservation was that the parcels contained high quality habitat with high productivity potential, as well as intact habitat forming processes and a high proportion of parcel area classified as habitat. Unfortunately, the vast majority of habitat and habitat forming processes throughout the planning area are degraded and or impaired (see Table 12 and Table 13). This limits the quality and quantity of habitats and parcels considered for conservation. A complete description of the methods used to prioritize parcels for potential conservation is included below in Sections 3.2.1 and 3.2.2.

3.2.1 Nearshore Habitats

Nearshore habitat parcel prioritization was done using the nearshore GIS layer described in Section 3.1.1 and the Clallam County GIS Parcel database. The first step in prioritization was completed by intersecting the nearshore GIS layer with the Clallam County parcel data. Once the intersection was complete a new field was added to measure the acreage of each polygon included in the intersection.

There were a total of 938 parcels identified within the nearshore environment (not including the estuary). An Excel pivot table was used to summarize the number of acres within each habitat value class, for all habitat types, at the parcel ID scale. A second Excel pivot table which excluded upland Zone 2 habitat values was also generated to measure the acreage by habitat value class for all nearshore habitats excluding Zone 2 and estuarine habitats. Excluding Zone 2 only parcels reduced the number of parcels within the prioritization to 657 parcels.

All nearshore-parcel intersect data were then run through the Excel sort function. Parcels were sorted first based on whether they were 40 acres or larger in size, then based on whether 10 acres or greater were classified as having habitat values equal to or greater than 3.5 (this excluded zone 2 polygons), and finally based on the percent of parcel area that was classified as having a habitat value equal to or greater than 3.5 (this excluded zone 2 polygons).

A total of 66 parcels greater than 40 acres were indentified within the nearshore (excluding zone 2 only parcels). Of these only 40 parcels contained polygon area classified as having a habitat value of 3.5 or greater. Parcels with less 10 acres and less than 10% area within the nearshore shoreline and zone 1 upland habitat type were excluded. This left a prioritized list of 19 parcels.

In order to include potential high quality habitats where parcel size was less than 40 acres additional prioritization was completed. This was done by identifying the remaining parcels that had greater than 10 acres of nearshore shoreline and zone 1 upland habitat type classified as having a habitat value equal to or greater than 3.5. These parcels were then prioritized based on total percent of parcel area within all nearshore habitat types classified as having a habitat value equal to 3.5 or greater. A total of eight parcels met these criteria. A final prioritization was made by including all parcels less than 40 acres that had 10 or more acres of nearshore habitat (all zones) classified as having a habitat value equal to or greater than 3.5. A total of 23 parcels met these criteria.

3.2.2 Freshwater and Estuary Habitats

Freshwater and estuary habitat parcel prioritization were completed together because many of the parcels within the estuaries also included freshwater habitats. The prioritization was done using the Floodplain-BIS GIS Layer, Floodplain-Riparian Feature GIS layer, and Clallam County GIS Parcel database.

The first step in prioritization was completed by intersecting the Floodplain-BIS GIS layer with the Floodplain-Riparian Feature GIS layer. This new layer was called the Habitat Feature GIS layer. A new field was added to this layer in order to measure the acreage of each new polygon created. The Habitat Feature GIS layer is the primary habitat layer used for the remainder of the analysis.

The next step in the prioritization process was to intersect the Habitat Feature GIS layer with the Clallam County GIS Parcel database. Once the intersection was complete a new field was added to measure the acreage of each polygon included in the intersection.

There were a total of 958 parcel IDs included within the freshwater and estuary environments. One parcel ID was 0 and included numerous polygons not given a unique ID within the County's parcel database. These polygons were excluded from further analysis.

An Excel pivot table was used to summarize the number of acres within each parcel classified as stream, riparian, or floodplain habitat. This area was termed Habitat Acres (HA) and included all large river and BIS habitat, including in-channel, estuarine, wetland, riparian and floodplain habitat area. These data were further summarized based on the Floodplain-BIS GIS layer habitat values. We used two metrics to evaluate the habitat potential of an individual parcel: parcel habitat potential (PHP) and parcel weighted habitat value (PWHV). Parcel habitat potential was defined using Equation 4.

Equation 4

$$PHPx = \sum_{i=m}^{n} HP_i = HP_m + HP_{m+0.25} + HP_{m+0.5} + \cdots HP_{n-0.25} + HP_n$$

Where,

n=5
m=2
HP= HVx X Acresx
HVx=habitat value at x
Acresx=habitat acres within habitat value x
x=habitat value being solved for

Weighted parcel habitat value was defined using Equation 5.

Equation 5

$$WPHVx = \frac{PHPx}{HAx}$$

Where,

WPHVx= weighted parcel habitat value at parcel x.
PHPx= parcel habitat potential at parcel x.
HAx= habitat area within parcel x.

We used a similar set of equations to evaluate the habitat value of all features within an individual parcel. This is an important metric because it is an area weighted summation of all feature habitat values within a parcel and is the best description of current riparian habitat condition. Weighted parcel habitat value was defined using Equation 6.

Equation 6

$$WPFHVx = \frac{PFHVx}{HAx}$$

Where,

WPFHVx= Weighted parcel feature habitat value at parcel x.

$$PFHVx = \sum_{i=m}^{n} FHVi = FHV_m + HP_{m+0.25} + HP_{m+0.5} + \cdots HP_{n-0.25} + HP_n$$

n=5
m=-5
FHV= FHVx X Acresx
FHVx= feature habitat value at x
Acresx= habitat acres within feature habitat value x
x= habitat value being solved for

HAx=Habitat area within parcel x.

It became obvious that the best indicator of the highest priority parcels would be found by combining the habitat potential value of a parcel and the current feature habitat values within the parcel, we termed this variable Parcel Value 1 (PV1). Parcel Value 1 was defined using Equation 7.

Equation 7

$$PV1x = WPFHVx \times WPHVx$$

Where,

PV1x= parcel value of parcel x.

WPFHVx= weighted parcel feature habitat value at parcel x.
WPHVx= weighted parcel habitat value at parcel x.

While the equations may seem complex the concept is quite simple. For example, let's say 100 percent of a parcel's weighted parcel habitat value is 5 and the weighted feature habitat value is a 5, this would yield a parcel value of 25. In this example the habitat potential was the highest 5, and the feature values were also the highest possible 5, this would make this the highest conservation priority parcel. However, this method excludes consideration of non-habitat area within a parcel. Therefore parcels with only 5 percent of the area could rank the very highest even though 95 percent of the parcel does not contain the most important habitat for conservation. Therefore, it was necessary to define a second parcel value variable to account for the proportion of the parcel that was classified as habitat. This was done using Equation 8.

Equation 8

$$PV2x = WPFHVx \times \left(WPHVx \times \left\lfloor \frac{HAx}{PAx} \right\rfloor\right)$$

Where,

PV2x= parcel value of parcel x.
WPFHVx= weighted parcel feature habitat value at parcel x.
WPHVx= weighted parcel habitat value at parcel x.
HAx= habitat area in parcel x.
PAx= area in parcel x.

The final parcel value variable used in the analysis used the average value of Equation 7 and Equation 8. In order to reduce the number of parcels considered for prioritization we excluded all parcels less than 20 acres in size from further analysis. This resulted in the prioritization of 346 parcels.

3.3 STAKEHOLDER PARTICIPATION AND FEEDBACK

Starting in February 2011, there were monthly project meetings. The public was invited to attend all meetings. Notification was distributed by the North Olympic Land Trust via email. The Mike Haggerty Consulting website (www.mhaggertyconsulting.com) featured PowerPoint presentations, GIS resources, meeting minutes, and draft plans. The website was updated monthly and included a page for project participants and the general public to provide comments and communicate with the authors of the plan.

The February 2, 2001 presentation focused on habitat definitions and methods for habitat delineation, prioritization parameters to be considered, and presented a plan framework.

The March 2, 2011 presentation focused on estuary and nearshore habitats. Our approach to nearshore habitat classification was presented to the group.

April 6, 2011 presentation included an updated plan outline. Nearshore habitat process units were presented to the group, as well as attributes to be included for each of the shoreline habitat units (e.g., forage fish spawning). The presentation also included a detailed description on how large river floodplain habitat segments were delineated. The 24 large river floodplain segments were also presented. A description of potential floodplain features to be delineated was also included. An approach for identifying other biologically important streams was also presented.

The May 11, 2011 presentation focused on the identification of biologically important streams and off-channel habitats. In addition, floodplain and riparian feature types and their spatial delineation were also included.

June 8, 2011 presentation started with a NOLT staff review of stakeholder feedback received and how it had been incorporated into the plan. This was followed with a detailed presentation on the biologically important stream filter. The results of the biologically important stream filter were also presented to the group.

July 28, 2011 presentation included the final habitats to be included in the plan, as well as a completed riparian-floodplain feature dataset. The presentation also included an unveiling of multiple approaches to prioritizing parcels for conservation.

At each meeting, there was opportunity for the public to provide input, and minutes reflect the input received. There was also the opportunity to provide feedback on website. Additionally, there were presentations for the North Olympic Peninsula Lead Entity Technical Review Group and for the North Olympic Land Trust Conservation Committee.

4 RESULTS

4.1 PRIORITIZED NEARSHORE HABITATS

The prioritization methods described in Section 3.2.1 resulted in a prioritized list of 42 parcels. The parcels were then further screened for existing habitat forming processes, proximity to other protected areas, habitat values equal to or greater than 4, ownership, submerged lands. Each parcel was attributed with a flag type; no flag was given to parcels without any outstanding issues. Parcels were attributed with a green flag if they had exceptional habitat value or were in close proximity to other protected parcels.

Parcels were attributed with a yellow flag if the vast majority of lands were submerged lands/tide flats, or if other issues existed that limited the parcels conservation potential (e.g., indeterminate ownership, parcel already at least partially under a conservation easement, existing roads and infrastructure partially limiting habitat processes). Parcels were attributed with red flags if habitat forming processes were severely limited or if the parcels were publically owned (and not black flagged). Parcels were attributed with a black flag if the parcels were already under a conservation easement or were public park lands, or if they were public lands with poor conservation potential.

Final screening resulted in the prioritization of 17 nearshore parcels. A summary of these parcels is included below in Table 14. Maps depicting prioritized parcels at the habitat process unit(s) scale are include below in Figure 28 through Figure 32. Individual Parcel maps and habitat descriptions are included in **Appendix C.**

Table 14. Summary of prioritized nearshore parcels.

Parcel ID	Final Rank	Acres	Habitat Process Unit(s)	Location Description
74400	1	18.2	33	West Elwha River Drift Cell
74282	2	17.0	33	West Elwha River Drift Cell
77307	3	86.3	29, 30, & 31	Agate and Crescent Beaches
8660	4	120.0	17	Near Eagle Point (just east of Hoko River)
8738	5	41.1	17	Near Eagle Point (just east of Hoko River)
74389	6	37.3	33	West Elwha River Drift Cell
1790	7	70.9	24	Just east of Pysht River
79577	8	51.1	29	East Whiskey Creek Beach
1199	9	24.0	25	Just west of Deep Creek
79561	10	25.0	10	Lyre River
74266	11	56.6	33	West Elwha River Drift Cell
79807	12	81.4	29	East Lyre River/West Whiskey Creek Beach
8700	13	45.9	17	Just west of Sekiu
1896	14	29.0	21	Pillar Pocket Beach
79662	15	16.9	29	West Whiskey Creek Beach
80042	16	19.6	29	Harrison Beach
80033	17	21.1	29	Harrison Beach

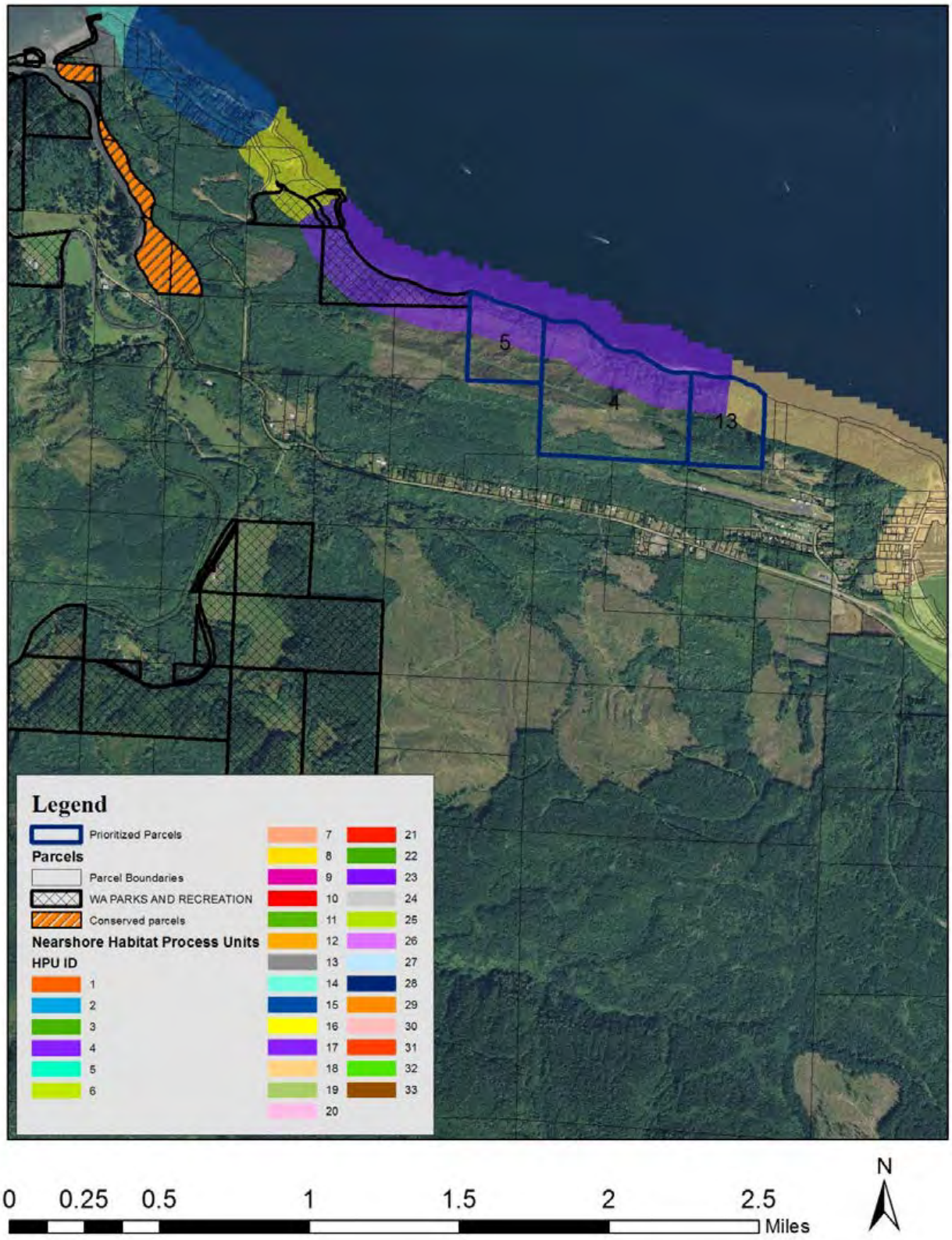

Figure 28. Map depicting the prioritized parcels within the Eagle Point area.

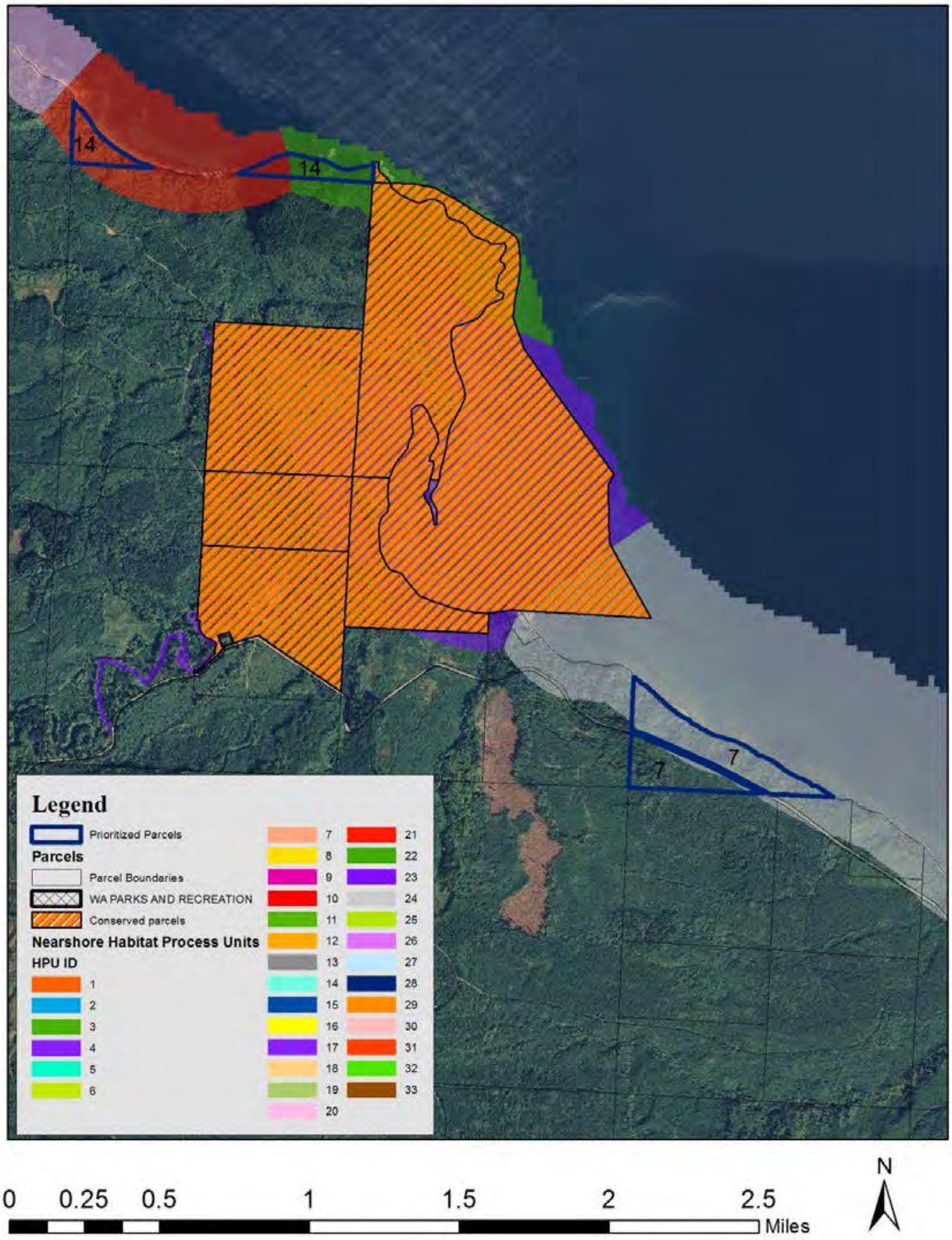

Figure 29. Map depicting the prioritized parcels within the Pysht River area.

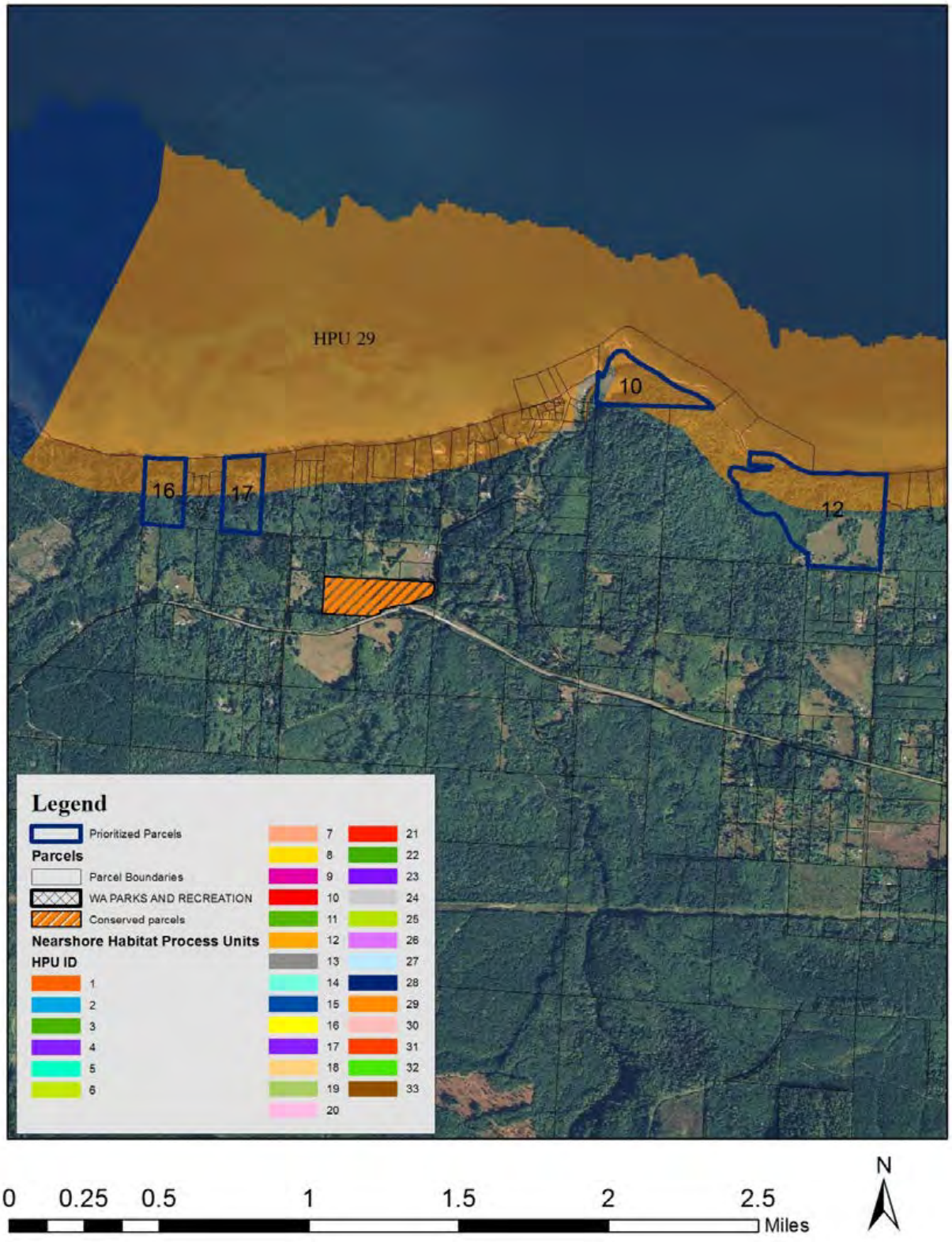

Figure 30. Map depicting the prioritized parcels within the Lyre River/Harrison Beach area.

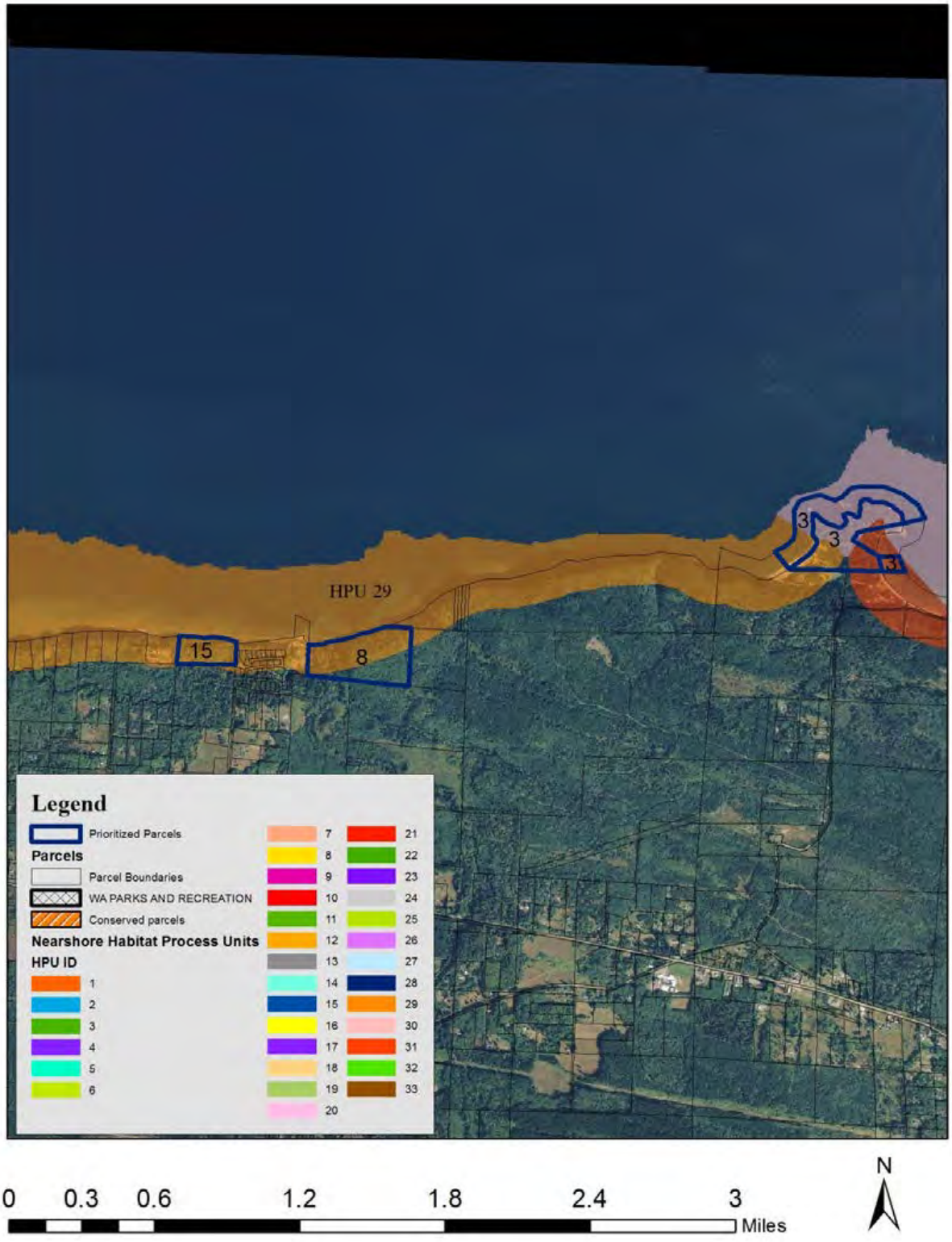

Figure 31. Map depicting the prioritized parcels within the Whiskey Creek/Crescent drift cells (HPUs 29-31).

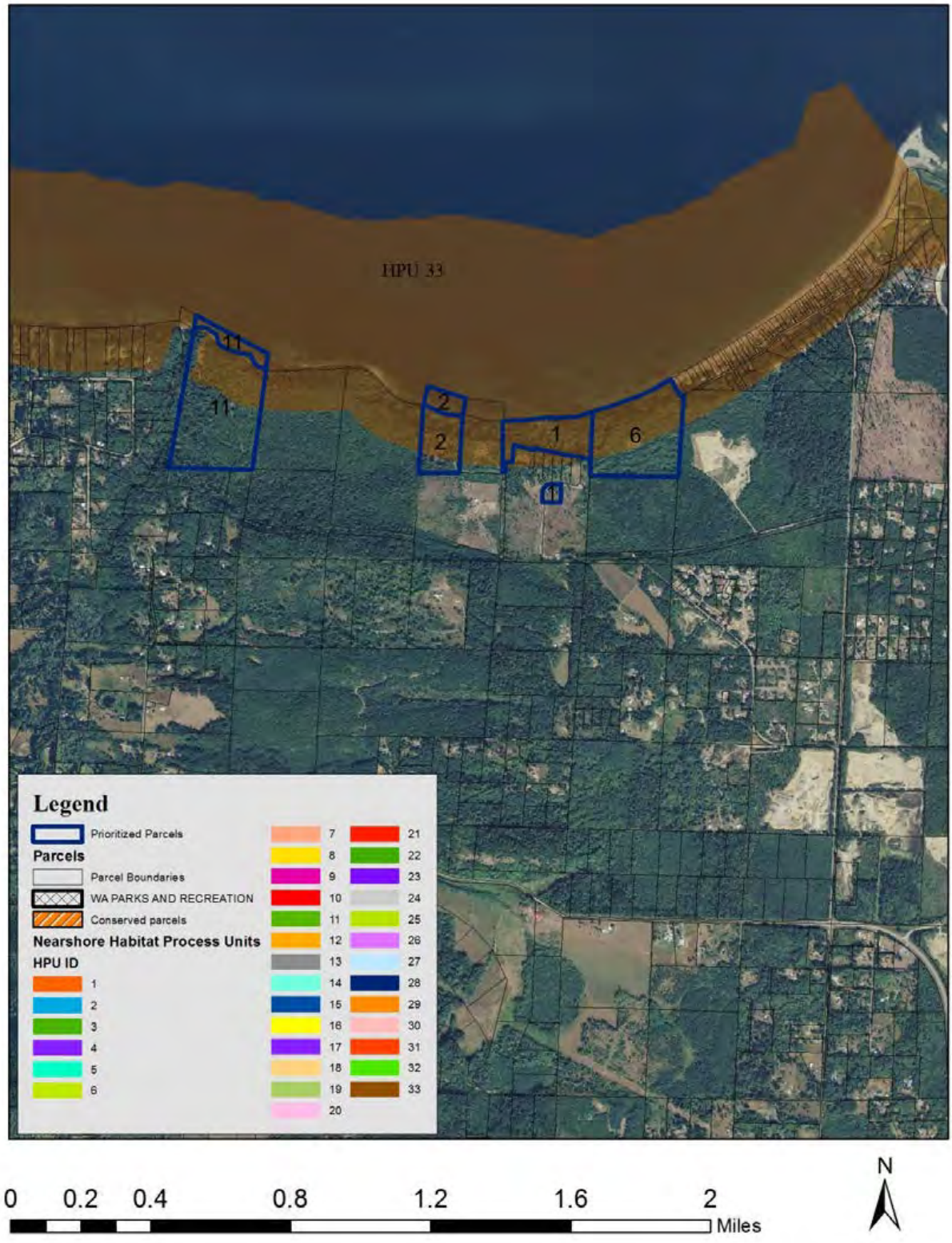

Figure 32. Map depicting the prioritized parcels within the west Elwha River drift cell (HPU 33).

4.2 PRIORITIZED FRESHWATER and ESTUARY HABITATS

The prioritization methods described in Section 3.2.2 resulted in a prioritized list of 346 parcels. The top ranked 165 parcels were then further screened for existing habitat forming processes, proximity to other protected areas, proportion of parcel classified as habitat, and ownership. Each parcel was attributed with a flag type; no flag was given to parcels without any outstanding issues. Parcels were attributed with a green flag if they had exceptional habitat value or were adjacent other protected parcels. In addition, for parcels marked with a green flag a value of +2 was added to the final parcel value variable.

Parcels were attributed with a yellow flag if less than 20 percent of the parcel was classified as habitat, or if other issues existed that limited the parcels conservation potential (e.g., indeterminate ownership, parcel already at least partially under a conservation easement, existing roads and infrastructure partially limiting habitat processes). Parcels were attributed with red flags if habitat forming processes were severely limited or if the parcels were publically owned (and not black flagged). Parcels were attributed with a black flag if the parcels were already under a conservation easement or were state park lands, or if they were public lands with poor conservation potential.

Parcel screening further reduced the number of parcels prioritized from 165 to 72. The 72 prioritized parcels are not evenly distributed throughout the planning area. For example, 53 percent of the prioritized parcels are within the Hoko River watershed, which makes up only 18 percent of the planning area's acreage. The distribution of the prioritized parcels is a function of the metrics used to prioritize parcels for conservation, these metrics include: habitat classification, habitat potential/current habitat quality, habitat forming processes, biological indicators, and riparian/floodplain conditions. In addition, ownership type, parcel size and the proportion of parcel classified as habitat, and parcel proximity to other protected parcels plays a major role in prioritization.

Table 15. Prioritized parcels summarized by WRIA 19 subbasins.

WATERSHED	NUMBER OF PARCELS PRIORITIZED	ACRES	PERCENT BY AREA	PERCENT BY NUMBER
Clallam River	8	415	7%	11%
Deep Creek	3	294	5%	4%
Hoko River	38	3,555	63%	53%
Lyre River	1	21	0%	1%
Pysht River	19	1,175	21%	26%
Sekiu River	2	64	1%	3%
West Twin River	1	91	2%	1%

A complete summary of the prioritized parcels for conservation consideration are included below in Table 16. Maps depicting prioritized parcels at the watershed scale are include below in Figure 33 through Figure 36. Individual parcel maps and habitat descriptions are included in **Appendix D.**

Table 16. Summary of prioritized parcels for conservation consideration.

Parcel ID	Final Rank	Acres	Percent of Parcel Classified as Habitat	Watershed
8758	1	36.0	100%	Hoko River
8584	2	38.7	100%	Hoko River
3619	3	60.2	99%	Clallam River
8847	4	28.8	101%	Hoko River
8875	5	22.5	29%	Hoko River
8863	6	36.8	82%	Hoko River
8999	7	37.6	20%	Hoko River
8761	8	28.8	39%	Hoko River
8857	9	34.5	80%	Hoko River
10485	10	40.0	71%	Hoko River
3161	11	38.7	62%	Pysht River
10480	12	39.9	53%	Hoko River
8274	13	40.7	71%	Hoko River
3137	14	74.0	24%	Pysht River
8262	15	64.6	45%	Hoko River
8251	16	28.4	52%	Hoko River
3062	17	35.3	53%	Pysht River
1810	18	69.2	92%	Pysht River
8990	19	33.6	26%	Hoko River
1823	20	89.1	86%	Pysht River
8371	21	43.3	59%	Hoko River
3157	22	38.1	54%	Pysht River
1842	23	31.9	42%	Pysht River
8271	24	71.0	48%	Hoko River
8984	25	36.4	49%	Hoko River
3646	26	34.4	62%	Clallam River
8382	27	74.1	42%	Hoko River
3605	28	120.7	23%	Clallam River
9016	29	64.3	20%	Hoko River
8456	30	31.4	98%	Sekiu River
8477	31	33.0	81%	Sekiu River
8319	32	46.8	51%	Hoko River
3851	33	34.1	71%	Clallam River
1841	34	23.5	83%	Pysht River

Parcel ID	Final Rank	Acres	Percent of Parcel Classified as Habitat	Watershed
3648	35	34.1	100%	Clallam River
9019	36	72.9	21%	Hoko River
3091	37	75.0	22%	Pysht River
8373	38	82.1	21%	Hoko River
3136	39	80.1	35%	Pysht River
8359	40	146.5	29%	Hoko River
3640	41	37.3	100%	Clallam River
3048	42	28.2	71%	Pysht River
8991	43	30.7	56%	Hoko River
1813	44	88.9	55%	Pysht River
10345	45	203.1	22%	Hoko River
10496	46	35.7	38%	Hoko River
10497	47	68.8	23%	Hoko River
7732	48	40.1	35%	Hoko River
8372	49	115.6	22%	Hoko River
3086	50	78.1	47%	Pysht River
8997	51	34.3	42%	Hoko River
8375	52	41.1	30%	Hoko River
8363	53	149.2	22%	Hoko River
1849	54	39.7	58%	Pysht River
10489	55	477.4	30%	Hoko River
3090	56	38.6	64%	Pysht River
1353	57	41.0	53%	Deep Creek
3769	58	63.1	75%	Clallam River
1367	59	91.5	35%	West Twin River
8356	60	311.4	27%	Hoko River
3647	61	31.4	79%	Clallam River
1359	62	154.5	27%	Deep Creek
3026	63	119.2	34%	Pysht River
79208	64	21.1	33%	Lyre River
8354	65	39.7	41%	Hoko River
7733	66	631.1	23%	Hoko River
1881	67	75.0	21%	Pysht River
1888	68	98.4	34%	Deep Creek
10342	69	118.5	26%	Hoko River
8994	70	110.2	27%	Hoko River
3185	71	114.1	30%	Pysht River
3088	72	38.1	45%	Pysht River

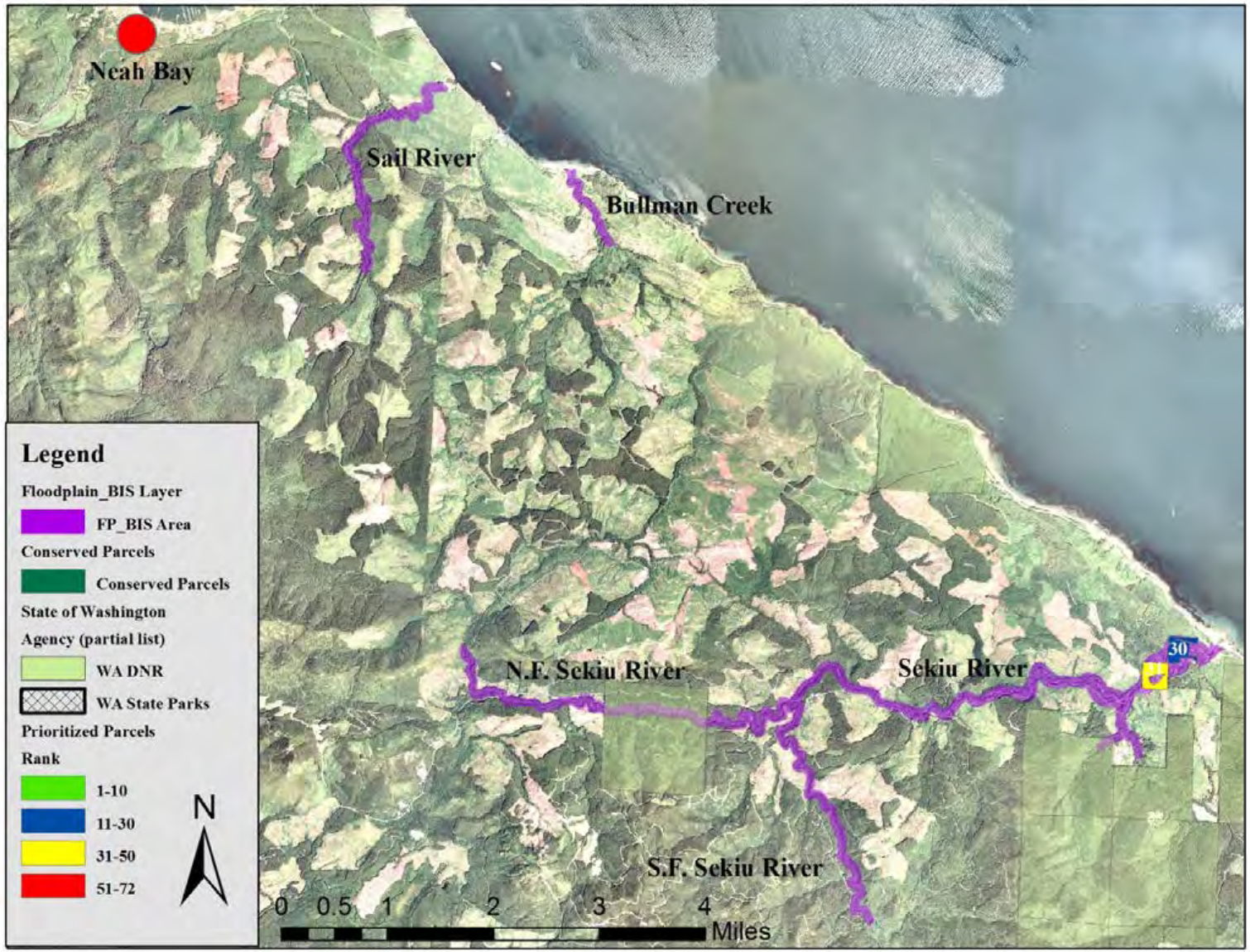

Figure 33. Map depicting the prioritized parcels within the Sekiu/Sail River area.

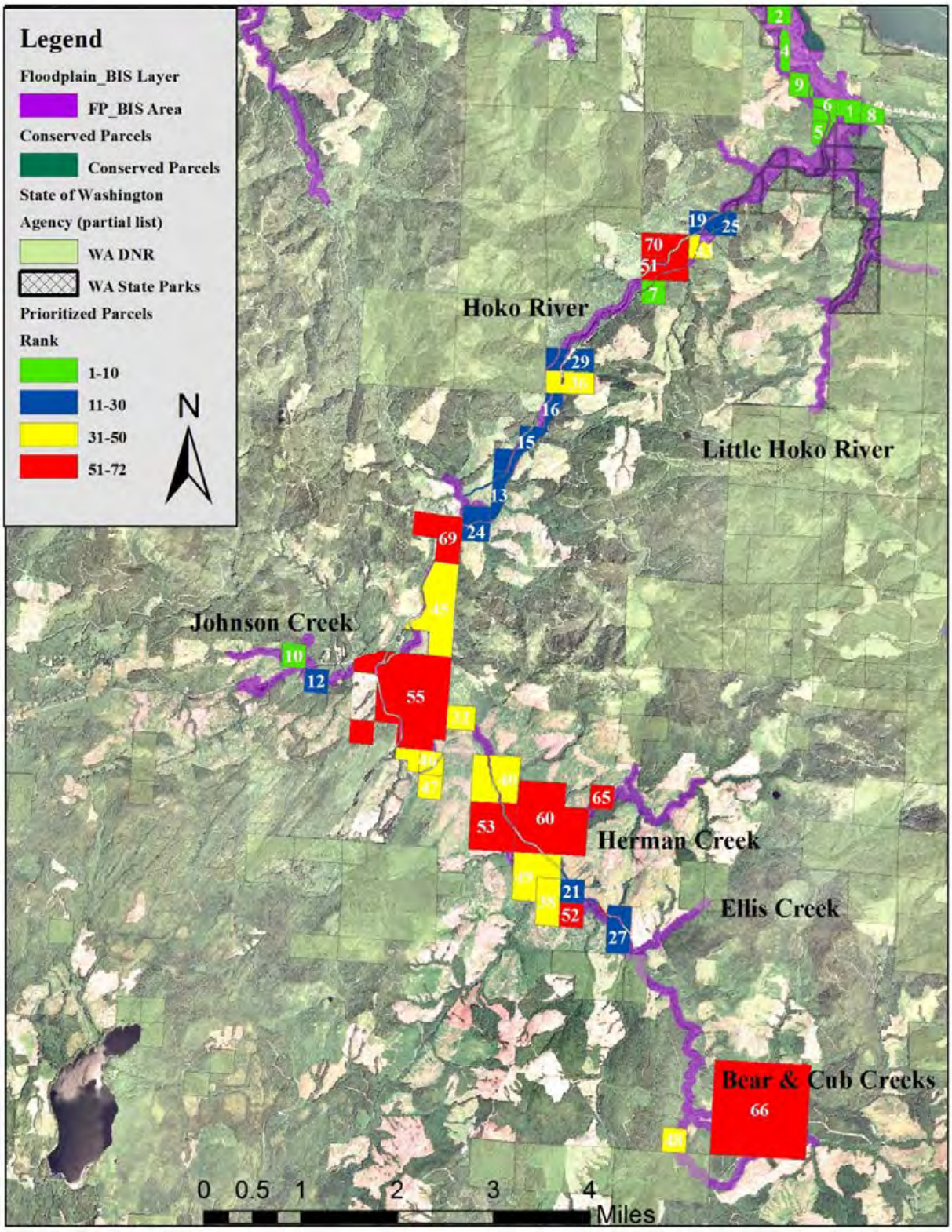

Figure 34. Map depicting the prioritized parcels within the Hoko River subbasin.

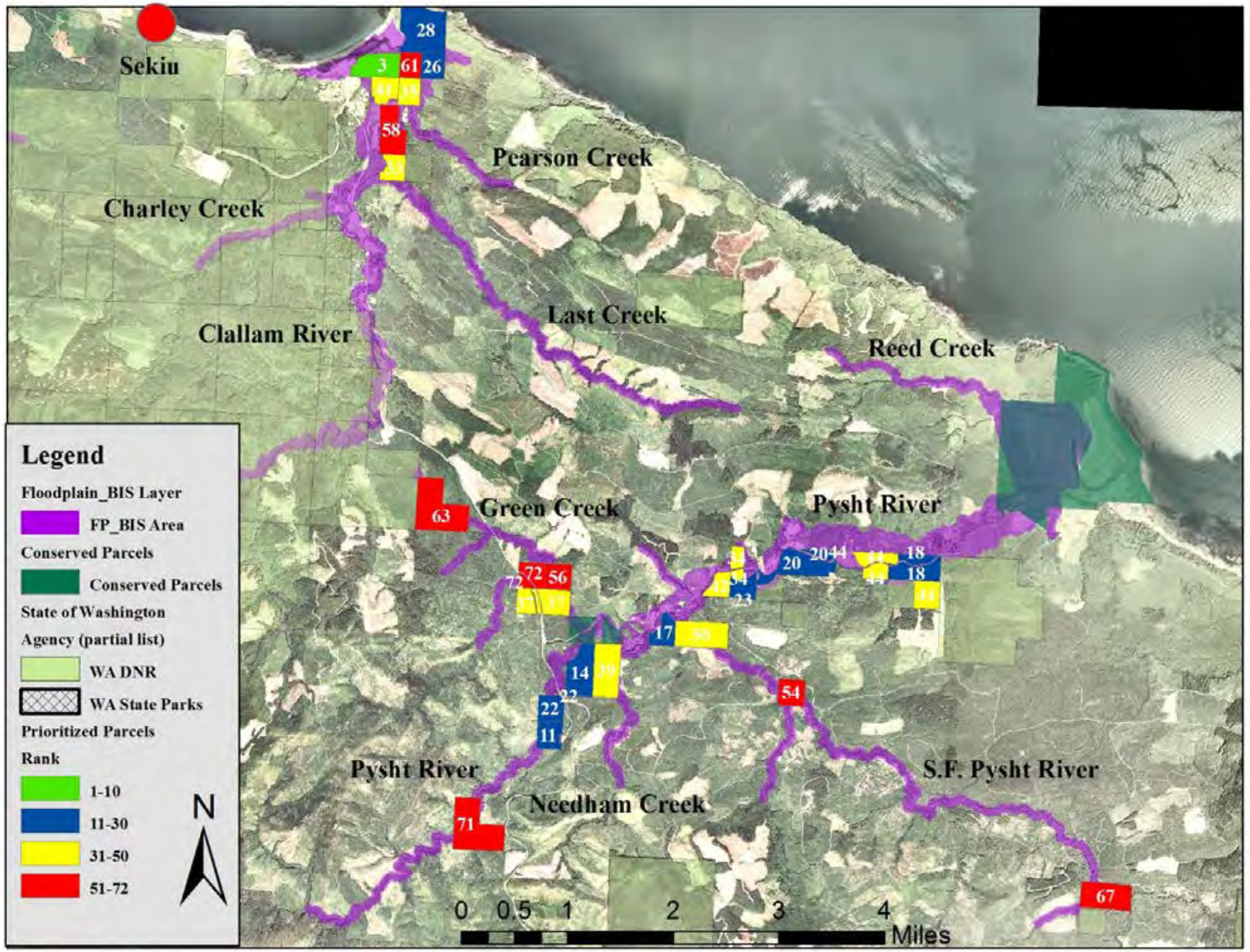

Figure 35. Map depicting the prioritized parcels within the Clallam/Pysht River area.

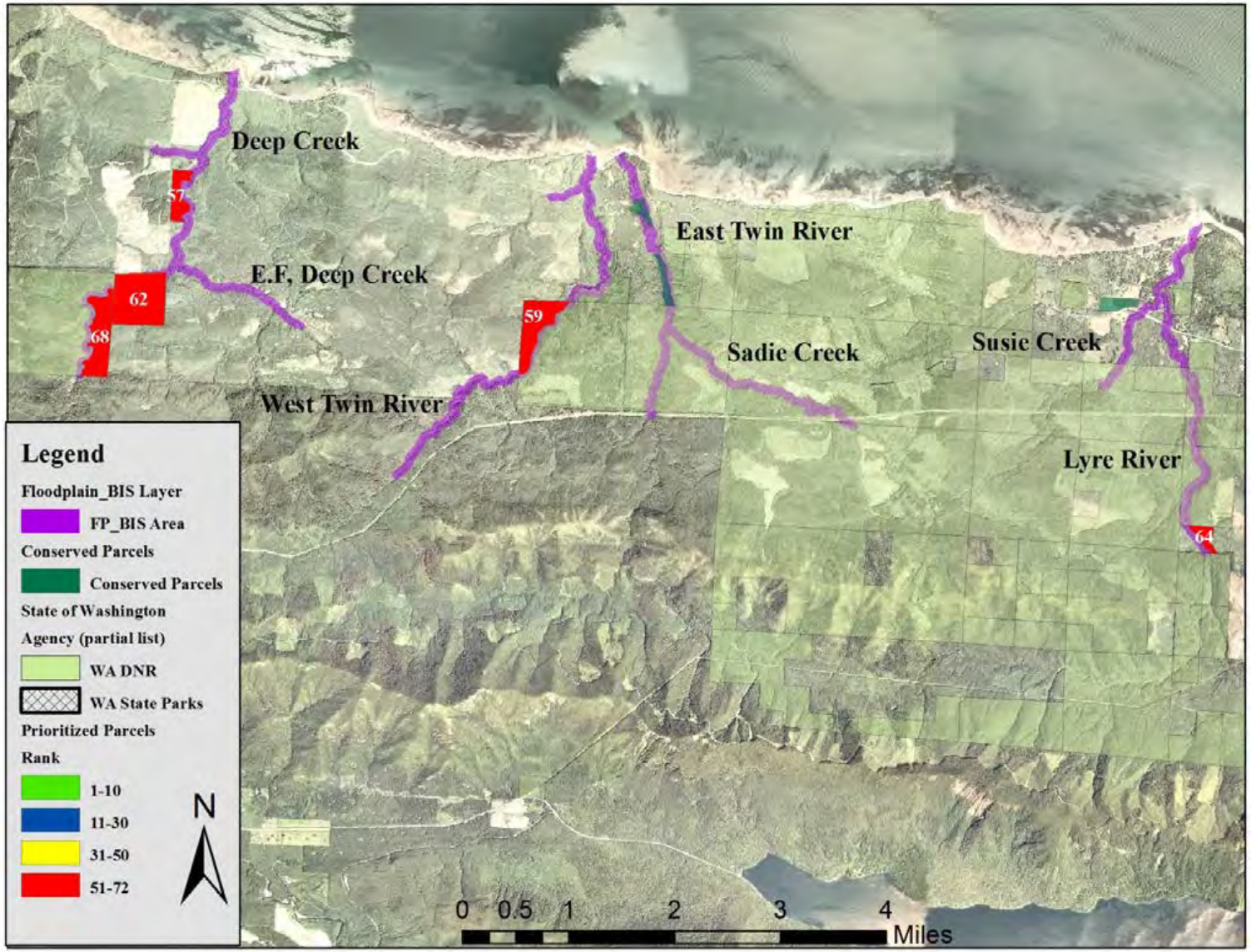

Figure 36. Map depicting the prioritized parcels within the Deep Creek/Twin/Lyre River area.

5 DISCUSSION

It should be understood that this is a modeling exercise, and efforts have been made to correct any errors in the modeling, but all modeling exercises are inherently imperfect. North Olympic Land Trust only works with willing sellers who voluntarily conserve their land. No recommendations within this plan should be considered binding, nor should they act limit private property rights in any way.

It is important to note one key limitation of our approach to habitat and parcel prioritization. The plan focused on identifying the highest priority parcels for conservation based upon parcels that contained high quality habitat, with high productivity potential, as well as intact habitat forming processes and a high proportion of parcel area classified as habitat. This approach may exclude some important high quality habitats. For example, some parcels are very large (>600 acres) and contain a mix of high and low priority habitats. The nature of our methods typically excluded these parcels because only a small portion of a parcel might contain high quality habitat. In addition, some parcels are very small but include important high quality habitat. The limitations of our approach should not exclude very large and very small parcels from being considered for conservation in the future.

Because of the complexity associated with prioritizing parcels and the fact that important habitats may be excluded from prioritization because of parcel size or potential habitat impairment we developed additional methods for examining high priority habitats independent of land parcels. This was done at the floodplain-riparian feature level by combining segment level habitat values with feature values. This was done within Floodplain Features GIS layer by multiplying the two fields together. This generated feature level values for each feature (n=9,594) that ranged a value from +25 to -25. These data were classified into four groups: needs restoration (-25 to 0), passive restoration (0 to 12.2), moderate conservation value (12.3 to 17.5), and high conservation potential (>17.5). These data can now be used to aid in future restoration or conservation efforts that may have different goals and priorities than included within the plan. For example, projects that target restoration of degraded habitat and conservation. In addition, this approach may allow for the development of conservation projects that focus on multiple small parcels that include high quality habitats.

The approach mentioned above was also summarized at segment scale and ranked from 1 to 244 (see **Appendix B**). The ranking is based on Floodplain-BIS GIS layer habitat values times Floodplain-Riparian Feature GIS habitat values (area weighted feature value). These values are essentially equal to habitat potential x current riparian habitat condition values. **Appendix B** includes a ranked table and 28 maps for viewing all channel segments inventoried.

Parcel size and orientation played an important role in defining the prioritized list of parcels. As described in Section 4.2 the prioritized parcels are not evenly distributed throughout the planning area. For example, 53 percent of the prioritized parcels are

within the Hoko River watershed, which makes up only 18 percent of the planning area's acreage. The proportion of parcels prioritized within the Hoko River watershed is in part related to parcel size and orientation. The Hoko River watershed contains numerous 20-60 acres parcels often orientated along the river. This is not the case with the other three large river floodplain systems within the planning area. Nonetheless, 90 percent of the prioritized parcels are within the Hoko, Clallam, and Pysht river watersheds, which make up only 38 percent of the planning area's acreage.

When using the plan it is very important to recognize that all areas included within the analysis are important for salmon and steelhead. None of the areas should be considered "low priority" for conservation. The plan delineated 1,720 acres of the most important stream, wetland, and estuary habitat used by salmon and steelhead. This represents less than 0.7% of the planning area acreage. The plan further examined and included riparian and floodplain habitat adjacent to the habitat mentioned above; these important habitats only represent 4 percent of the planning area's acreage.

Six of the top twenty parcels were excluded from the prioritized list because they are already conserved or are publicly owned. The parcels excluded include the following:

- Priority 1- Hoko Estuary (State Park)
- Priority 2- Pysht Estuary (Cascade Land Conservancy)
- Priority 6- Hoko Estuary (State Park)
- Priority 12-Pysht/Green Creek (Vancalcar-NOLT)
- Priority 14-Clallam River Segment 5 (WDNR)
- Priority 19-Pysht River Segment 3 (WDNR)

We recommend that detailed field surveys occur for any parcel considered for conservation prior to acquisition or conservation easement purchase.

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APPENDIX A: Subbasin zoning and land ownership maps

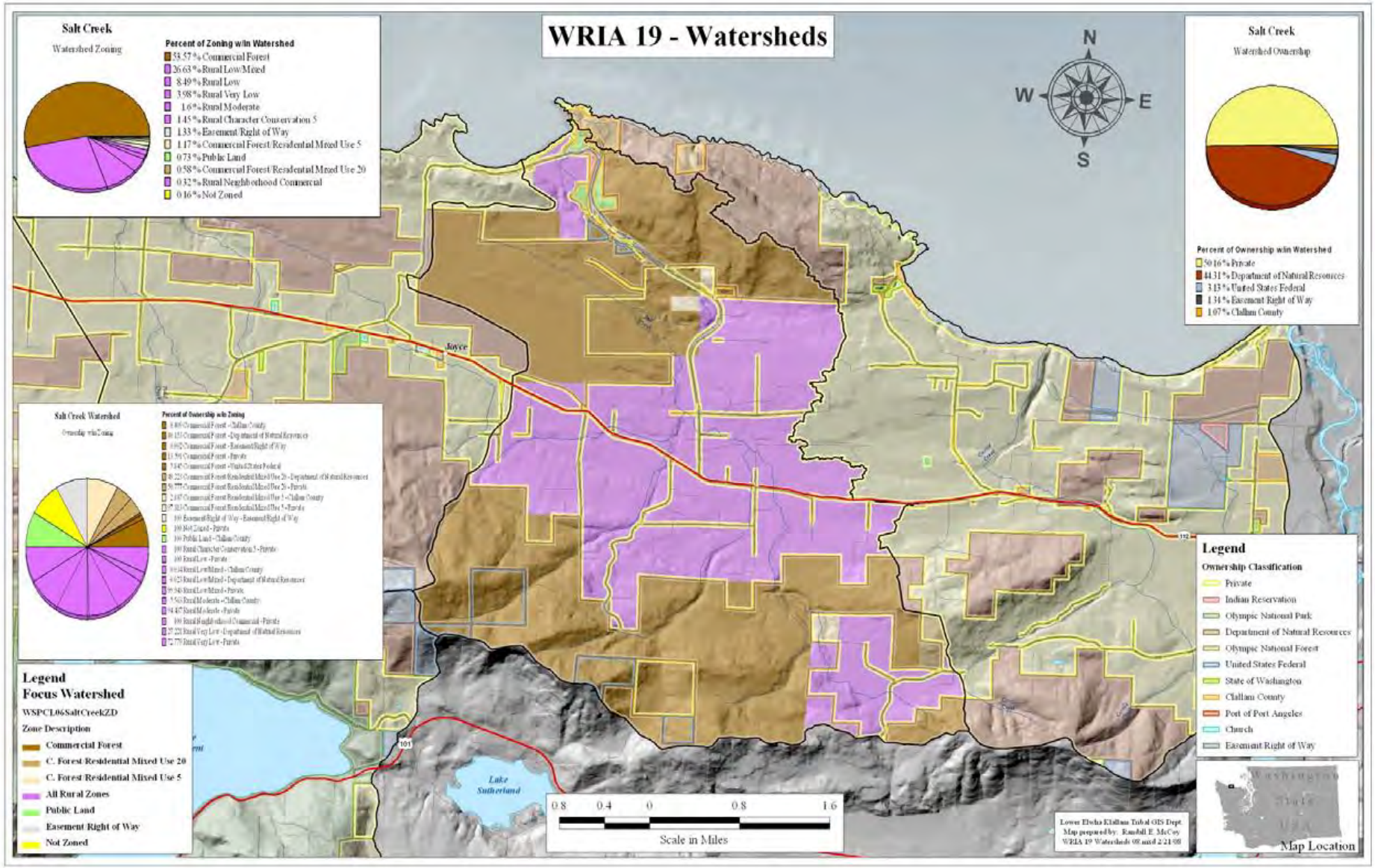


Figure A-1. Salt Creek subbasin zoning and landownership map.

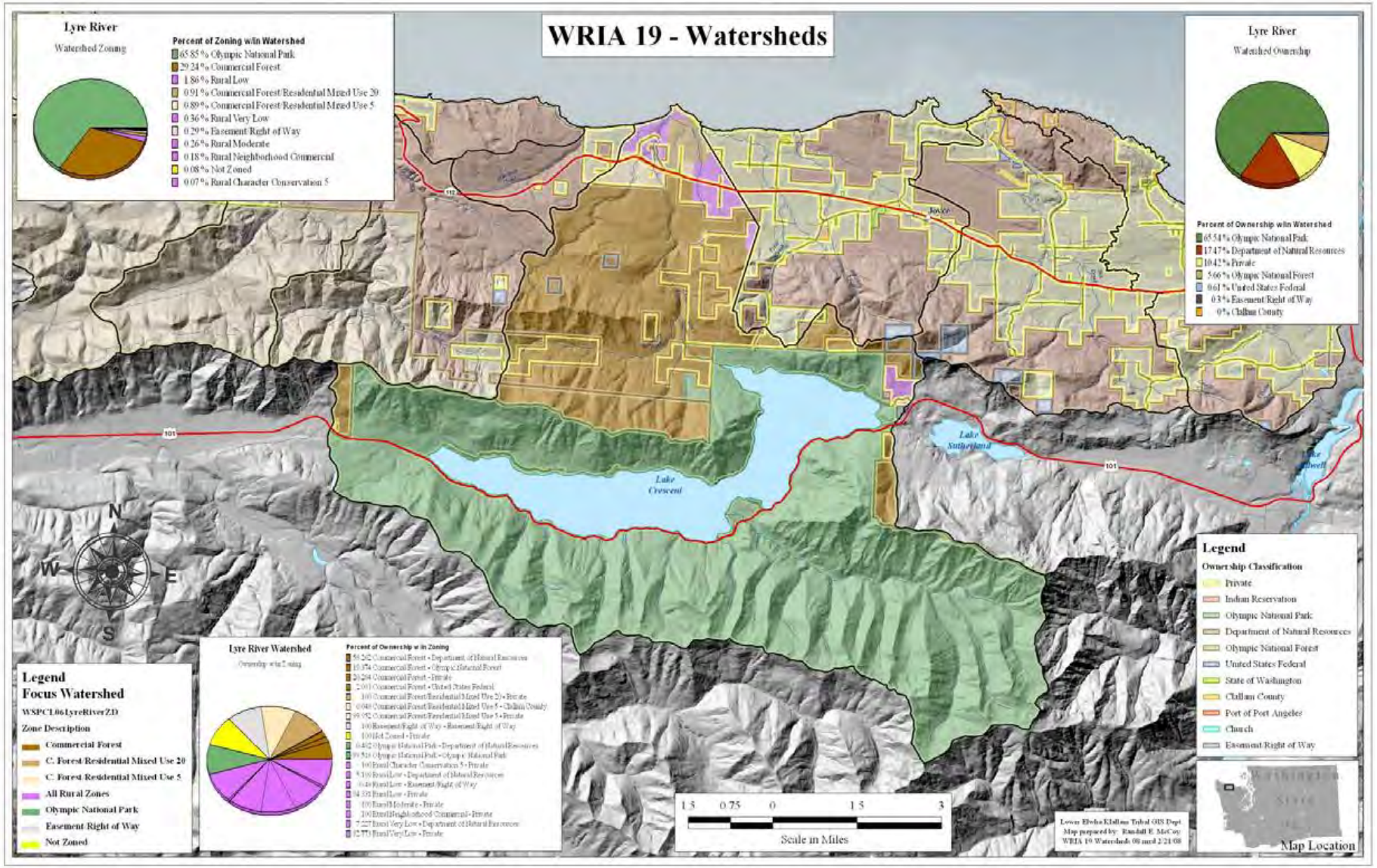


Figure A-2. Lyre River subbasin zoning and landownership map.

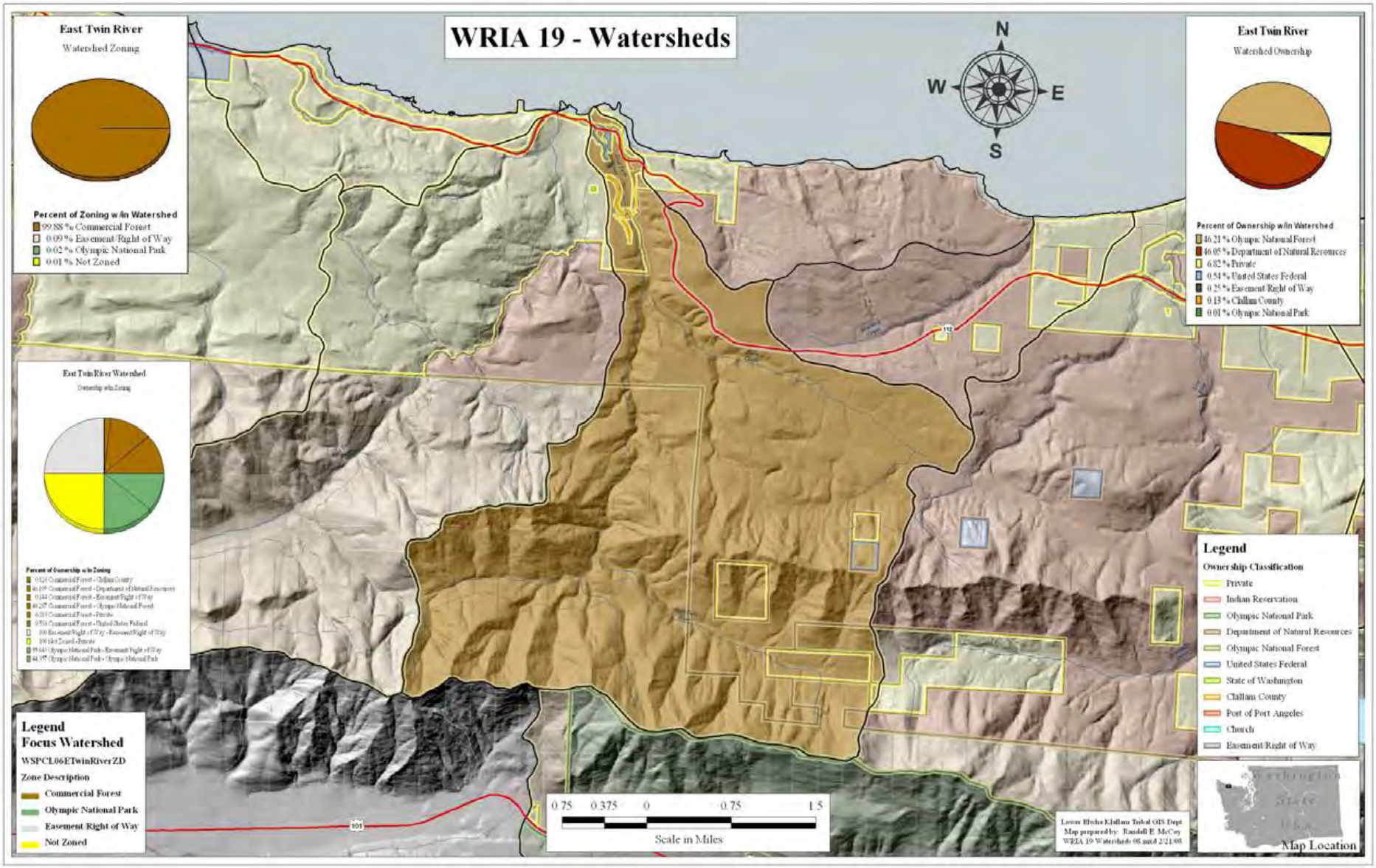


Figure A-3. East Twin River subbasin zoning and landownership map.

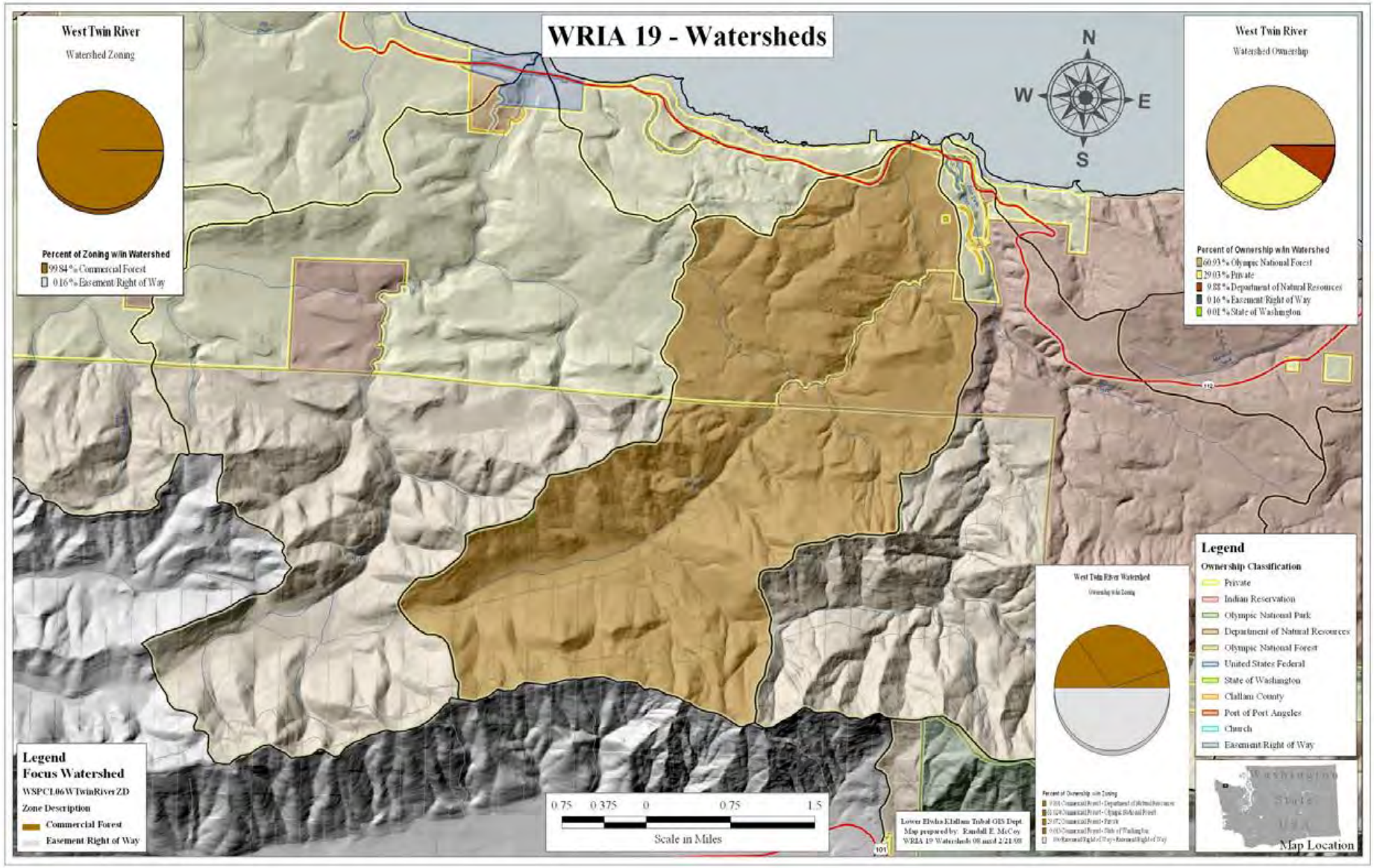


Figure A-4. West Twin River subbasin zoning and land ownership map.

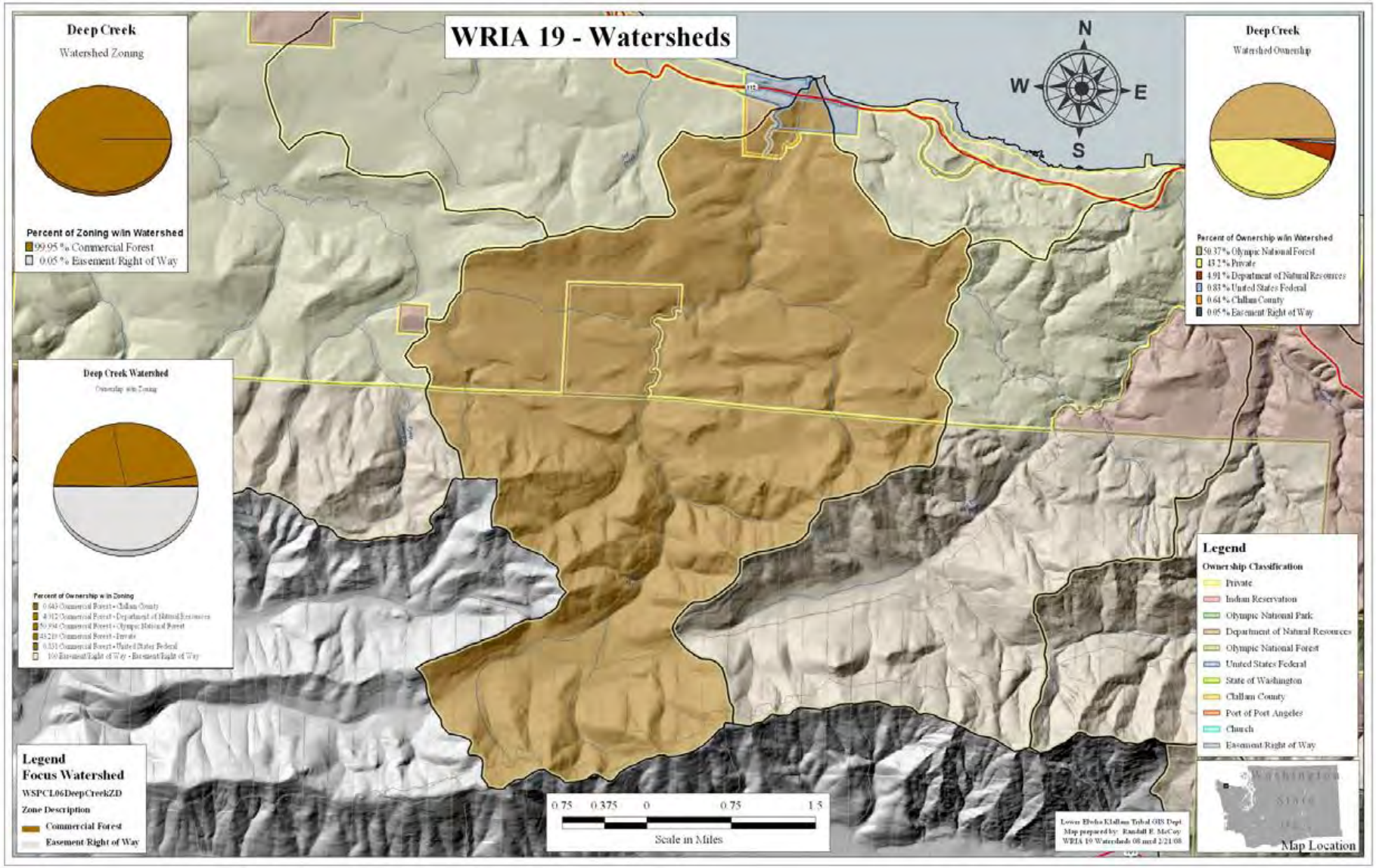


Figure A-5. Deep Creek subbasin zoning and land ownership map.

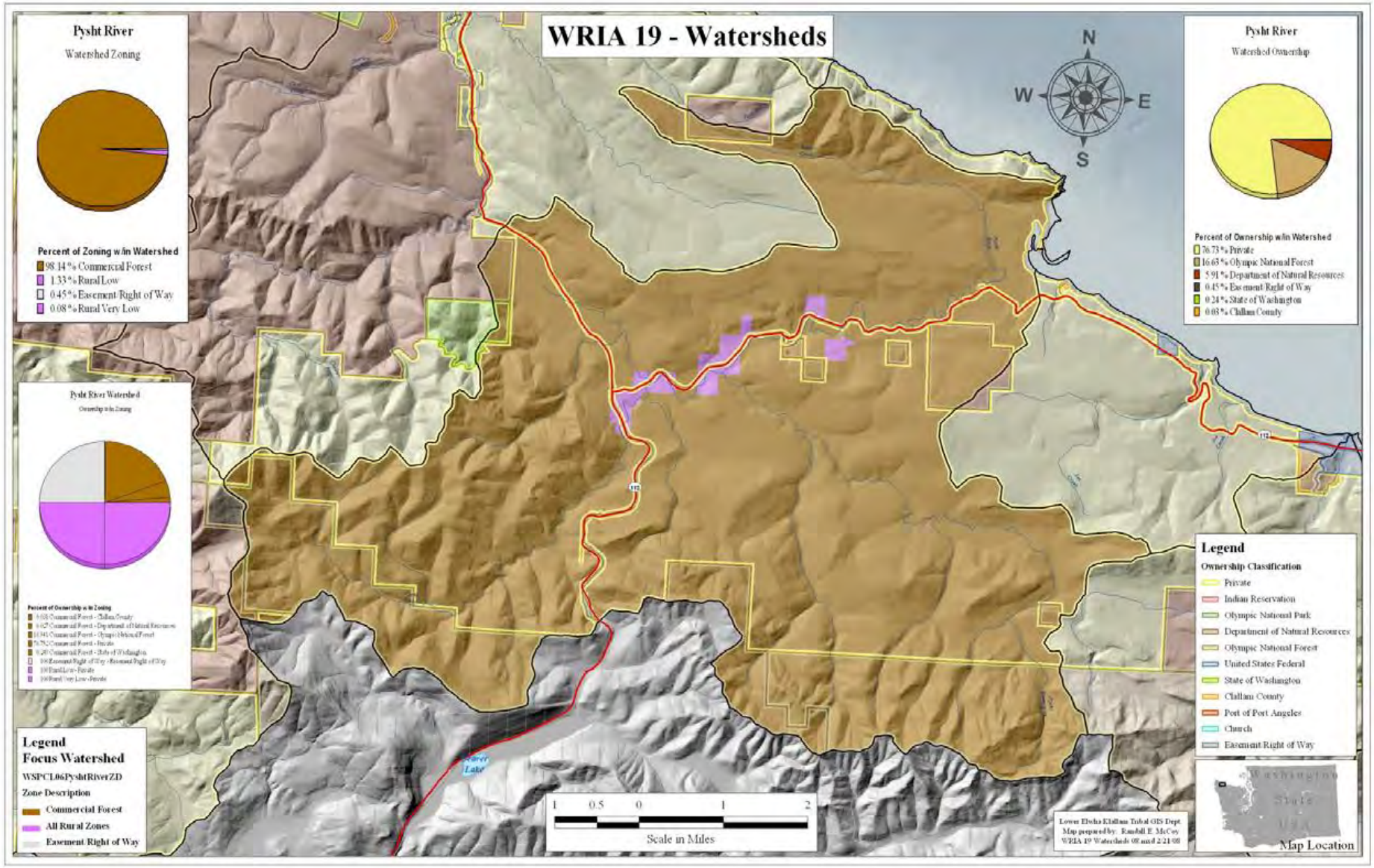


Figure A-6. Pysht River subbasin zoning and land ownership map.

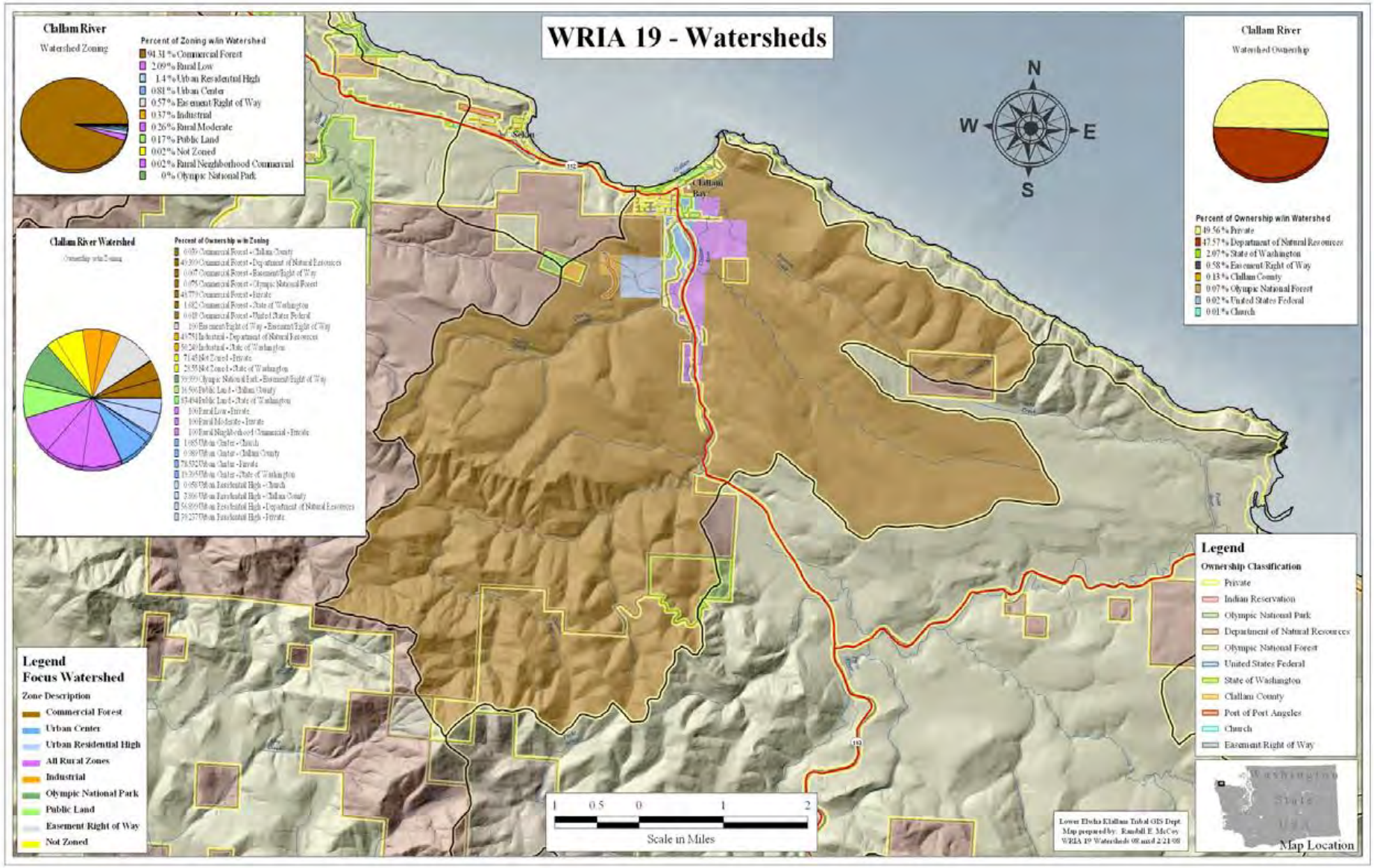


Figure A-7. Clallam River subbasin zoning and land ownership map.

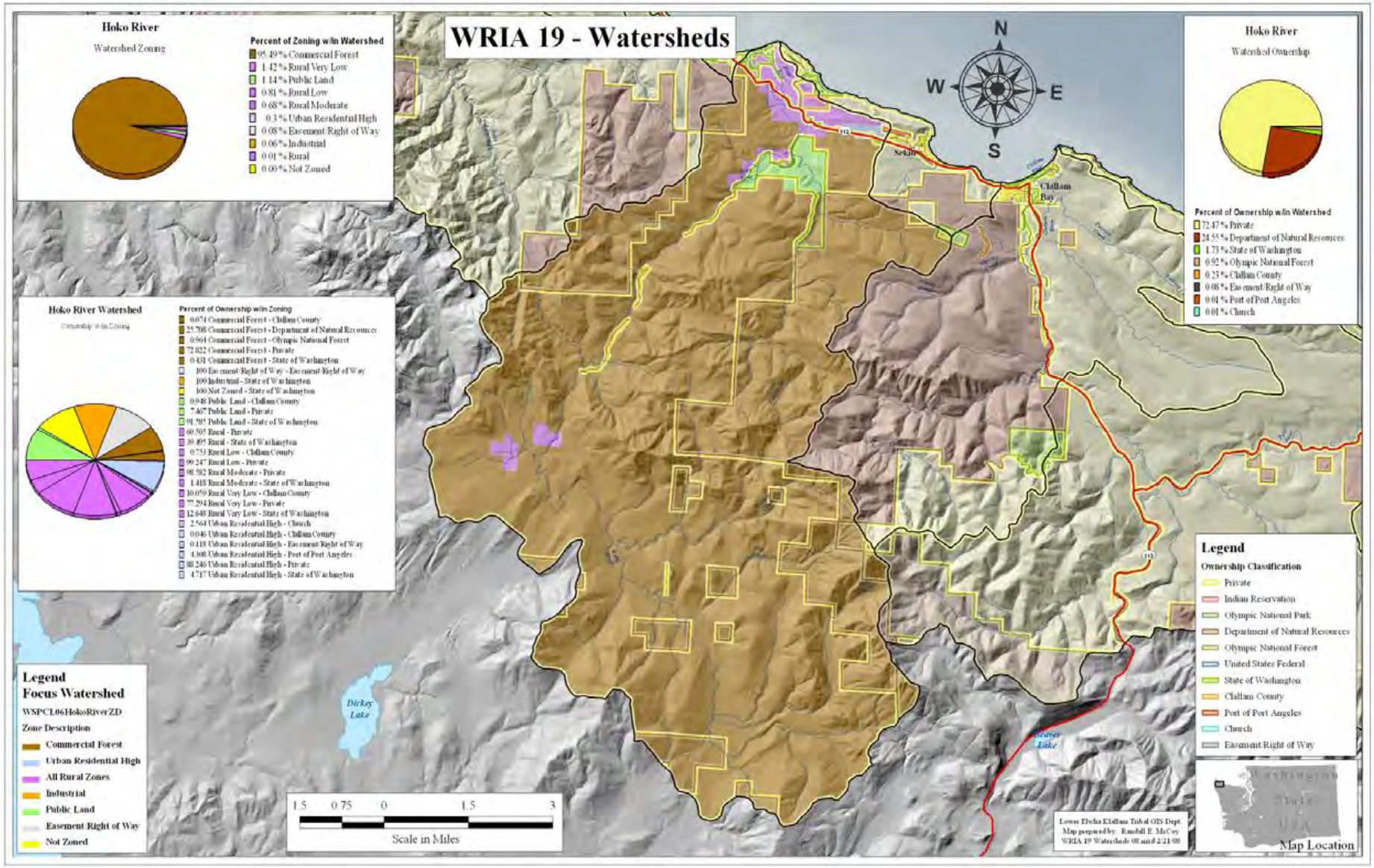


Figure A-8. Hoko River subbasin zoning and land ownership map.

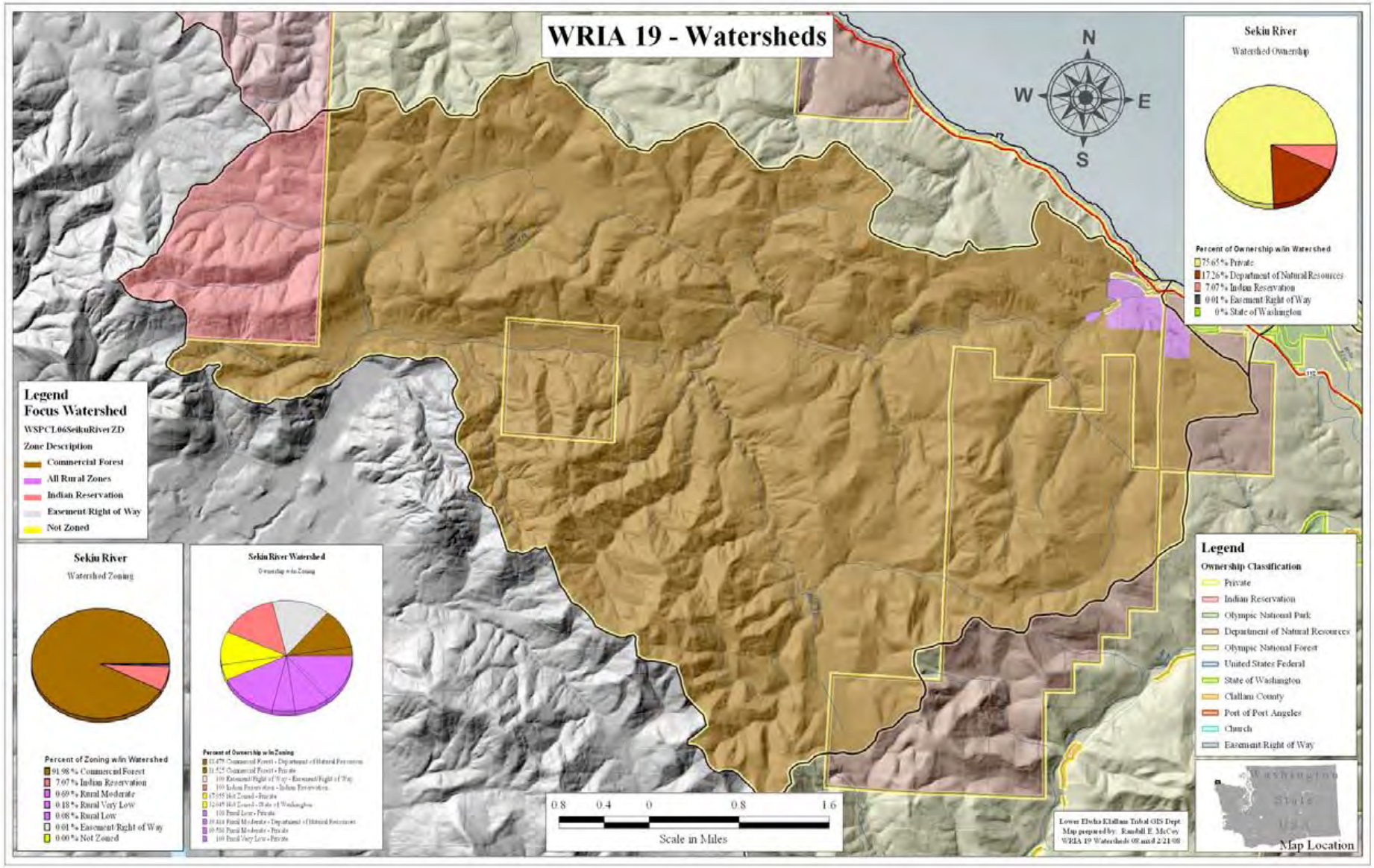


Figure A-9. Sekiu River subbasin zoning and land ownership map.

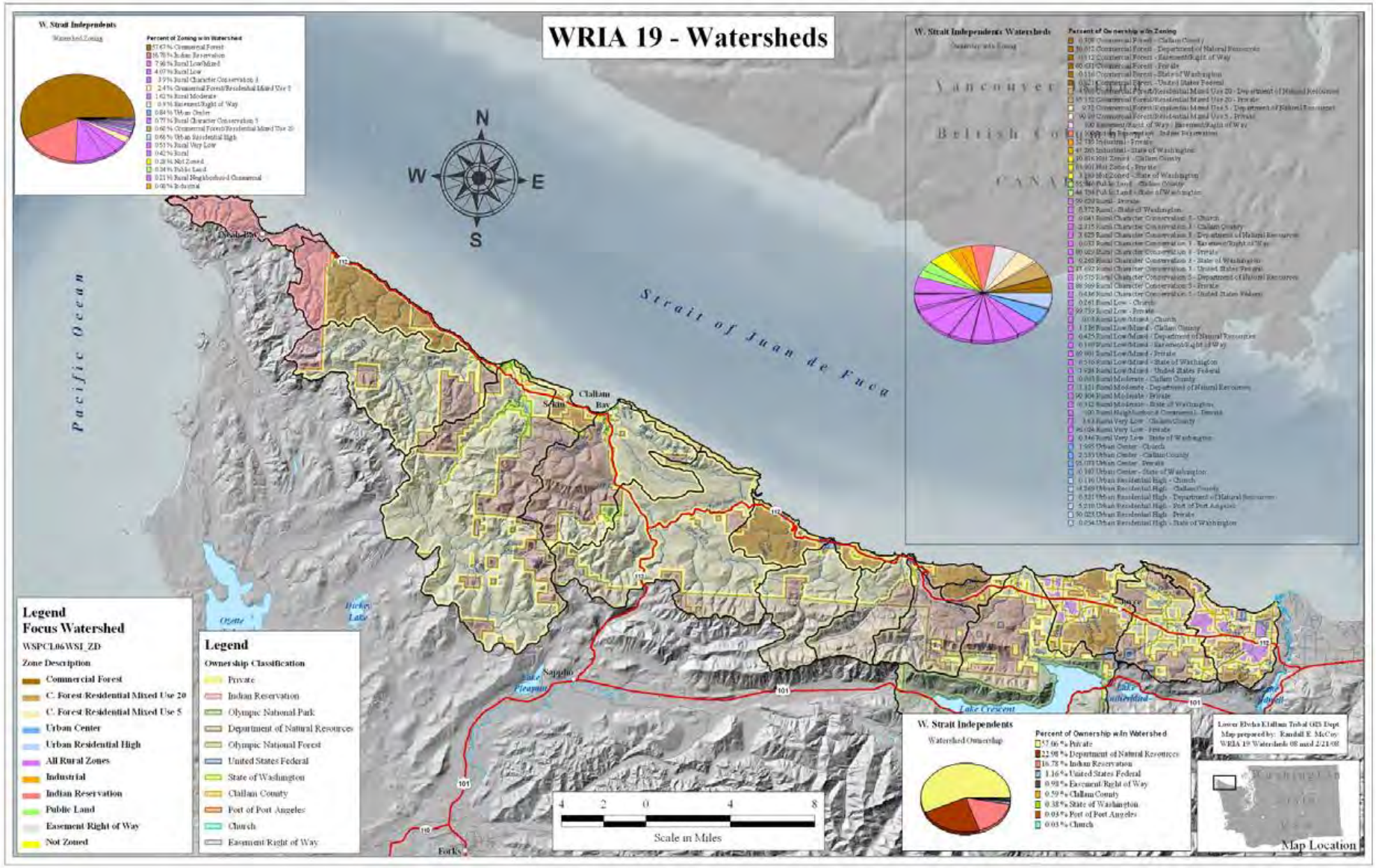


Figure A-10. Western Strait Independents subbasin zoning and land ownership map.

APPENDIX B: Stream Channel Segment Maps

APPENDIX B: Stream Channel Segments

PLEASE READ THE FOLLOWING NOTE PRIOR TO VIEWING MAPS.
NOTE: each of the maps included in this appendix have labeled stream channel segments. The table presents the channels ranked from 1 to 244. The ranking is based on Floodplain-BIS GIS layer habitat values x Floodplain-Riparian Feature GIS habitat values (area weighted feature value). These values are essentially equal to habitat potential x current riparian habitat condition values. If viewing the document electronically the figure column includes hyperlinks to the maps, use your navigation back button to return to the table.

Stream Segment	Area Weighted Habitat Value	Habitat Rank	MAP ID	Figure
Hatchery Creek S1b	25.0	1	11	Figure 11
Elofson Creek S1	22.7	2	14	Figure 14
Charley Creek S3	19.9	3	13	Figure 13
Johnson Creek S3	18.8	4	8	Figure 8
Clallam River S11	18.3	5	16	Figure 16
Charley Creek S4	17.0	6	13	Figure 13
Charley Creek S5	16.9	7	13	Figure 13
Pearson Creek S3	16.2	8	12	Figure 12
Pysht River S4	16.2	9	21/23	Figure 21 & Figure 23
Indian Creek S1	16.1	10	18	Figure 18
Icky Creek DT1	16.0	11	11	Figure 11
LHWC S4	15.9	12	4	Figure 4
Pysht River S5	15.9	13	23	Figure 23
Clallam River S12	15.8	14	16	Figure 16
Cadillac Creek T1_S1	15.6	15	5	Figure 5
Bowlby Creek S1	15.5	16	23	Figure 23
19.0135 S1	15.4	17	13	Figure 13
Clallam River S6	15.1	18	16	Figure 16
Clallam River S7	14.3	19	16	Figure 16
NF Green Creek S3	14.3	20	21	Figure 21
Pysht River S0	14.3	21	17/18/19	Figure 17, Figure 18,& Figure 19
Johnson Creek T6 S1	14.2	22	8	Figure 8
Hoko River S5	14.0	23	6	Figure 6
Clallam River S8	13.8	24	16	Figure 16
Lyre River S3	13.8	25	26	Figure 26
Rymer Creek S3	13.8	26	18	Figure 18

Stream Segment	Area Weighted Habitat Value	Habitat Rank	MAP ID	Figure
Hoko River S4	13.8	27	6	Figure 6
Hatchery Creek S3	13.6	28	11	Figure 11
Hoko River S9	13.4	29	9	Figure 9
Little Hoko River S2	13.2	30	5	Figure 5
NF Green Creek T5_S1	13.1	31	21	Figure 21
Hoko River S7	12.9	32	7	Figure 7
NF Sekiu River S5	12.8	33	3	Figure 3
West Twin River S2	12.7	34	25	Figure 25
Pysht River S1	12.7	35	19	Figure 19
Hoko River S8	12.7	36	7	Figure 7
Bear Creek S1b	12.7	37	10	Figure 10
Razz Creek S3	12.6	38	19	Figure 19
Bear Creek S2	12.5	39	10	Figure 10
West Twin River S4	12.5	40	25	Figure 25
Salt Creek S0	12.5	41	27	Figure 27
Charley Creek S2	12.5	42	13	Figure 13
Deep Creek S3	12.5	43	24	Figure 24
Hatchery Creek S1	12.4	44	11	Figure 11
Hatchery Creek S1a	12.3	45	11	Figure 11
Johnson Creek T6 S2	12.2	46	8	Figure 8
West Twin River S3	12.2	47	25	Figure 25
Hoko River S10	12.2	48	9	Figure 9
Hoko River S0	12.2	49	4	Figure 4
Hoko River S11	12.0	50	10	Figure 10
Indian Creek	11.9	51	18	Figure 18
NF Sekiu River S4	11.9	52	3	Figure 3
NF Sekiu River S2	11.8	53	3	Figure 3
Leyh Creek S1	11.8	54	5	Figure 5
Clallam River S5	11.7	55	14	Figure 14
Green Creek S1	11.7	56	21	Figure 21
Sekiu River S2	11.6	57	2	Figure 2
Lee Creek S2	11.5	58	20	Figure 20
Hoko River S12	11.5	59	10	Figure 10
Salt Creek S1	11.4	60	27	Figure 27
East Twin River S2	11.3	61	25	Figure 25
Reed Creek S3	11.2	62	17	Figure 17

Stream Segment	Area Weighted Habitat Value	Habitat Rank	MAP ID	Figure
Deep Creek S0	11.2	63	24	Figure 24
Clallam River S10	11.1	64	16	Figure 16
Hatchery Creek S2	11.1	65	11	Figure 11
Hoko River S3	11.1	66	5	Figure 5
Hamerquist Creek T1	10.8	67	20	Figure 20
SF Pysht River S4	10.8	68	22	Figure 22
Brownes Creek S1	10.7	69	6	Figure 6
Clallam River S9	10.6	70	16	Figure 16
EF Carpenters Creek S1	10.6	71	2	Figure 2
Razz Creek T4_T1_S1	10.5	72	19	Figure 19
Pearson Creek S2	10.5	73	12	Figure 12
Cadillac Creek S1	10.4	74	5	Figure 5
Hoko Oxbow 1 S2	10.4	75	7	Figure 7
Hatchery Creek T1_S1	10.3	76	11	Figure 11
Bear Creek S1a	10.3	77	10	Figure 10
NF Sekiu River S7	10.3	78	3	Figure 3
Needham Creek S1	10.3	79	21/22/23	Figure 21, Figure 22, & Figure 23
Susie Creek S2	10.2	80	26	Figure 26
NF Sekiu River S6	10.2	81	3	Figure 3
Herman Creek S1	10.2	82	9	Figure 9
Hamerquist Creek T2_S2	10.0	83	20	Figure 20
Deep Creek S4	10.0	84	24	Figure 24
Deep Creek S2	10.0	85	24	Figure 24
SF Pysht River S2	9.9	86	22	Figure 22
Icky Creek S2	9.7	87	12	Figure 12
Johnson Creek B S2	9.7	88	8	Figure 8
Hamerquist Creek T2_T1	9.7	89	20	Figure 20
Cub Creek S1	9.7	90	10	Figure 10
Cabin Creek S2	9.7	91	18	Figure 18
2100 Rd Swamp S3	9.6	92	19	Figure 19
NF Sekiu River S3	9.6	93	3	Figure 3
Indian Creek S2	9.6	94	18	Figure 18
Cub Creek S2	9.5	95	10	Figure 10
Razz Creek T3_S2	9.5	96	19	Figure 19

Stream Segment	Area Weighted Habitat Value	Habitat Rank	MAP ID	Figure
East Twin River S1	9.3	97	25	Figure 25
Lyre River S2	9.3	98	26	Figure 26
Cub Creek S3	9.3	99	10	Figure 10
SF Pysht River S1	9.2	100	21/22	Figure 21 & Figure 22
Sadie Creek S3	9.2	101	25	Figure 25
Herman Creek S2	9.1	102	9	Figure 9
Clallam River S1	9.1	103	11	Figure 11
SF Pysht River S3	9.1	104	22	Figure 22
Little Hoko River S3	9.1	105	5	Figure 5
Pysht River S2	9.0	106	19/20/21	Figure 19, Figure 20, & Figure 21
Sail River S2	9.0	107	1	Figure 1
Pysht River S6	9.0	108	23	Figure 23
Green Creek S4	9.0	109	21	Figure 21
Pysht River S8	9.0	110	23	Figure 23
Needham Creek S2	8.9	111	22/23	Figure 22 & Figure 23
Salt Creek S4	8.9	112	27	Figure 27
Sekiu River S1	8.9	113	2	Figure 2
EF Deep Creek S4	8.8	114	24	Figure 24
Sekiu River S0	8.8	115	2	Figure 2
Hamerquist Creek S2	8.7	116	20	Figure 20
Sekiu River S3	8.6	117	2	Figure 2
Last Creek T19_S1	8.5	118	15	Figure 15
West Twin River S5	8.5	119	25	Figure 25
NB Herman Creek S1	8.5	120	9	Figure 9
Pysht River S7	8.5	121	23	Figure 23
Hoko River S1	8.5	122	4	Figure 4
Piling Creek S2	8.5	123	19	Figure 19
NF Green Creek T3	8.4	124	21	Figure 21
Bear Creek S3	8.2	125	10	Figure 10
West Twin River S1	8.2	126	25	Figure 25
Johnson Creek S5	8.2	127	8	Figure 8
Clallam River S13	8.1	128	16	Figure 16
Deep Creek S1	8.1	129	24	Figure 24
Razz Creek T4_S1	7.9	130	19	Figure 19
Bullman Creek S2	7.9	131	1	Figure 1

Stream Segment	Area Weighted Habitat Value	Habitat Rank	MAP ID	Figure
NF Sekiu River S1	7.9	132	3	Figure 3
Razz Creek T4_T3_S2	7.8	133	19	Figure 19
Coville Creek S1	7.8	134	28	Figure 28
Salmonberry Creek S1	7.7	135	22	Figure 22
Falls Creek S2	7.7	136	27	Figure 27
Sail River S1	7.7	137	1	Figure 1
Sadie Creek S1	7.6	138	25	Figure 25
Gibson Creek S2	7.6	139	24	Figure 24
Lyre River S1	7.5	140	26	Figure 26
Johnson Creek B S1	7.5	141	8	Figure 8
Razz Creek T2_S2	7.5	142	19	Figure 19
Green Creek S2	7.5	143	21	Figure 21
Last Creek S3	7.4	144	14/15	Figure 14 & Figure 15
Trailer Creek S2	7.4	145	21	Figure 21
NF Green Creek T5_S2	7.4	146	21	Figure 21
Lee Creek S5	7.4	147	20	Figure 20
2100 Rd Swamp S4	7.3	148	19	Figure 19
Little Hoko River S1	7.3	149	5	Figure 5
Johnson Creek S4	7.3	150	8	Figure 8
EF Deep Creek S3	7.2	151	24	Figure 24
Rymer Creek S2	7.2	152	18	Figure 18
Razz Creek S1	7.1	153	19	Figure 19
NF Green Creek S1	7.1	154	21	Figure 21
Reed Creek S1	7.1	155	17	Figure 17
Green Creek S3	7.0	156	21	Figure 21
Hoko River S2	7.0	157	5	Figure 5
East Twin River S0	7.0	158	25	Figure 25
Sail River S0	7.0	159	1	Figure 1
Carpenters Creek S2	6.9	160	2	Figure 2
Bullman Creek S1	6.9	161	1	Figure 1
Charley Creek S1	6.9	162	13	Figure 13
Ellis Creek S2	6.9	163	9	Figure 9
2100 Rd Swamp S2	6.9	164	19	Figure 19
Icky Creek S3	6.8	165	12	Figure 12
Falls Creek S1	6.7	166	27	Figure 27
NF Sekiu River S8	6.7	167	3	Figure 3

Stream Segment	Area Weighted Habitat Value	Habitat Rank	MAP ID	Figure
Last Creek S4	6.7	168	15	Figure 15
Hamerquist Creek S1	6.7	169	20	Figure 20
Ossert Creek S1	6.6	170	5	Figure 5
Clallam River S2	6.5	171	11/12	Figure 11 & Figure 12
Susie Creek S1	6.4	172	26	Figure 26
Carpenters Creek S1	6.4	173	2	Figure 2
Sadie Creek S4	6.3	174	25	Figure 25
West Twin River S0	6.3	175	25	Figure 25
Johnson Creek T6 S3	6.3	176	8	Figure 8
2100 Rd Swamp S1	6.3	177	19	Figure 19
Hoko Oxbow 1 S1	6.3	178	7	Figure 7
Icky Creek DT2	6.3	179	12	Figure 12
Razz Creek S2	6.3	180	19	Figure 19
Nordstrom Creek S2	6.2	181	27	Figure 27
Section 9 Creek S1	6.1	182	18	Figure 18
EF Deep Creek S1	6.1	183	24	Figure 24
Last Creek S1	6.1	184	12/14	Figure 12 & Figure 14
Hamerquist Creek T2_S1	6.1	185	20	Figure 20
NF Geen Creek S2	6.1	186	21	Figure 21
Salt Creek S5	6.0	187	27	Figure 27
Pysht River S3	6.0	188	21/22	Figure 21 & Figure 22
EF Deep Creek S2	5.9	189	24	Figure 24
Sadie Creek S2	5.9	190	25	Figure 25
Nordstrom Creek S1	5.9	191	27	Figure 27
Clallam River S3	5.9	192	12	Figure 12
LHWC T1 S1	5.7	193	4	Figure 4
SF Sekiu River S2	5.7	194	2	Figure 2
Ellis Creek S1	5.6	195	9	Figure 9
Lee Creek S1	5.6	196	20	Figure 20
Last Creek S5	5.5	197	15	Figure 15
LHWC S1	5.4	198	4	Figure 4
Johnson Creek S2	5.4	199	8	Figure 8
LHWC S3	5.4	200	4	Figure 4
Last Creek S2	5.4	201	14/15	Figure 14 & Figure 15
Johnson Creek S1	5.3	202	8	Figure 8

Stream Segment	Area Weighted Habitat Value	Habitat Rank	MAP ID	Figure
Section 9 Creek S2	5.3	203	18	Figure 18
SF Sekiu River S3	5.3	204	2	Figure 2
Lee Creek T3_S1	5.0	205	20	Figure 20
NF Sekiu River S9	5.0	206	3	Figure 3
Pearson Creek S1	4.9	207	11/12	Figure 11 & Figure 12
19.0094 S1	4.8	208	25	Figure 25
Lee Creek T4_S1	4.8	209	20	Figure 20
Salt Creek S3	4.8	210	27	Figure 27
Clallam River S4	4.7	211	13/14	Figure 13 & Figure 14
Gibson Creek S1	4.5	212	24	Figure 24
Lee Creek S3	4.5	213	20	Figure 20
Hoko River S6	4.4	214	6	Figure 6
Clallam River S0	4.3	215	11	Figure 11
Nordstrom Creek S3	4.2	216	27	Figure 27
Trailer Creek S1	3.9	217	21	Figure 21
Last Creek S6	3.9	218	15	Figure 15
SF Sekiu River S1	3.8	219	2	Figure 2
Lee Creek S7	3.7	220	20	Figure 20
Cabin Creek T1_S1	3.5	221	18	Figure 18
Razz Creek T2_S1	3.4	222	19	Figure 19
Reed Creek S2	3.4	223	17	Figure 17
Piling Creek S1	3.4	224	19	Figure 19
Salt Creek S2	3.3	225	27	Figure 27
LHWC T1 S2	3.2	226	4	Figure 4
LHWC S2	1.9	227	4	Figure 4
Razz Creek T3_S1	1.7	228	19	Figure 19
Salt Creek S6	1.7	229	27	Figure 27
LHWS S1	1.2	230	4	Figure 4
Razz Creek T3_T1	1.2	231	19	Figure 19
Rymer Creek S1	0.9	232	18	Figure 18
Oien Creek S1	0.8	233	27	Figure 27
Lee Creek DT1	0.5	234	20	Figure 20
Lee Creek S6	0.3	235	20	Figure 20
Bear Creek S1 (Salt Crk)	0.2	236	27	Figure 27
Razz Creek T4_T3_S1	-1.3	239	19	Figure 19

Stream Segment	Area Weighted Habitat Value	Habitat Rank	MAP ID	Figure
Lee Creek S4	-1.6	240	20	Figure 20
Cabin Creek S1	-2.3	241	18	Figure 18
Icky Creek S1	-2.9	242	12	Figure 12
Lyre River S0	-4.0	243	26	Figure 26
Bullman Creek S0	-4.9	244	1	Figure 1

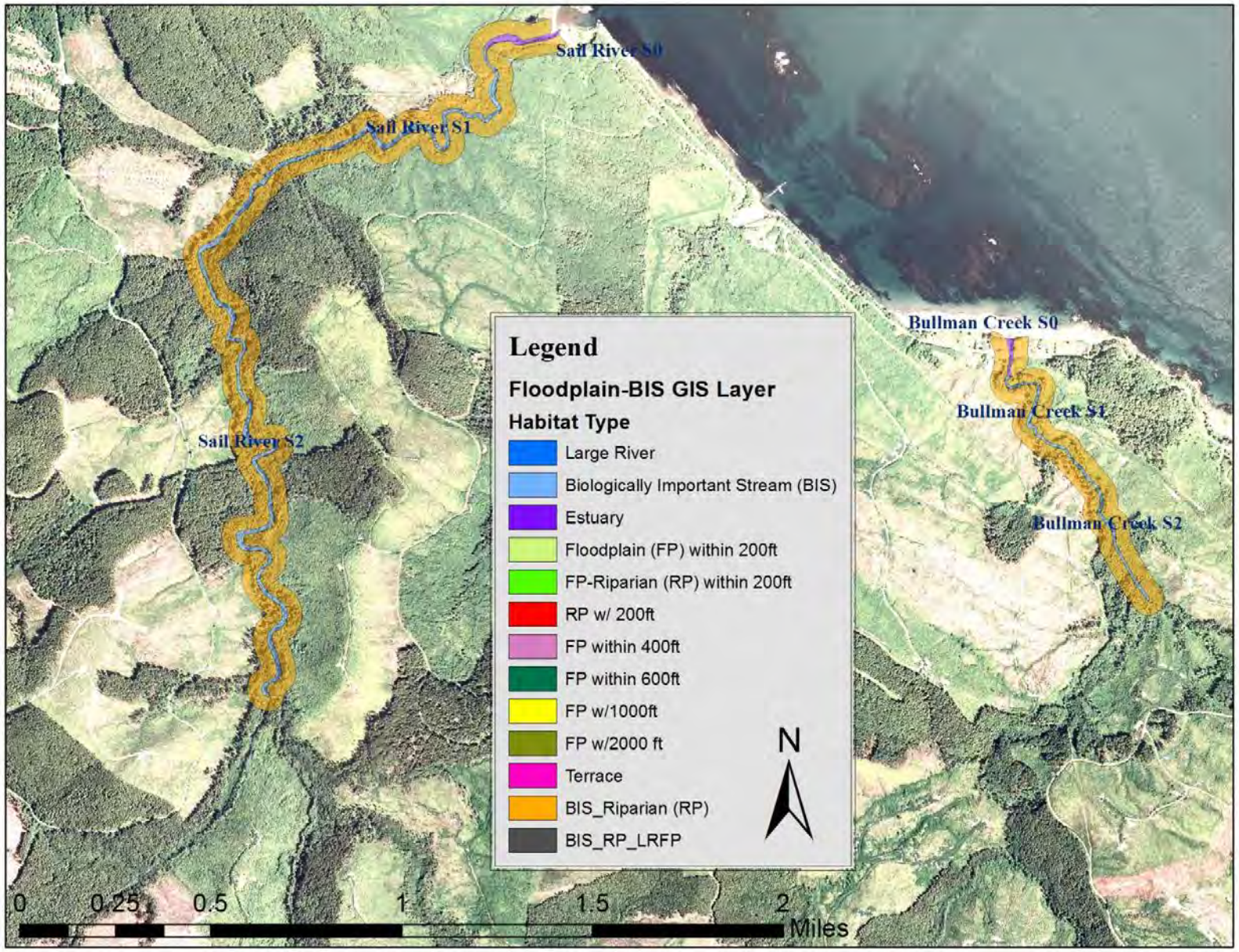


Figure 1. Map ID 1 depicting stream channel segments for the Sail River/Bullman Creek area).

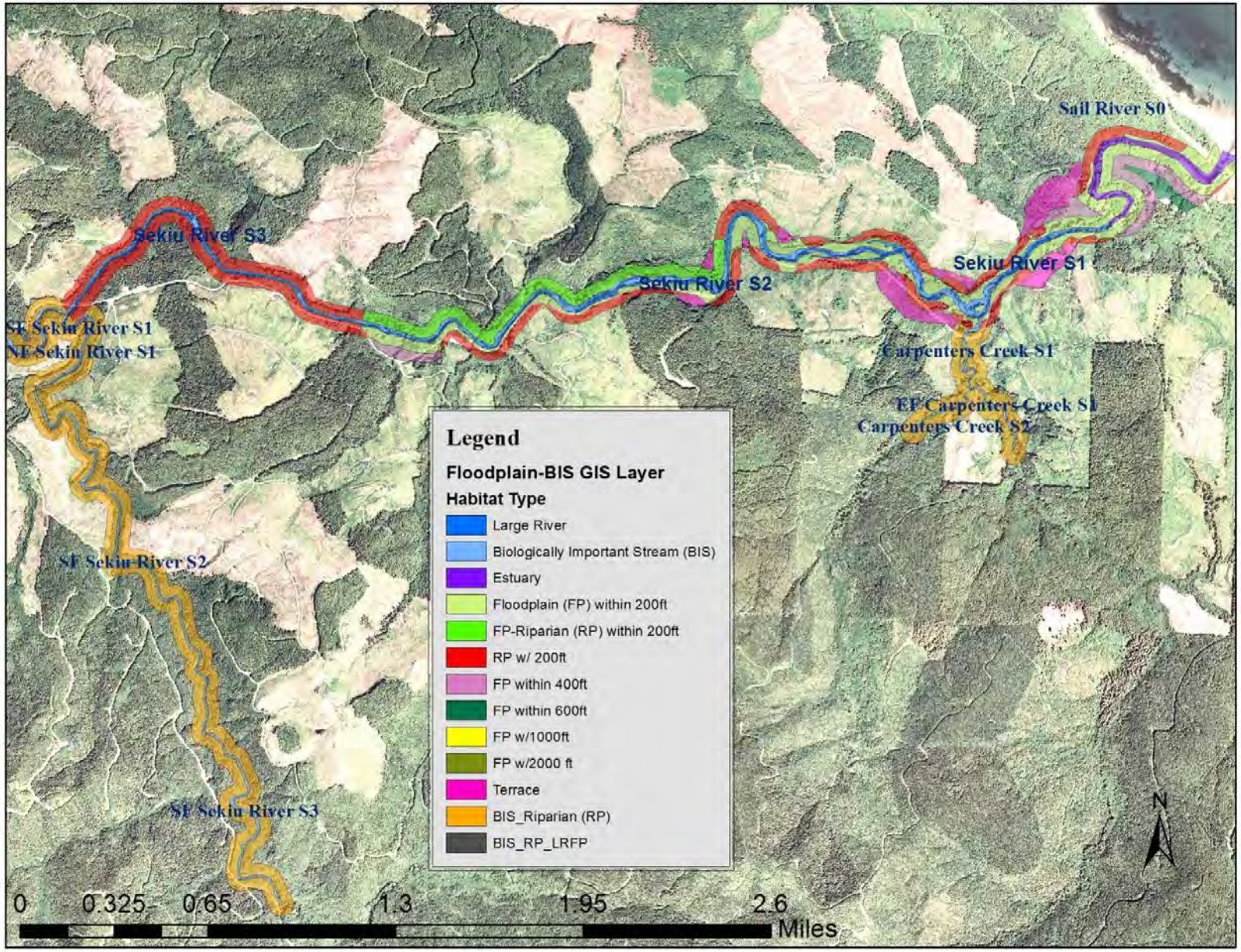


Figure 2. Map ID 2 depicting stream channel segments for the lower Sekiu River and South Fork Sekiu River.

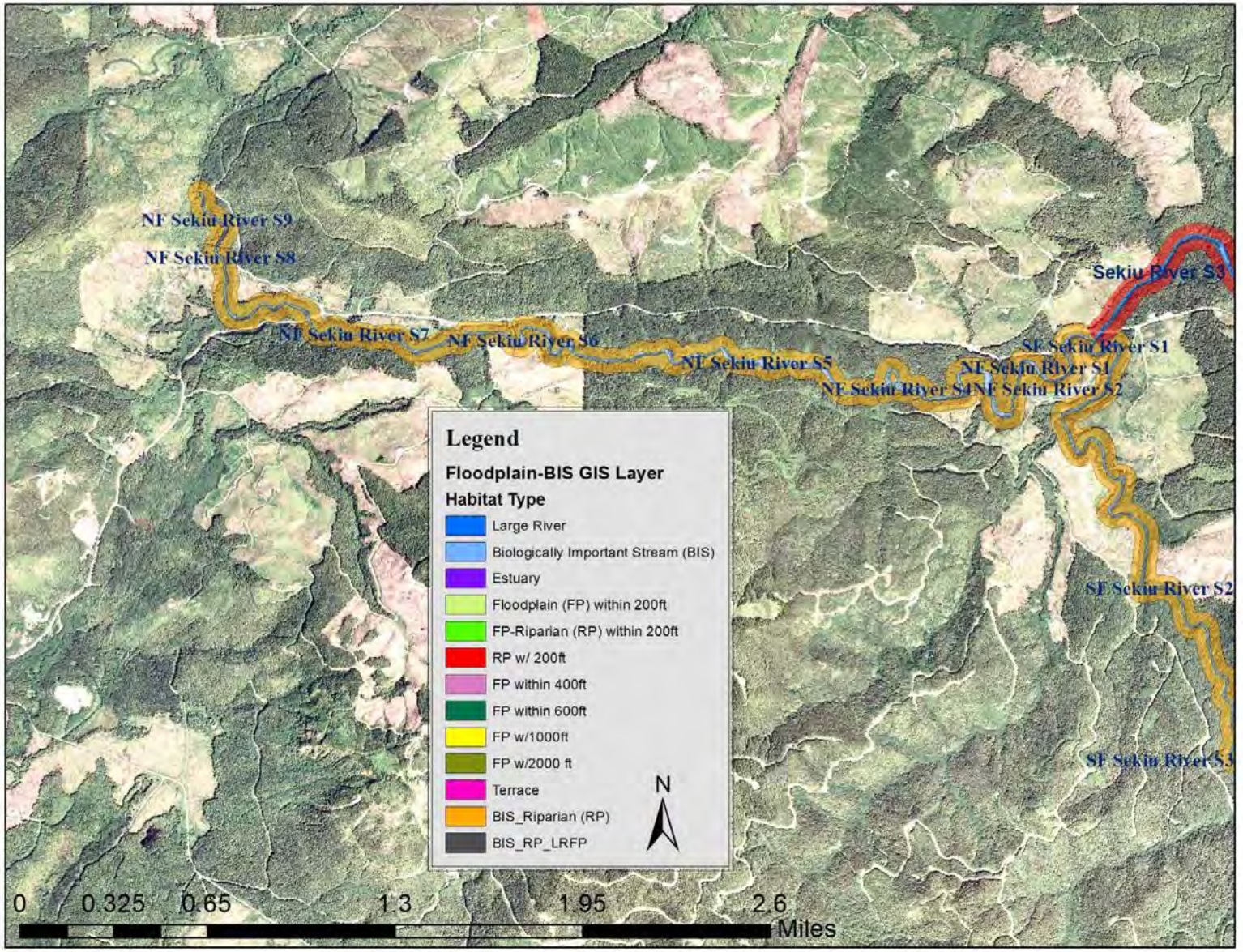


Figure 3. Map ID 3 depicting stream channel segments for the North Fork Sekiu River.

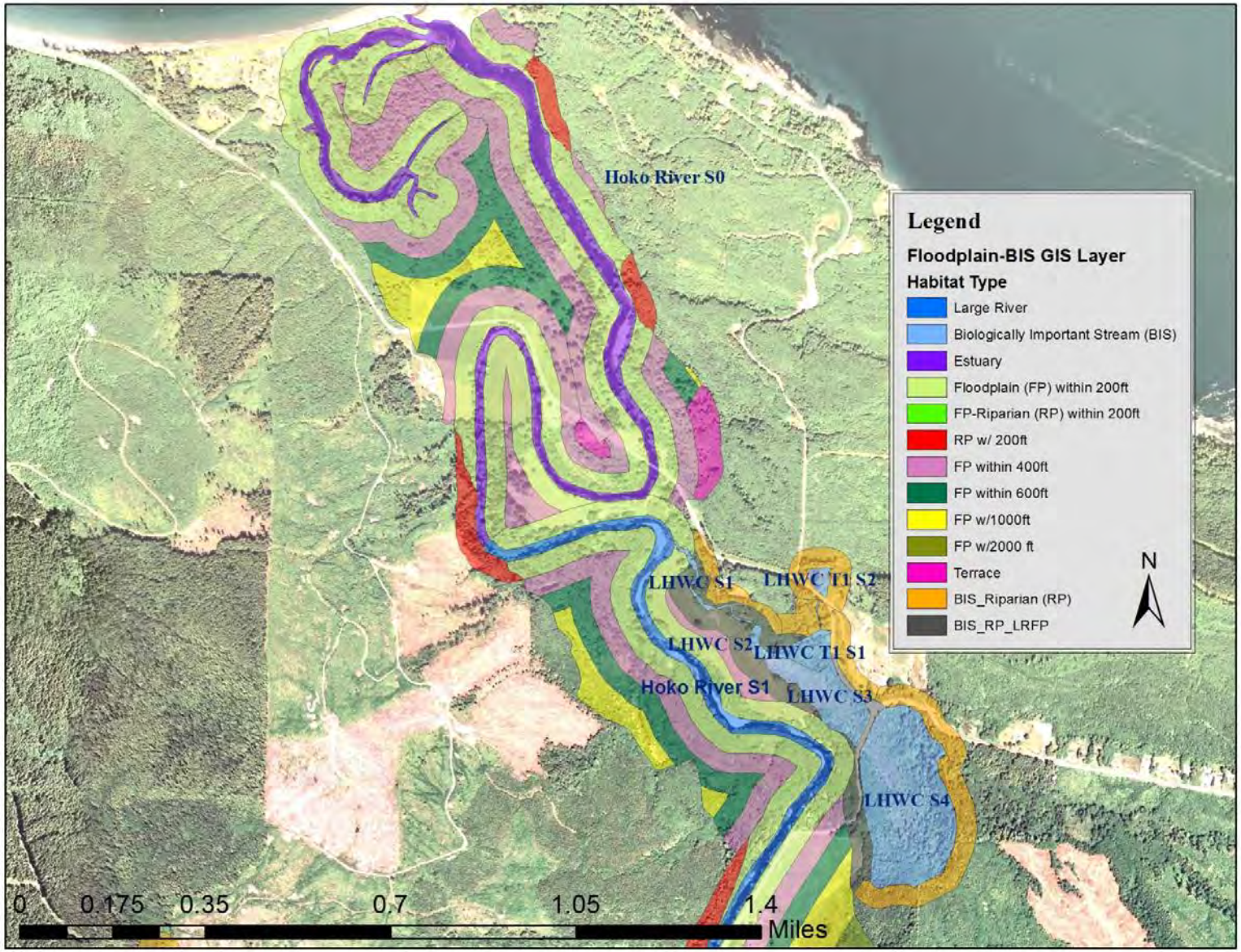


Figure 4. Map ID 4 depicting stream channel segments for the lower Hoko River and lower Hoko Wetland Complex.

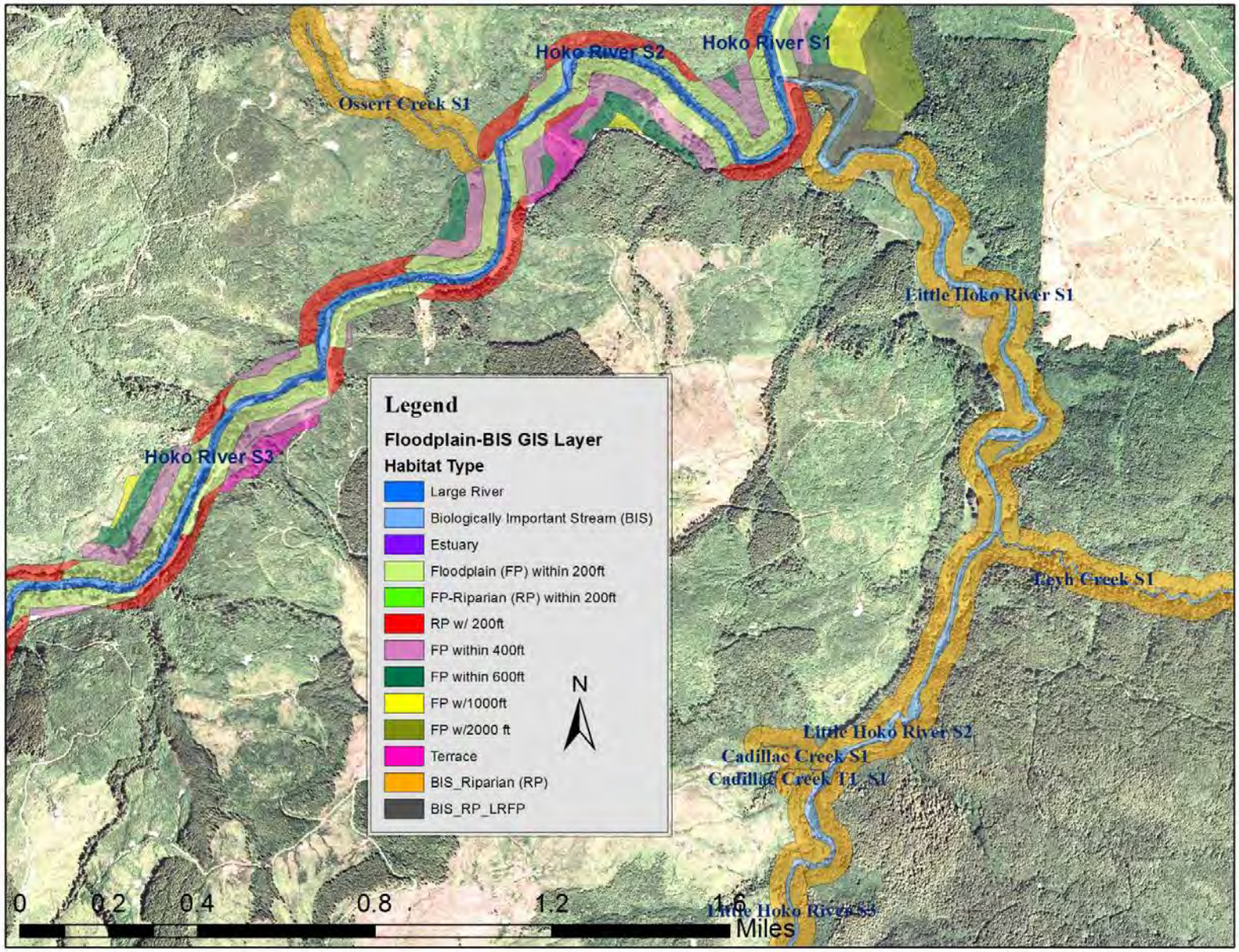


Figure 5. Map ID 5 depicting stream channel segments for the Hoko River and Little Hoko River.

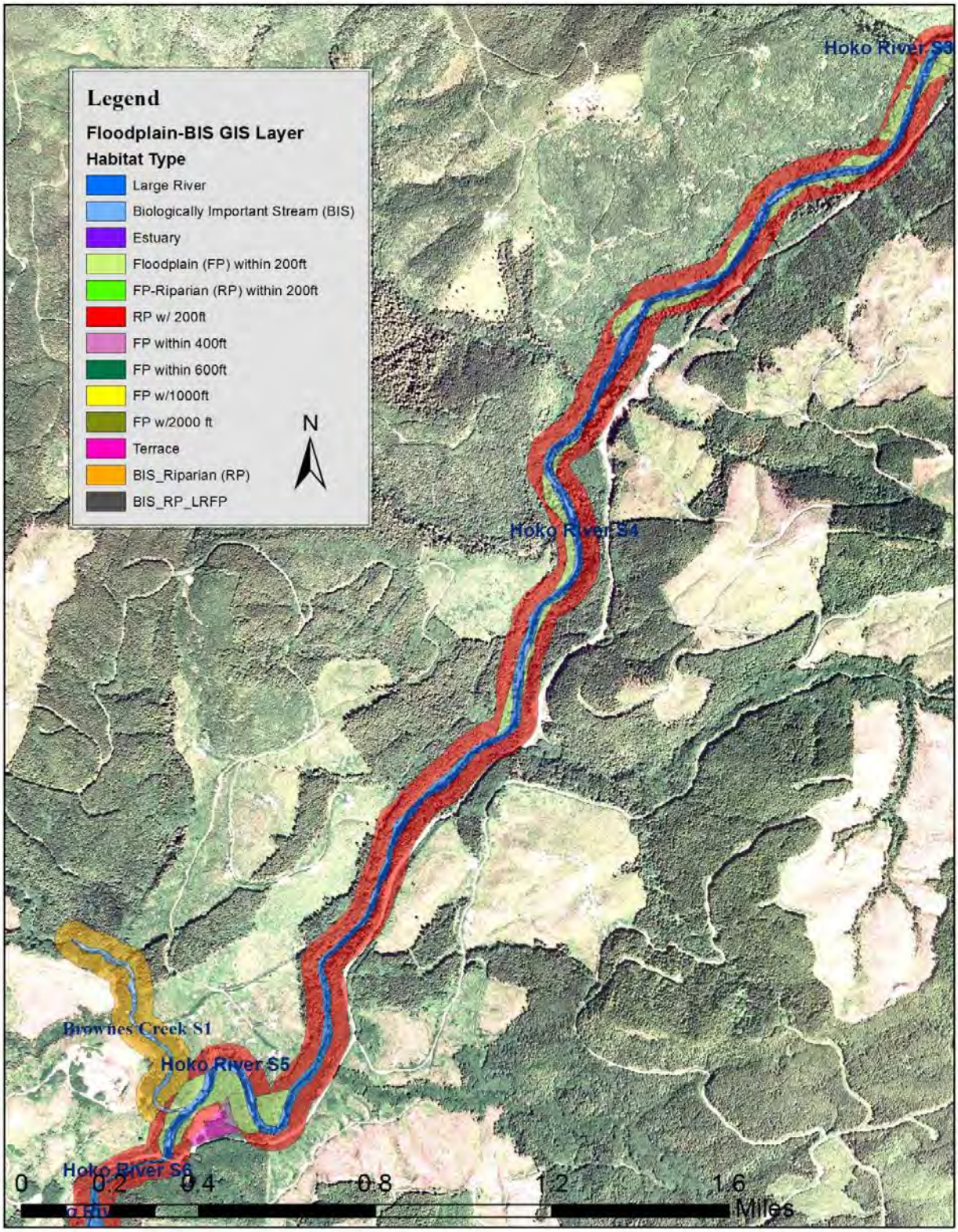


Figure 6. Map ID 6 depicting stream channel segments for the Hoko River (Blue Canyon) and Browns Creek.

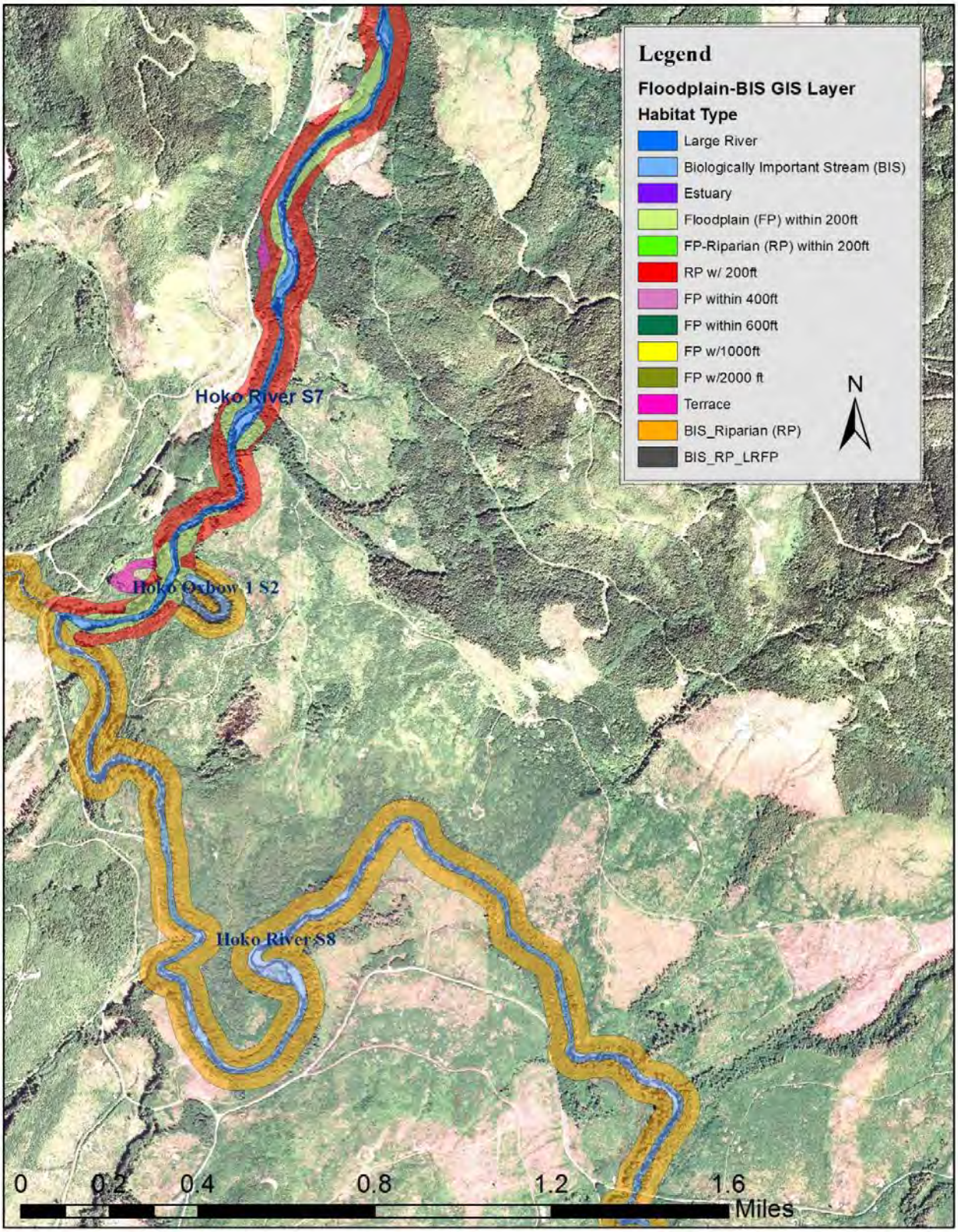


Figure 7. Map ID 7 depicting stream channel segments for the middle Hoko River.

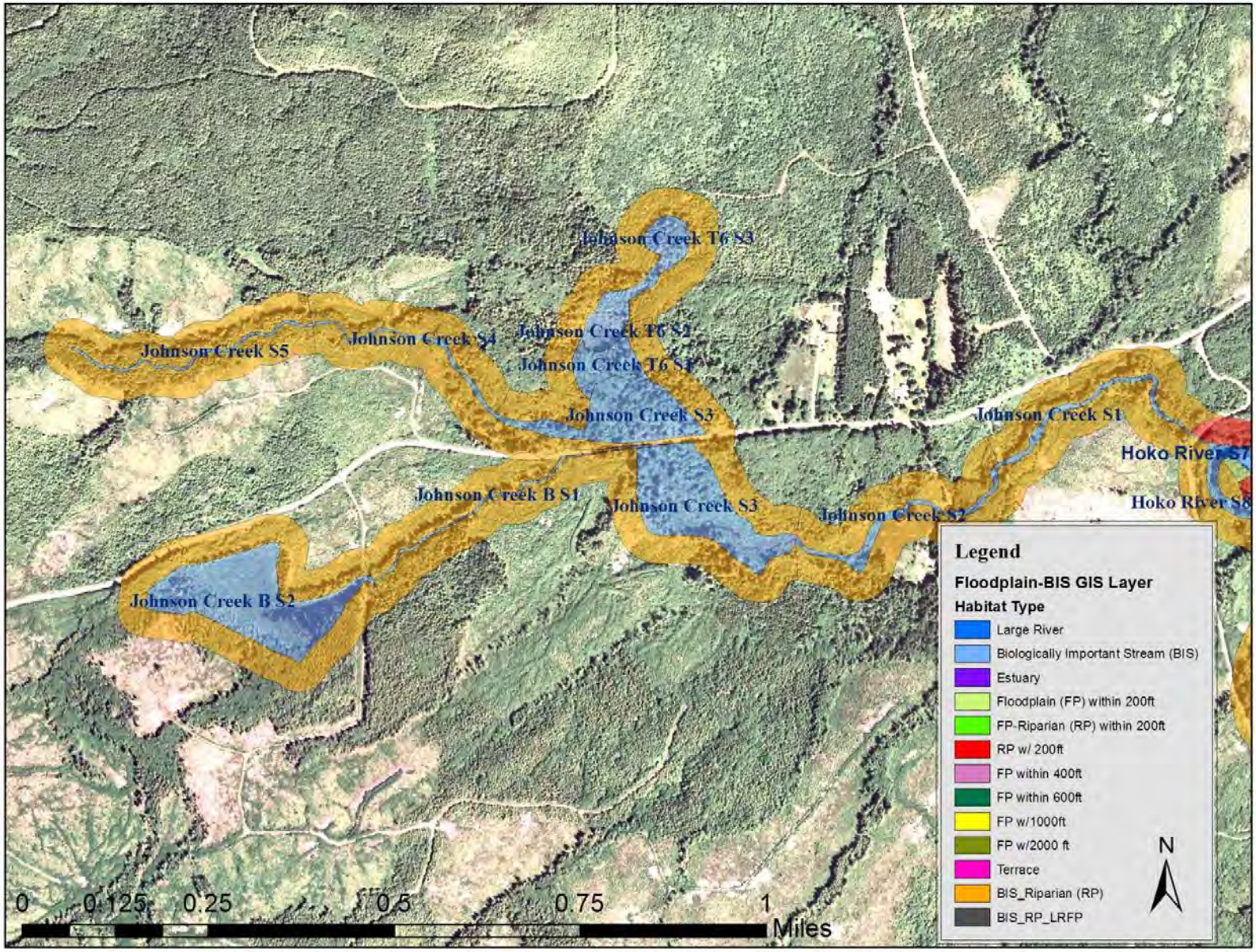


Figure 8. Map ID 8 depicting stream channel segments for Johnson Creek, tributary to the Hoko River.

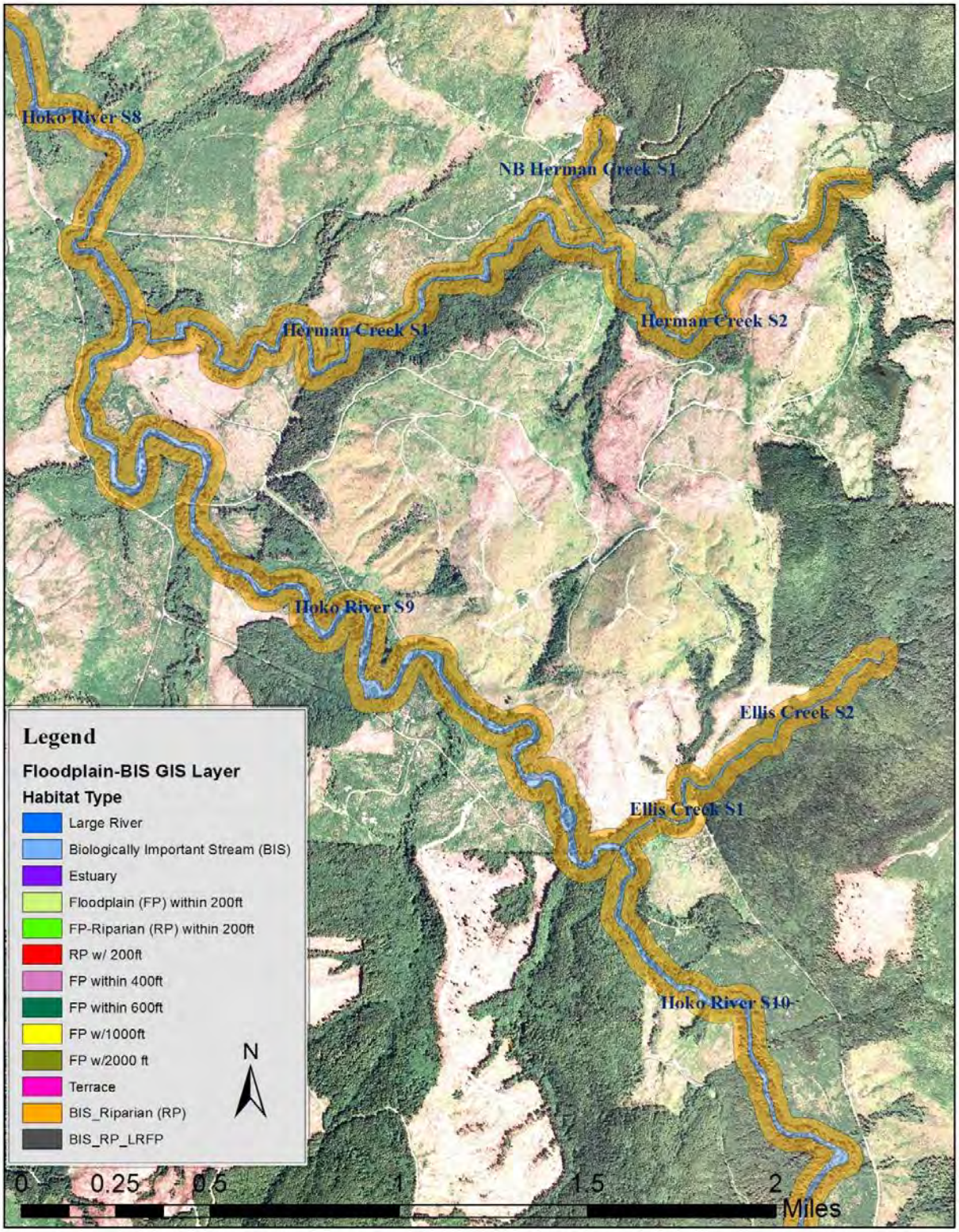


Figure 9. Map ID 9 depicting stream channel segments for Hoko River and Herman and Ellis Creeks.

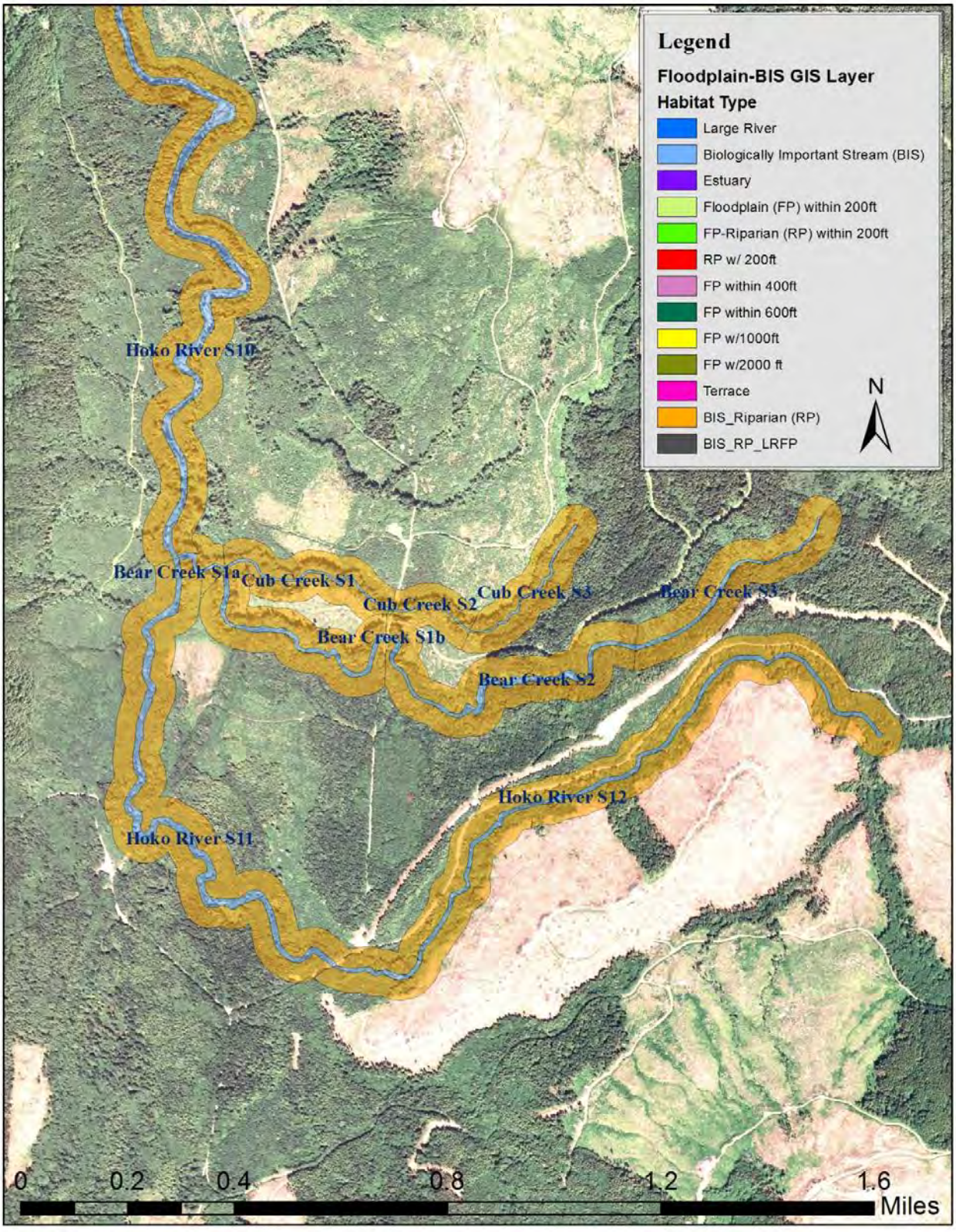


Figure 10. Map ID 10 depicting stream channel segments for the upper Hoko River and Bear Creek.

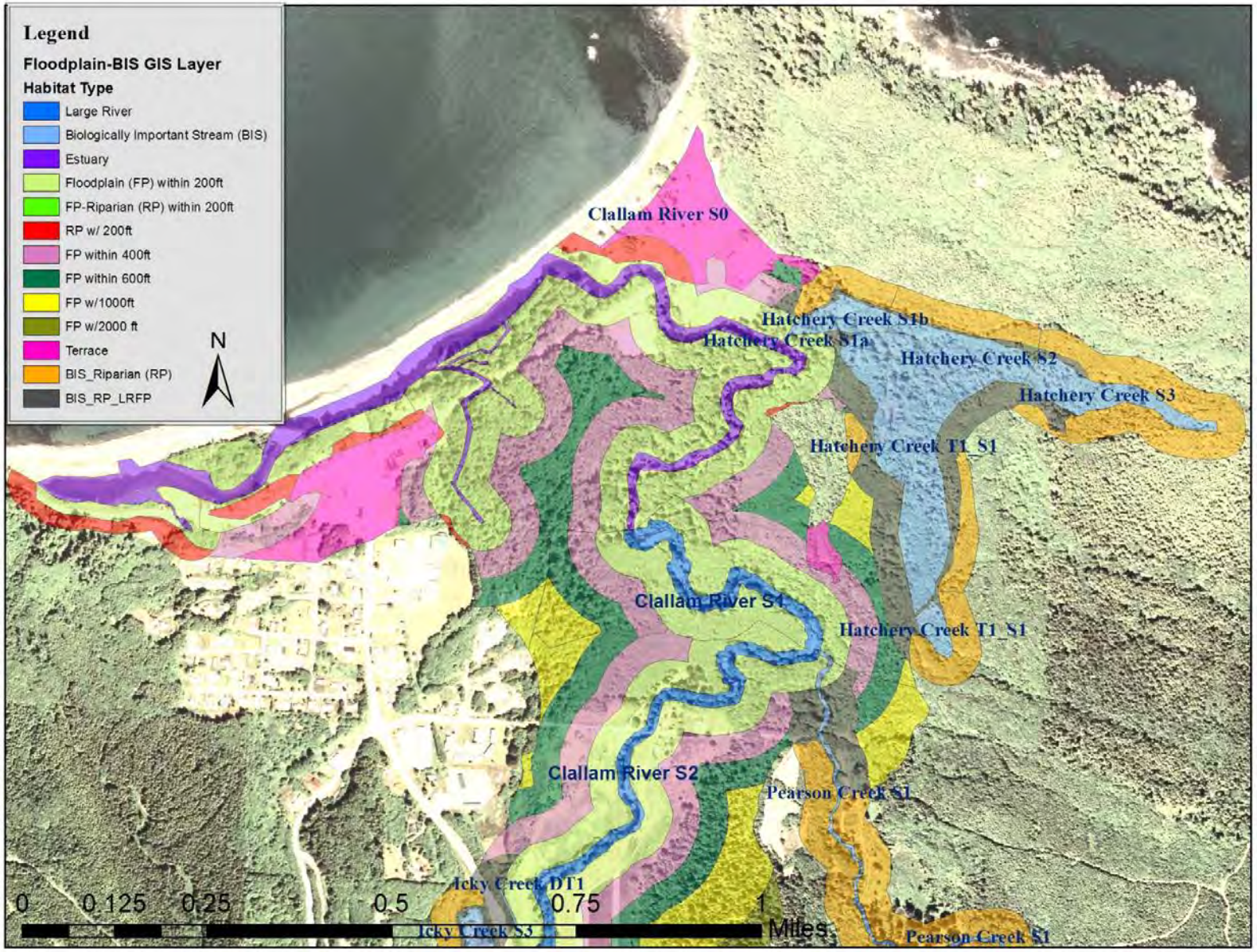


Figure 11. Map ID 11 depicting stream channel segments for the lower Clallam River.

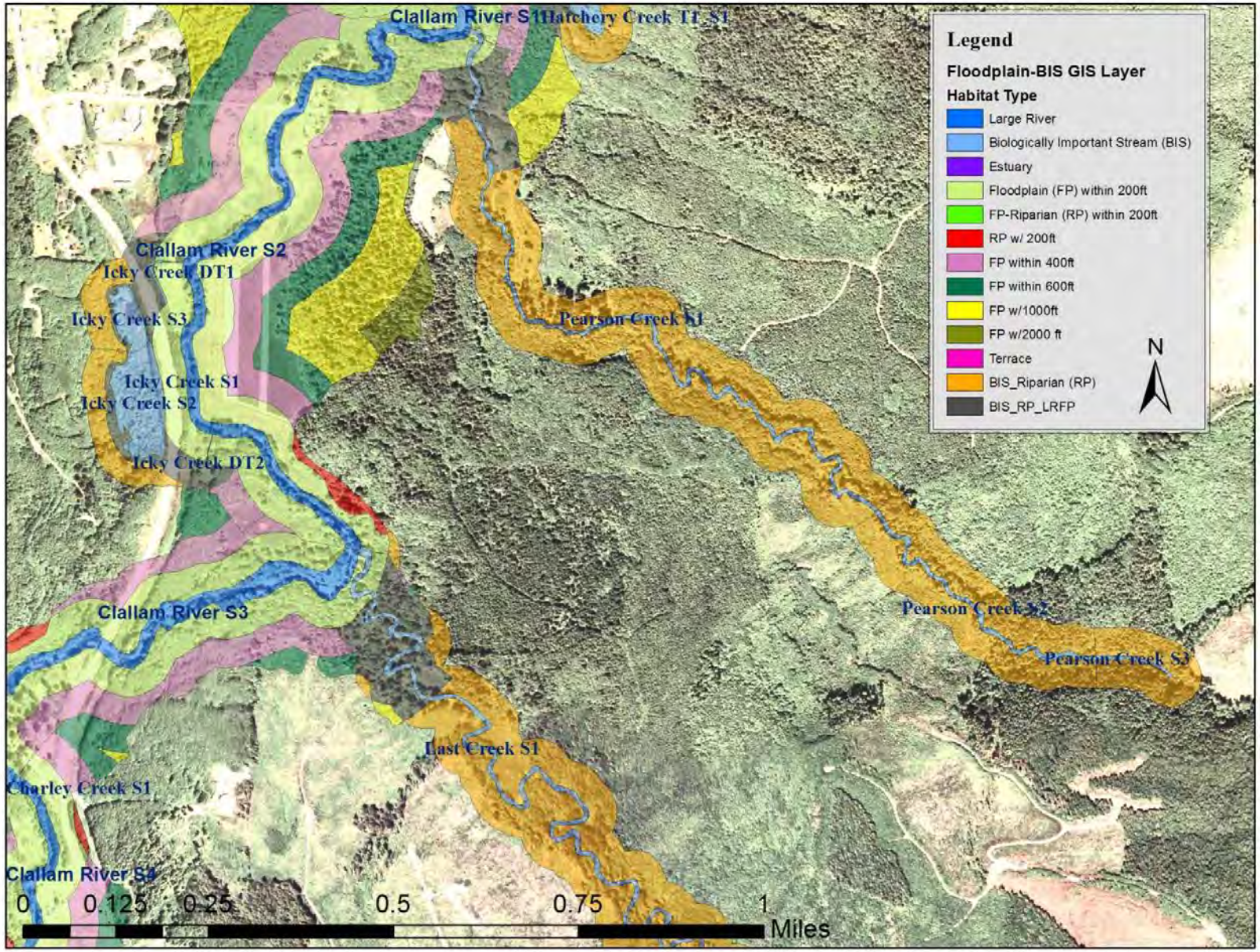


Figure 12. Map ID 12 depicting stream channel segments for the lower Clallam River and Pearson Creek.

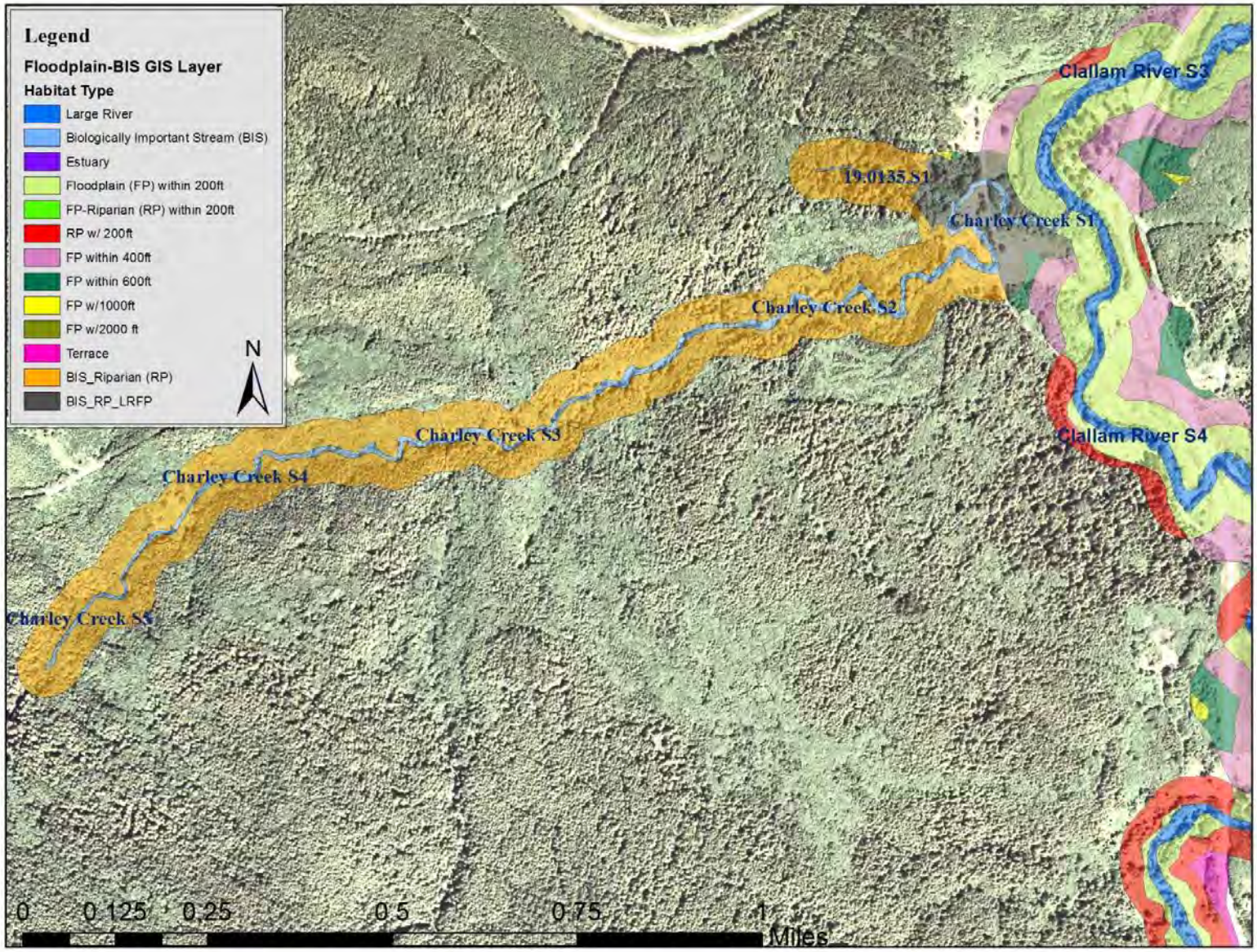


Figure 13. Map ID 13 depicting stream channel segments for Charley Creek tributary to the Clallam River.

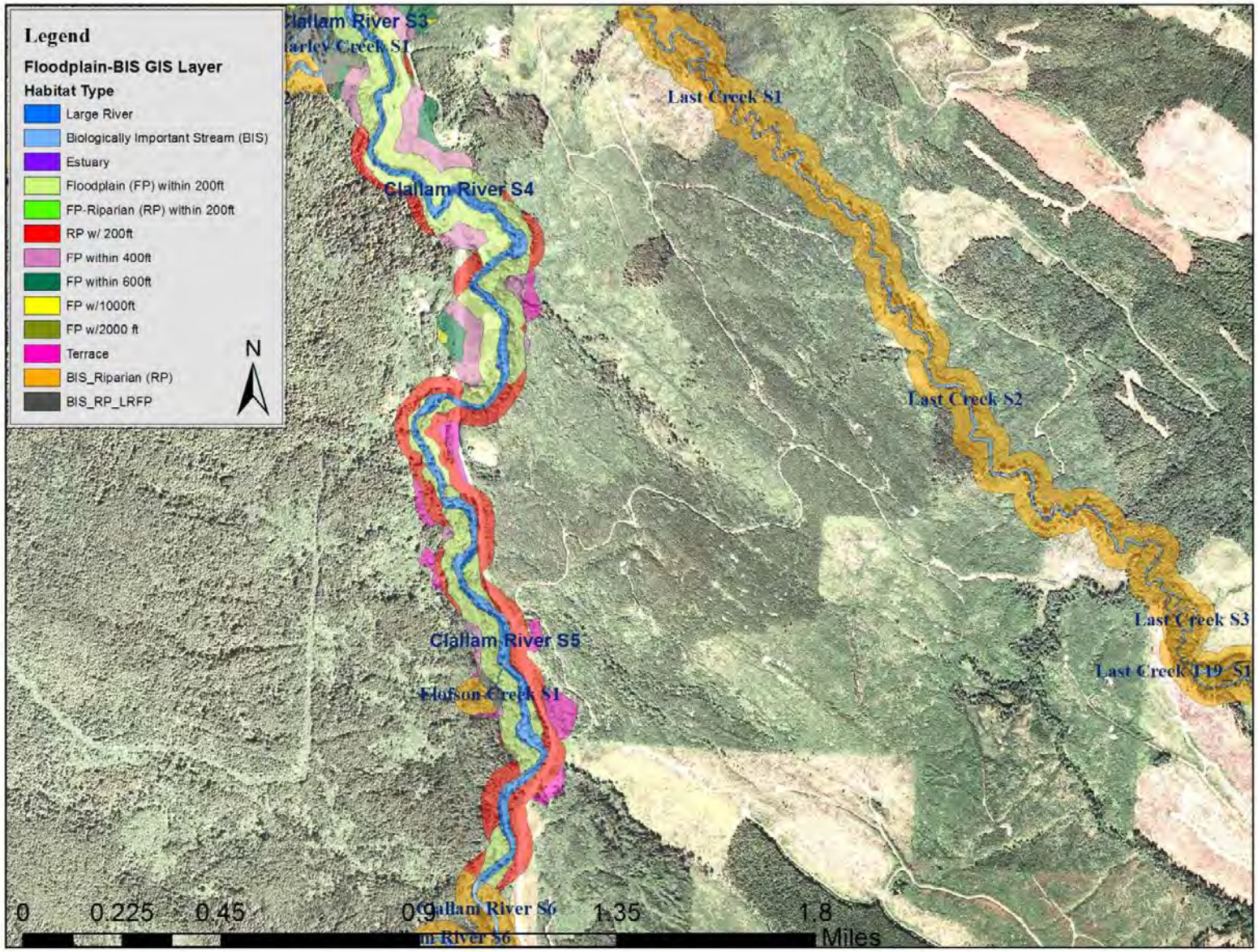


Figure 14. Map ID 14 depicting stream channel segments for the middle Clallam River and Last Creek.

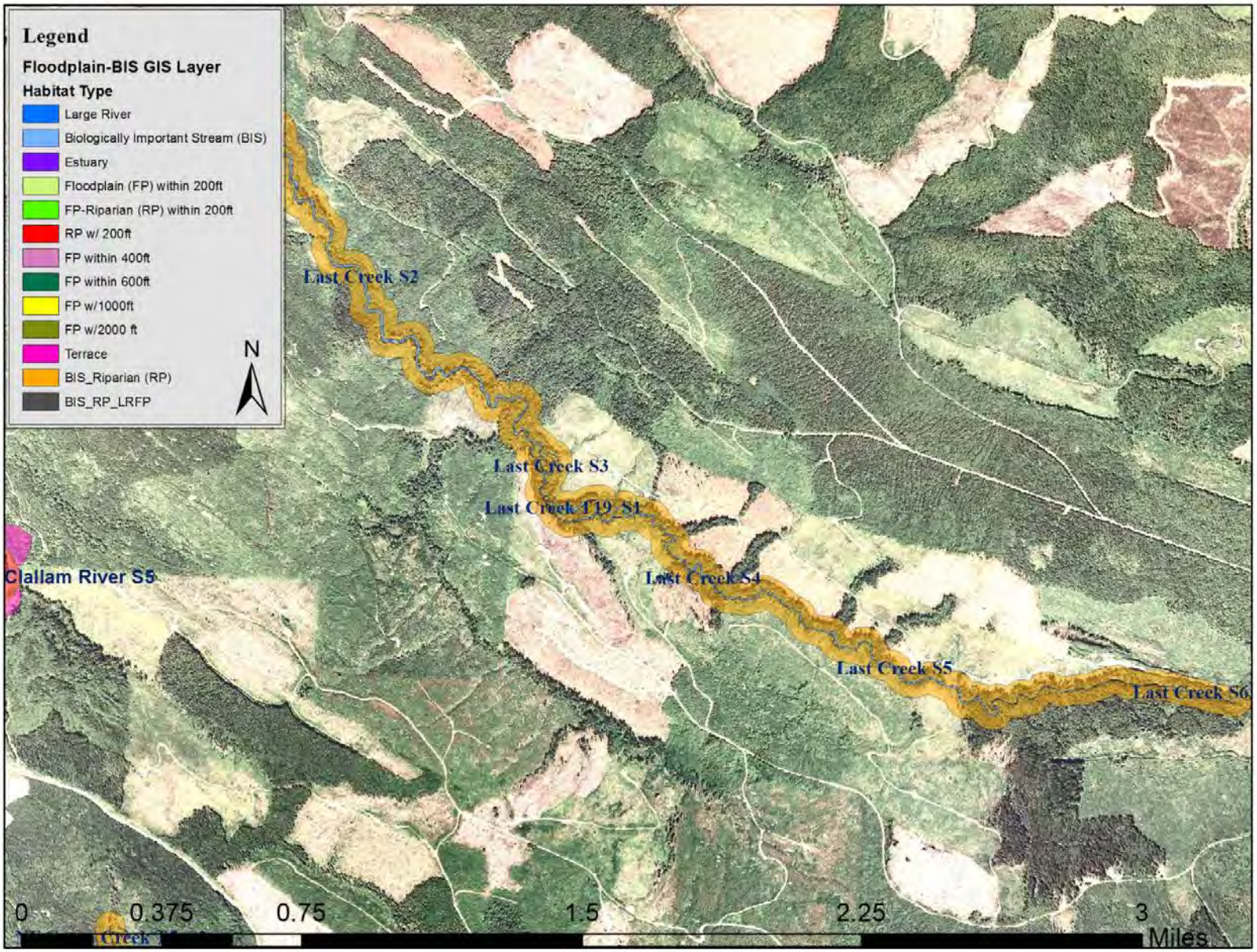


Figure 15. Map ID 15 depicting stream channel segments for Last Creek tributary to Clallam River.

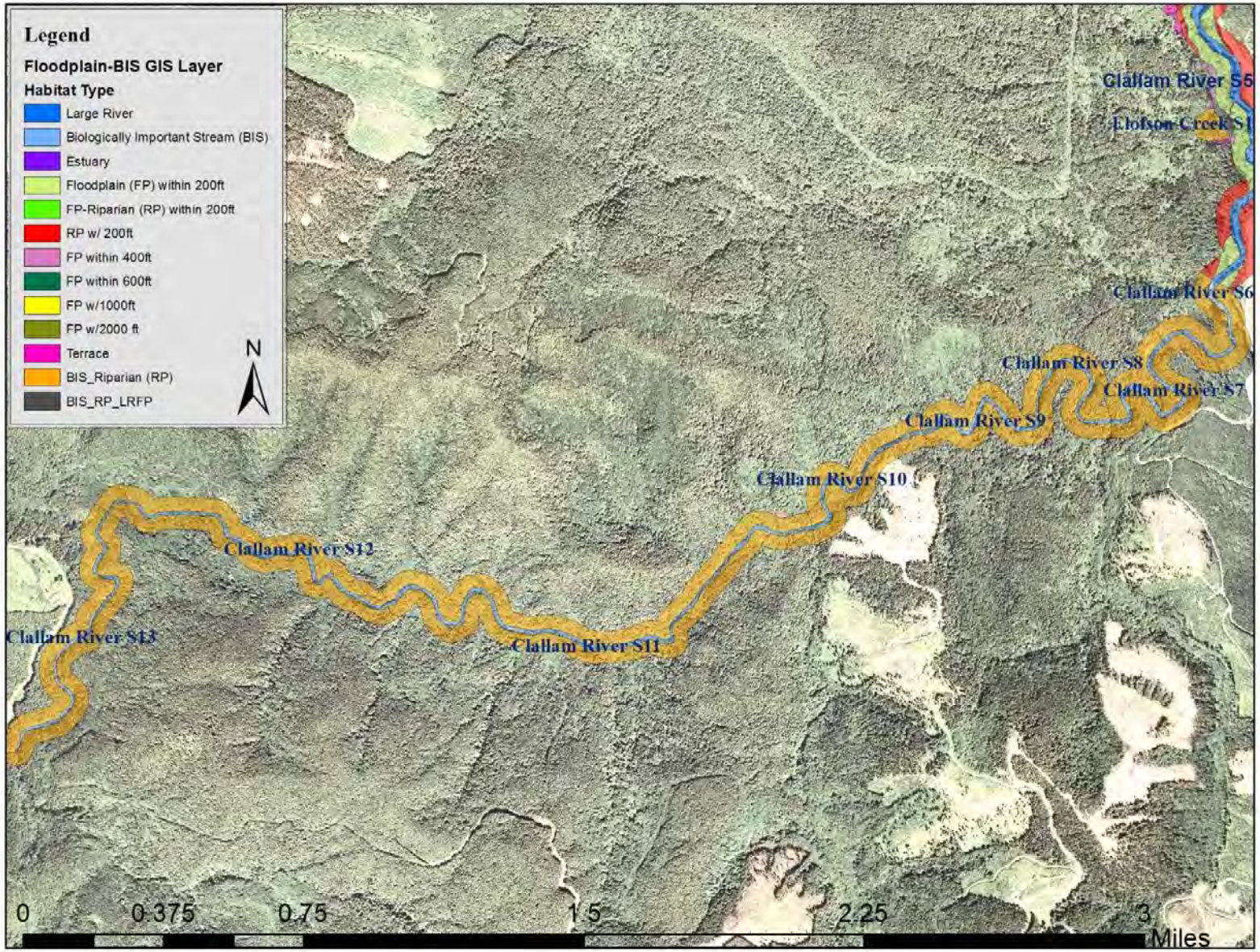


Figure 16. Map ID 16 depicting stream channel segments for the upper Clallam River.

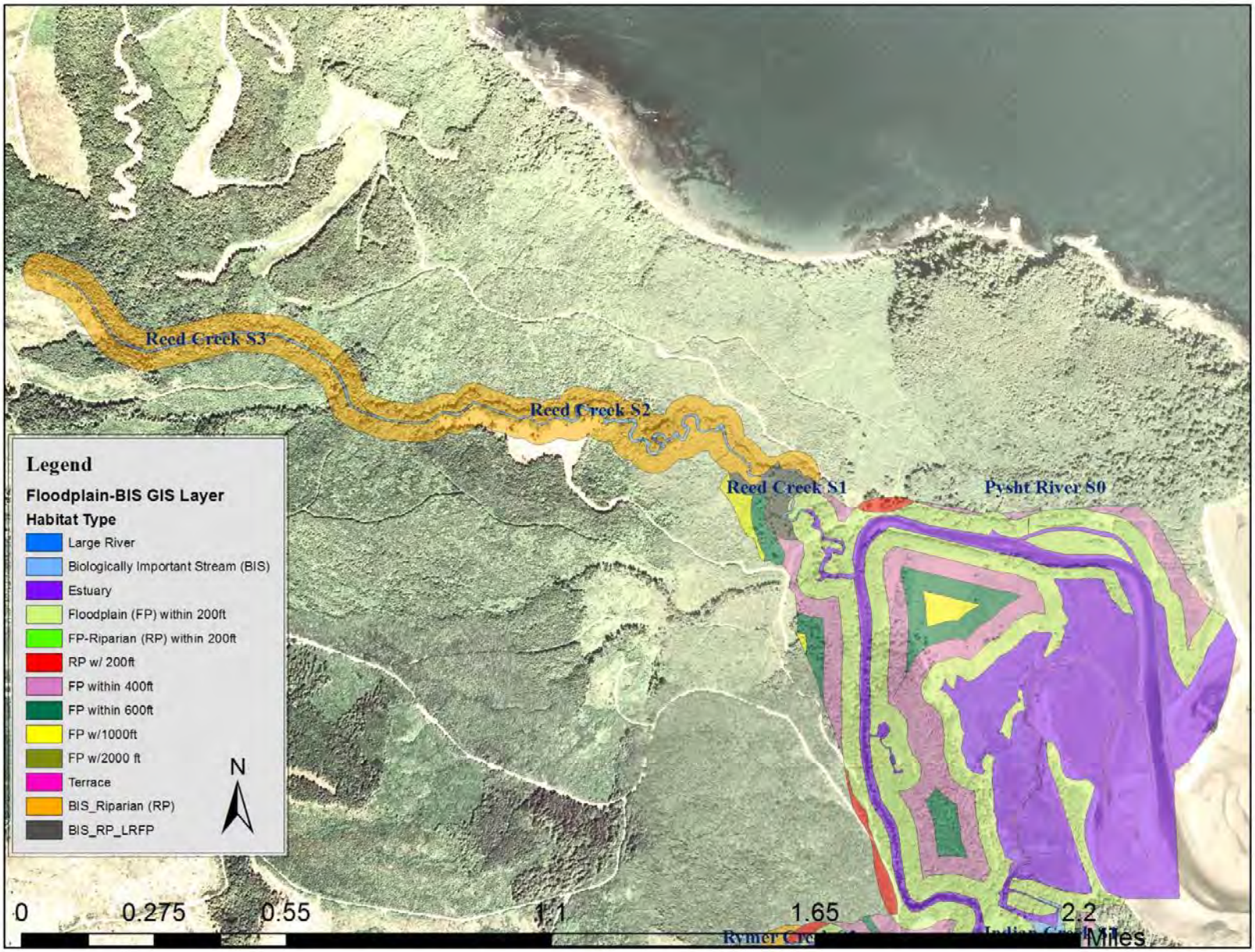


Figure 17. Map ID 17 depicting stream channel segments for the lower Pysht River and Reed Creek.

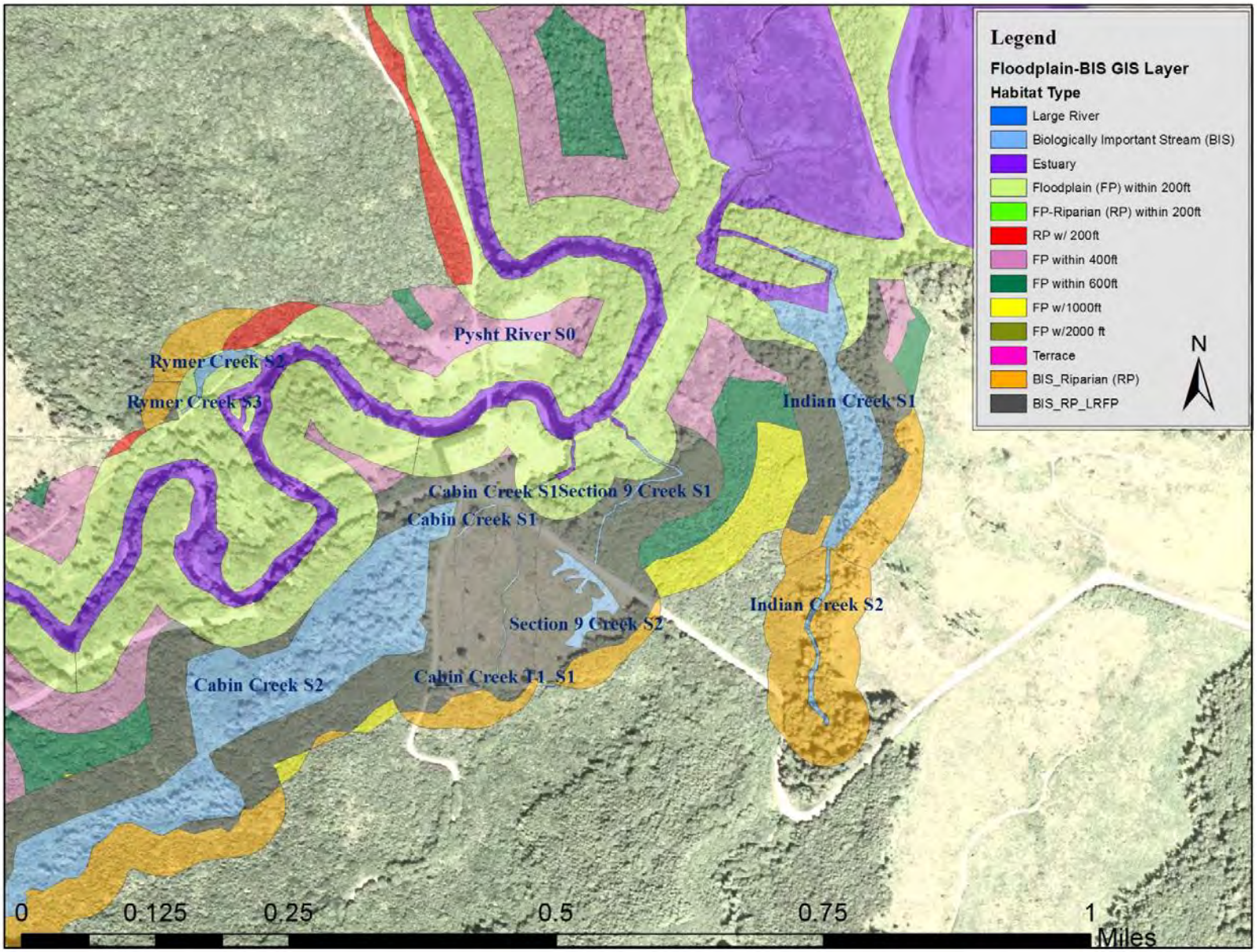


Figure 18. Map ID 18 depicting stream channel segments for the lower Pysht River and Indian Creek.

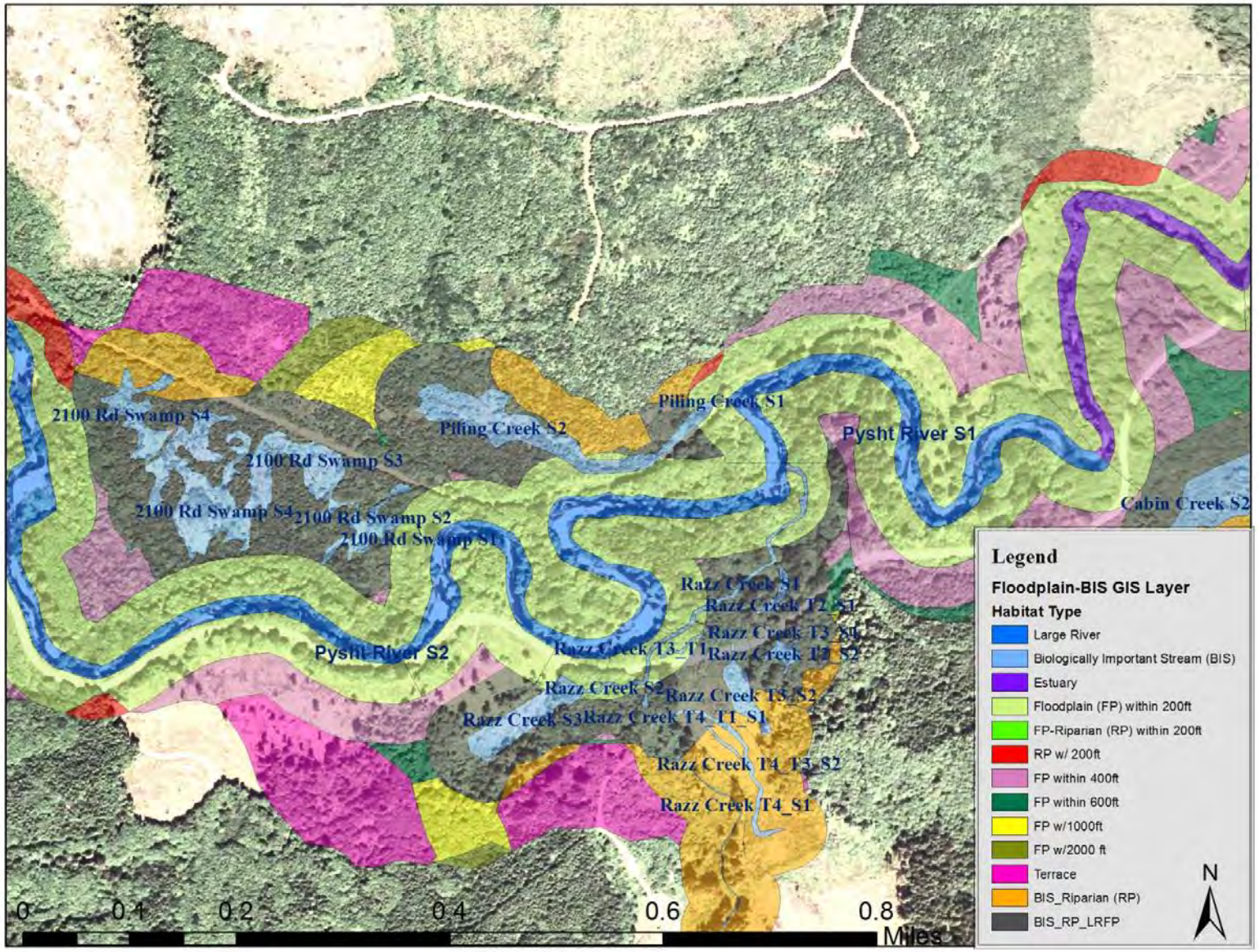


Figure 19. Map ID 19 depicting stream channel segments for the lower Pysht River and Razz Creek.

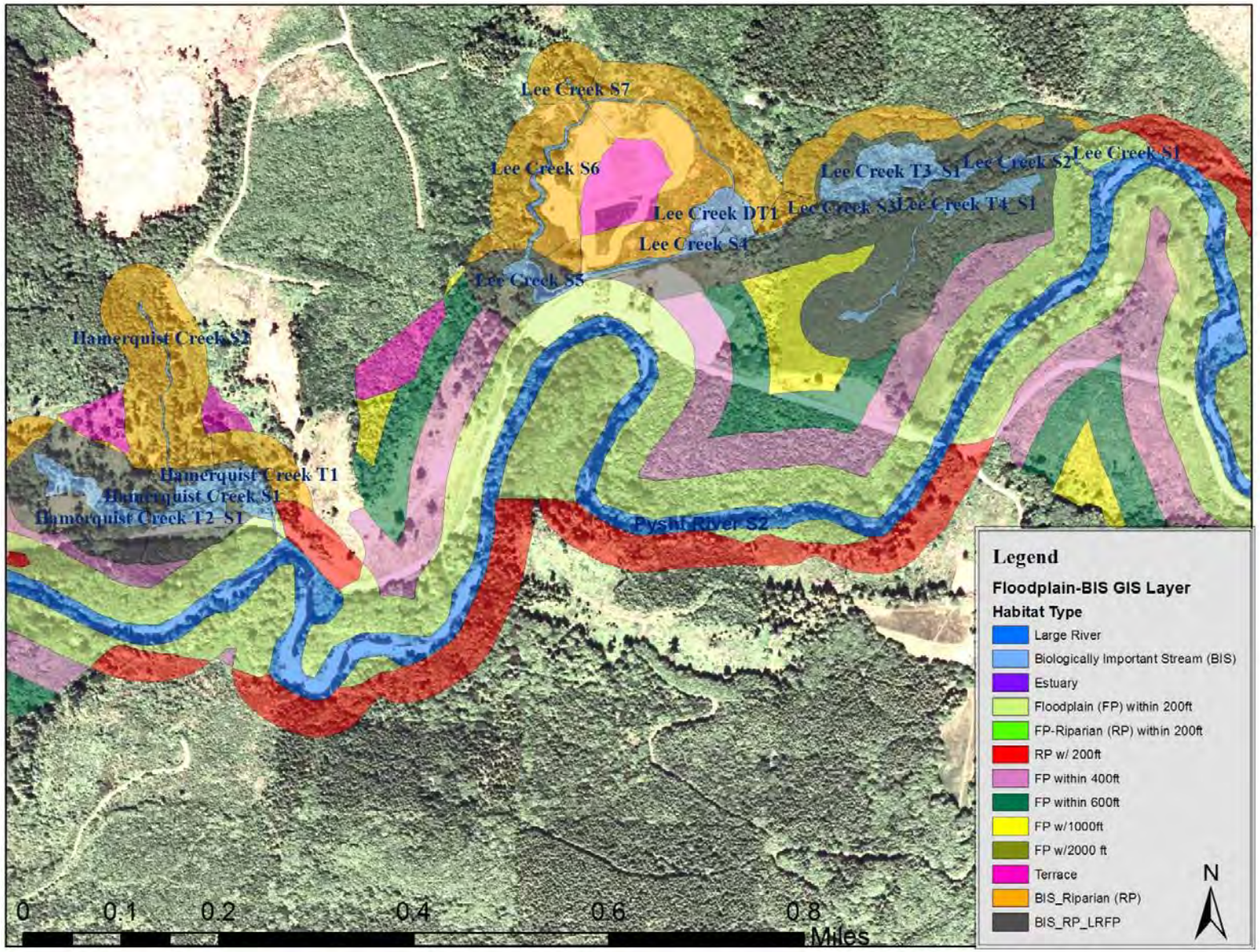


Figure 20. Map ID 20 depicting stream channel segments for the middle Pysht River and Lee Creek.

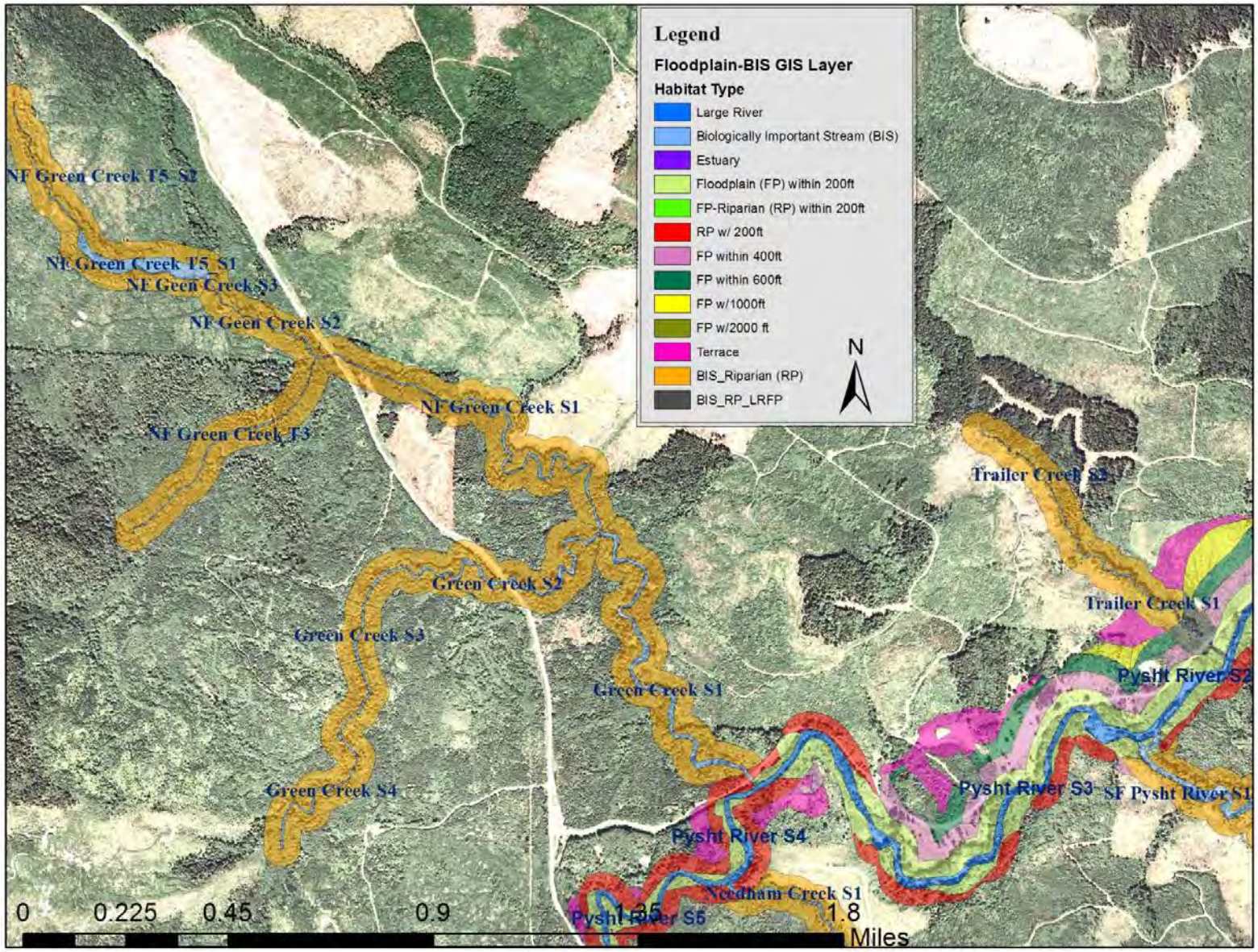


Figure 21. Map ID 21 depicting stream channel segments for the middle Pysht River and Green Creek.

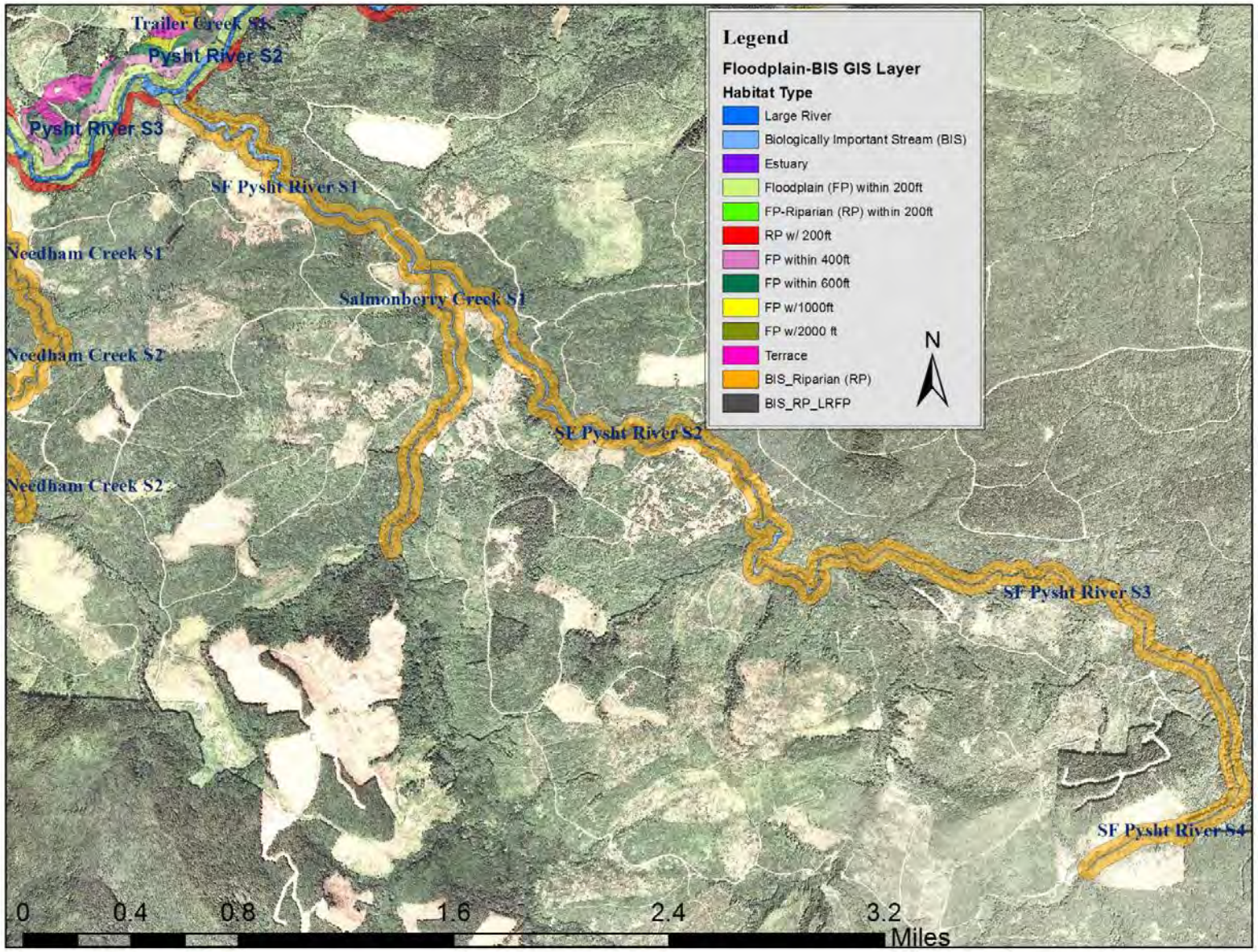


Figure 22. Map ID 22 depicting stream channel segments for the South Fork Pysht River.

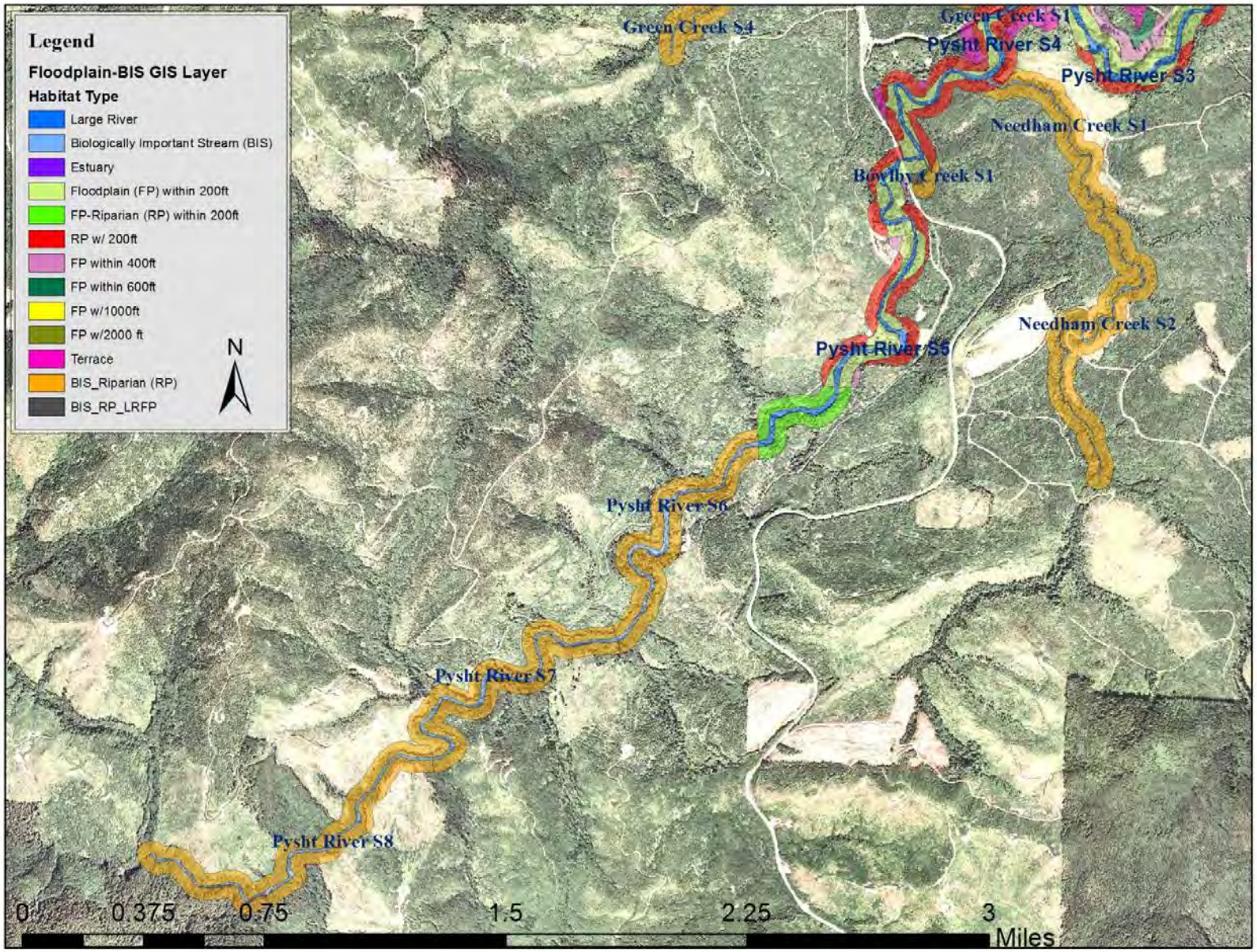


Figure 23. Map ID 23 depicting stream channel segments for the upper Pysht River and Needham Creek.

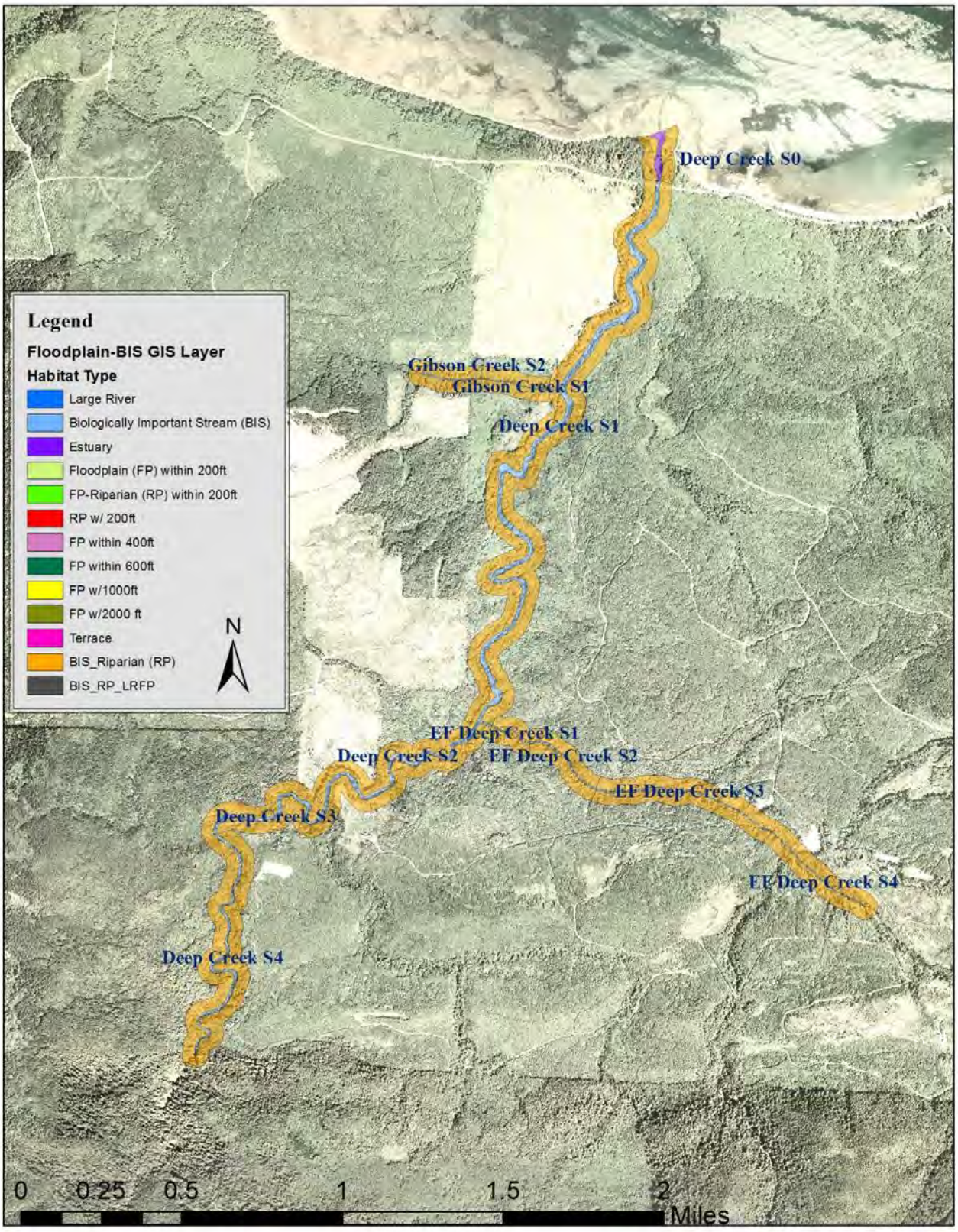


Figure 24. Map ID 24 depicting stream channel segments for the Deep Creek subbasin.

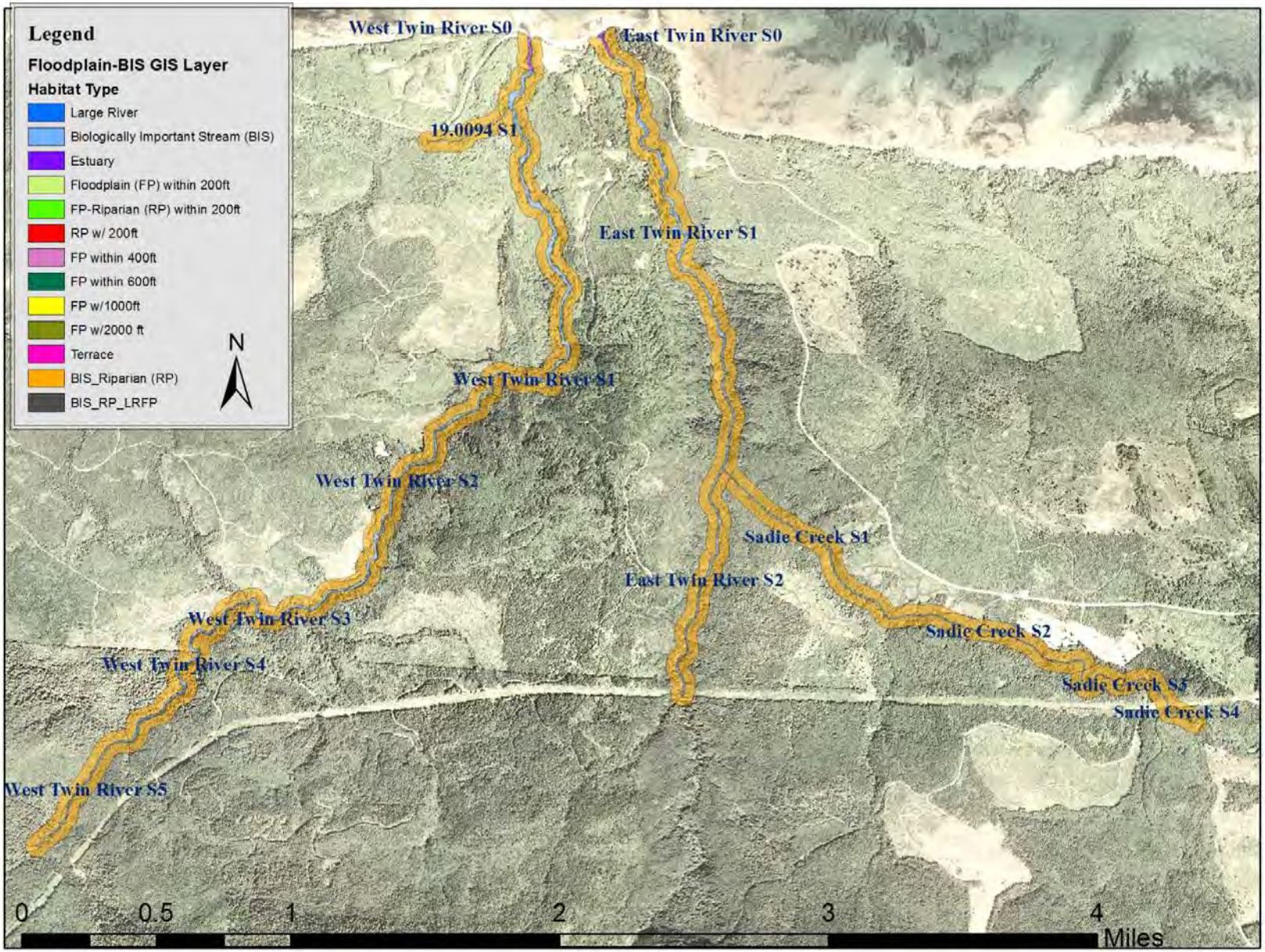


Figure 25. Map ID 25 depicting stream channel segments for the East and West Twin river watersheds.

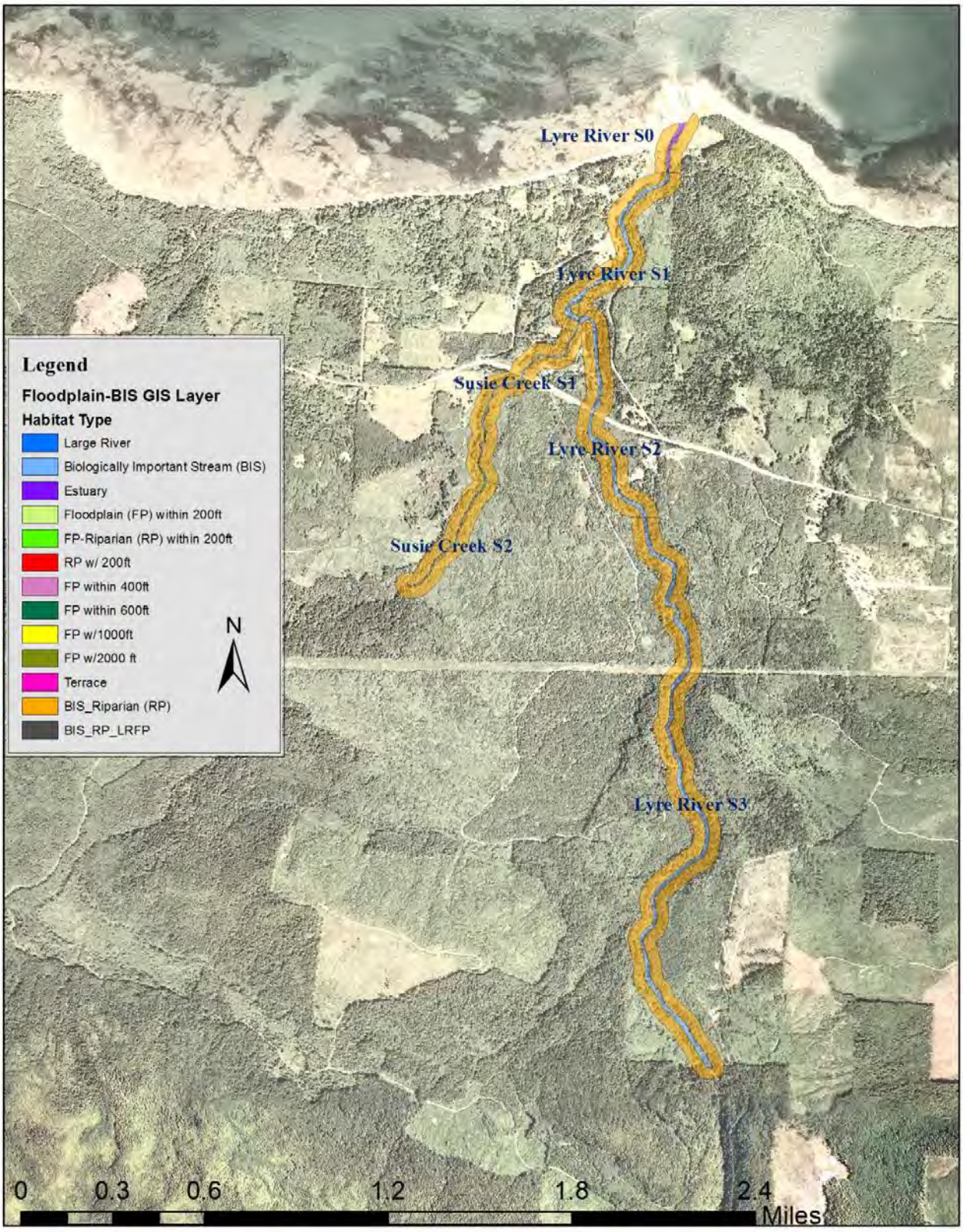


Figure 26. Map ID 26 depicting stream channel segments for the Lyre River subbasin.

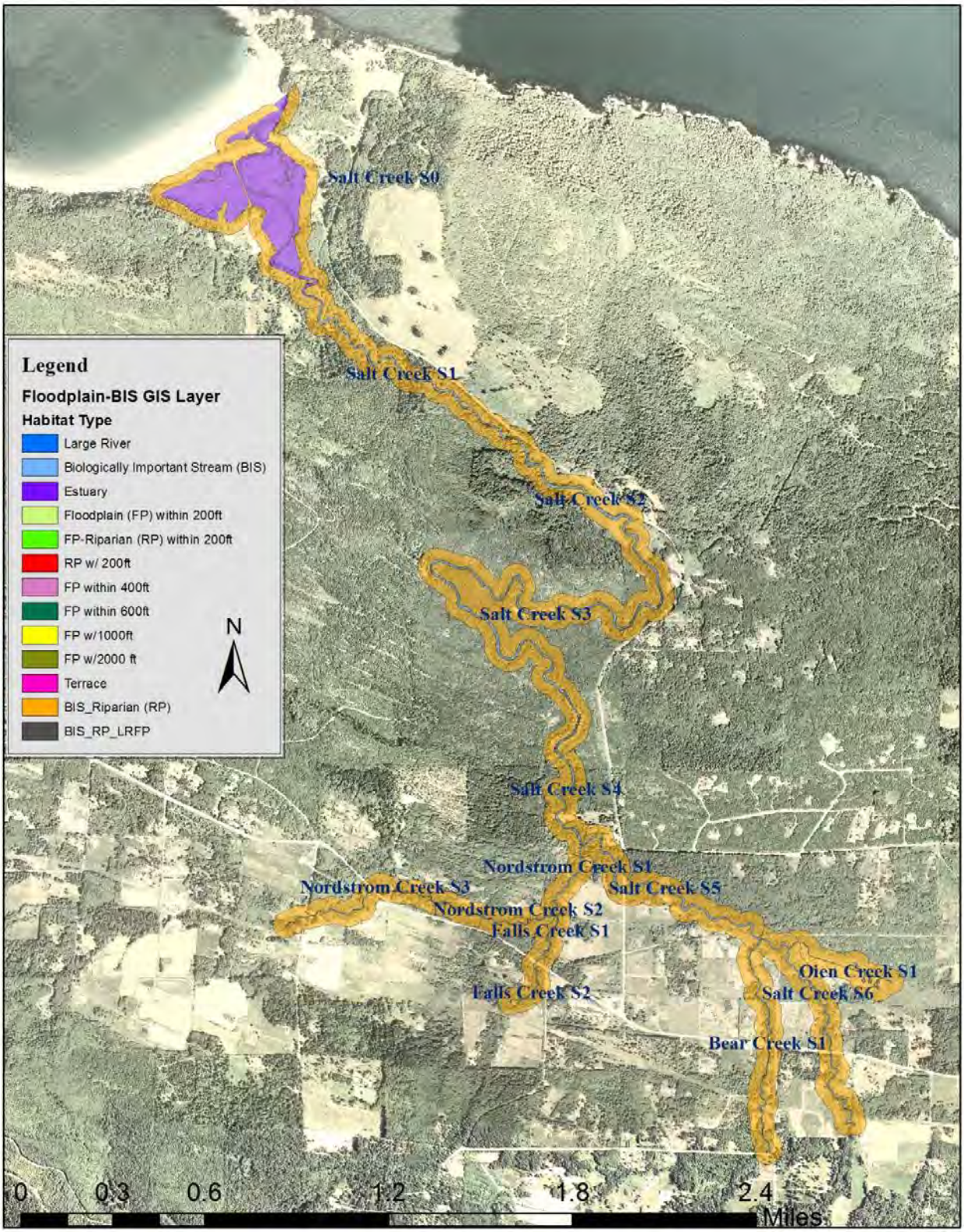


Figure 27. Map ID 27 depicting stream channel segments for the Salt Creek subbasin.

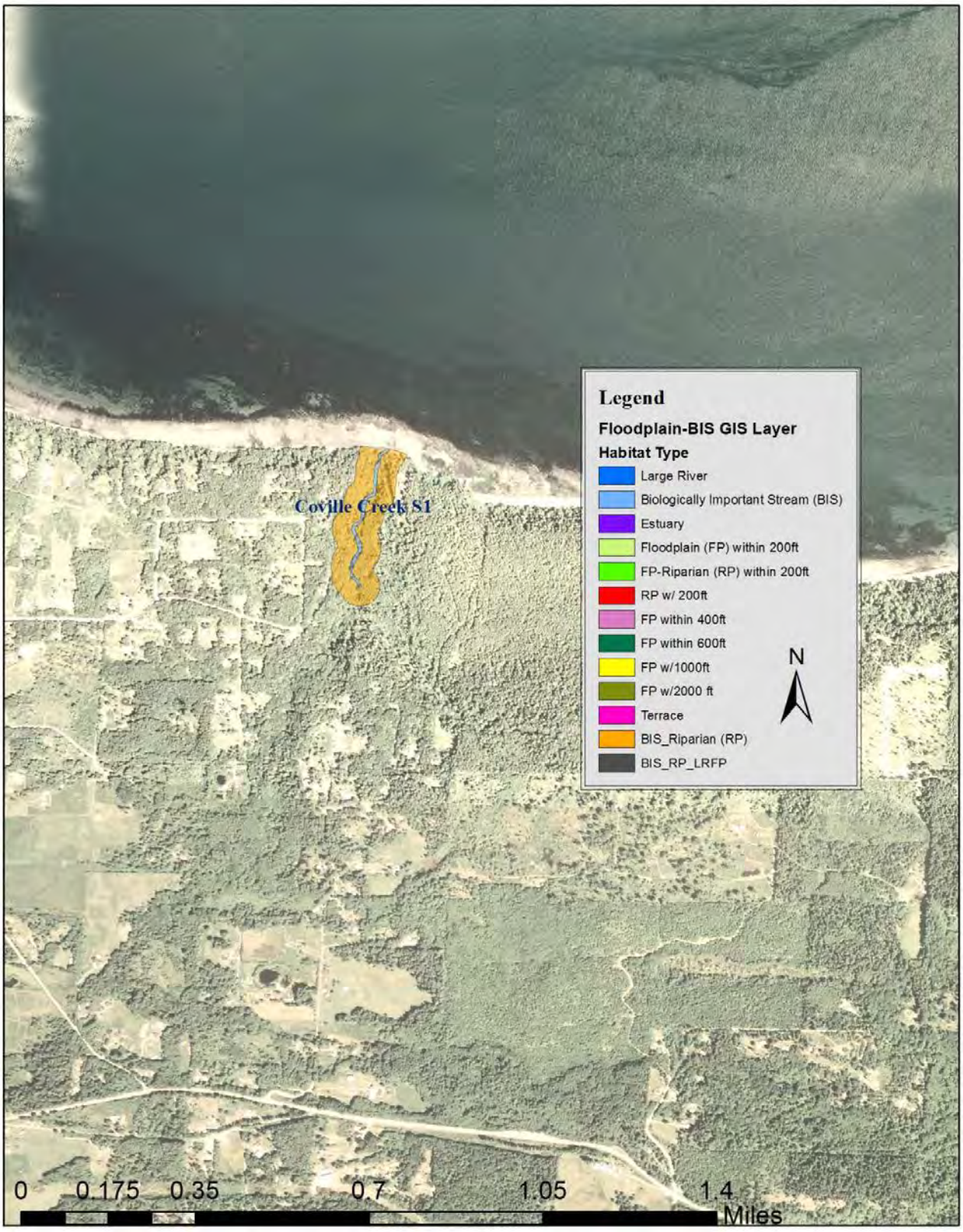


Figure 28. Map ID 28 depicting stream channel segments for Coville Creek.

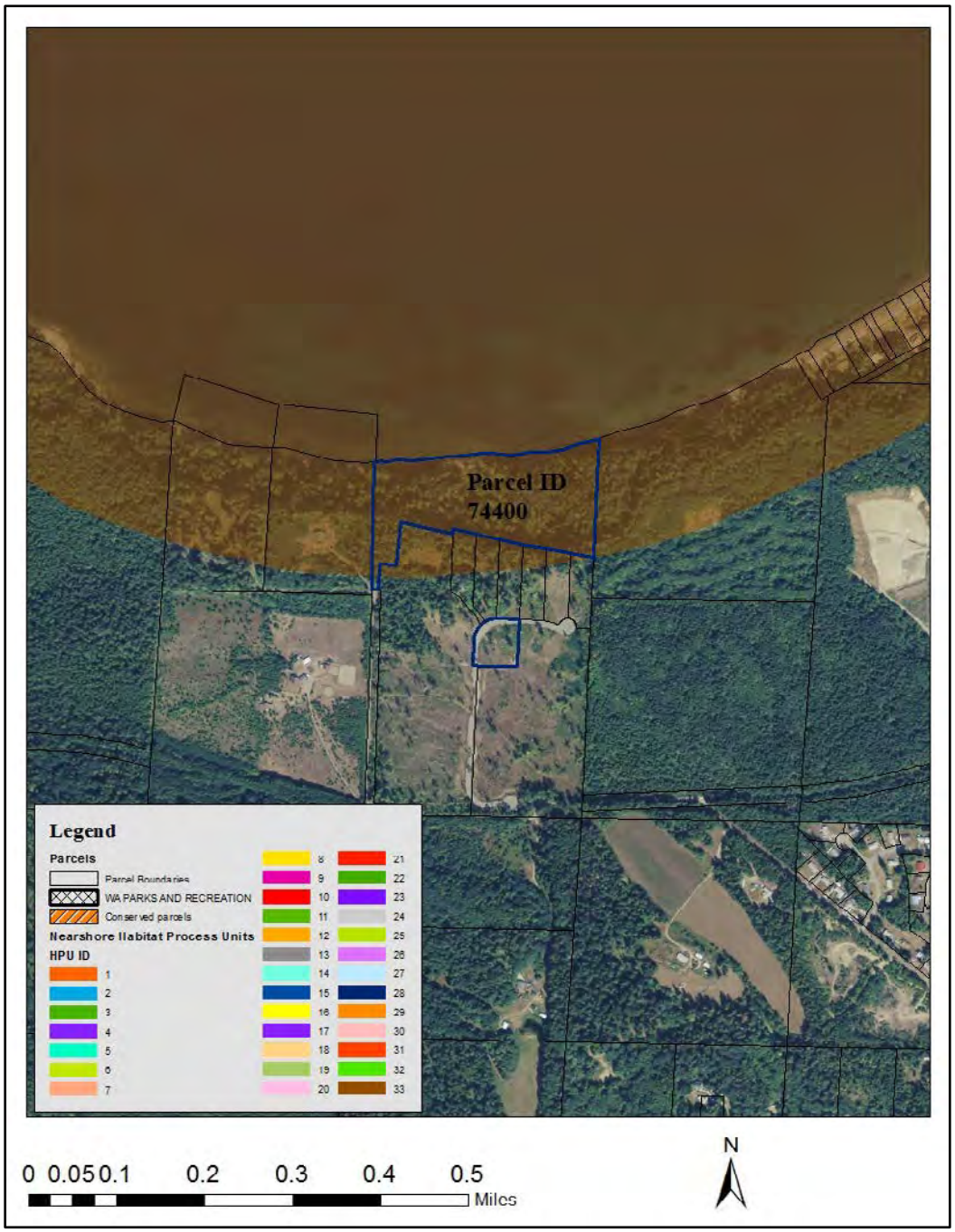
APPENDIX C: Nearshore Prioritized Parcels

See Appendix C download on website: http://mhaggertyconsulting.com/WRIA_19-_NOLT_Project.php

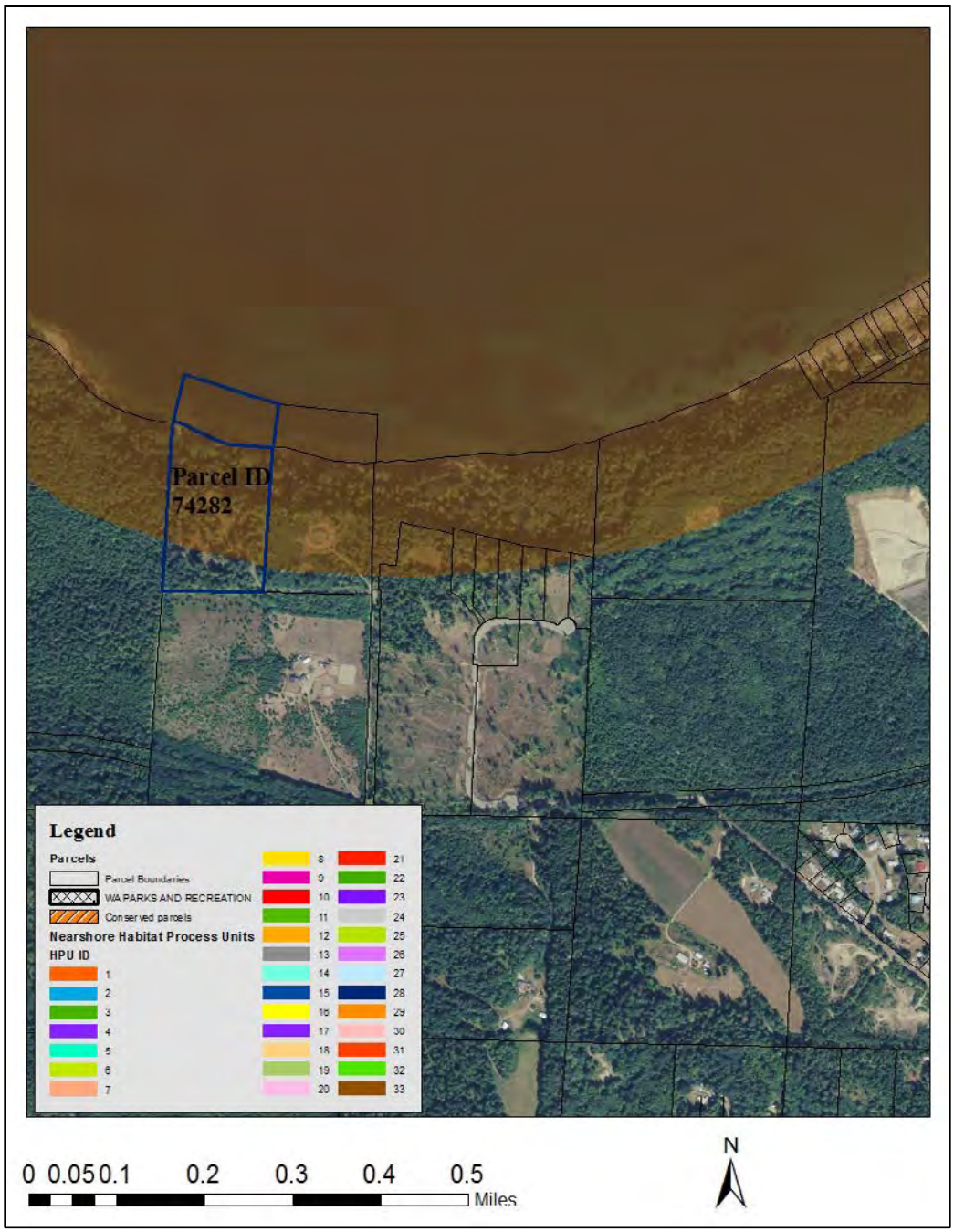
APPENDIX C: Nearshore Prioritized Parcels

PLEASE READ THE FOLLOWING NOTE PRIOR TO VIEWING MAPS.

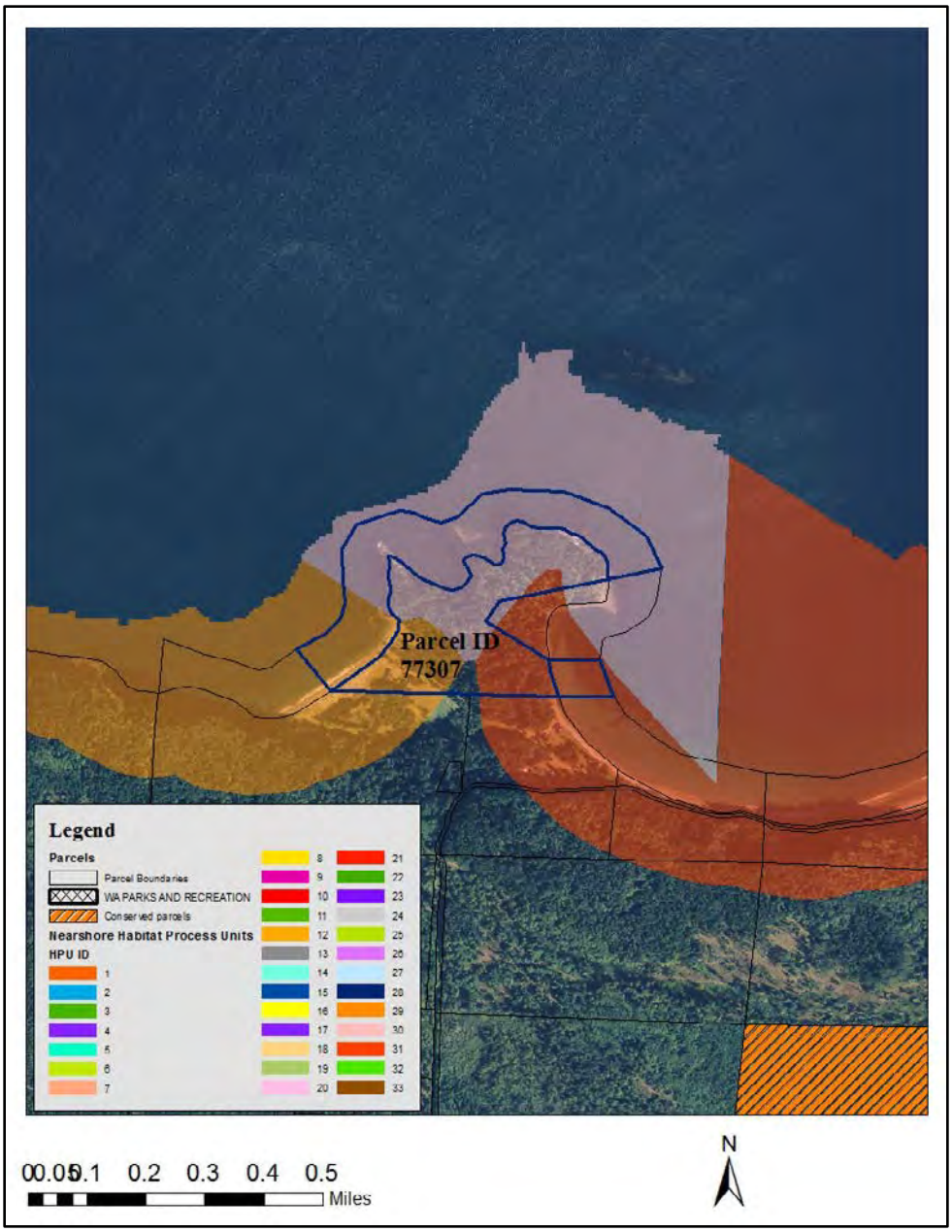
NOTE: each of the maps included in this appendix have certain features that should be understood prior to examing the maps. First, the parcel being described is outlined with a bright blue line around the perimeter of the parcel boundaries. The parcel ID is included within the boundaries of the parcel in black font. Parks and other conserved lands are denoted with cross-hatching (parks) and diagonal orage and black lines (other conserved lands). Where parks and conserved lands have names, the names are displayed in gray text boxes.



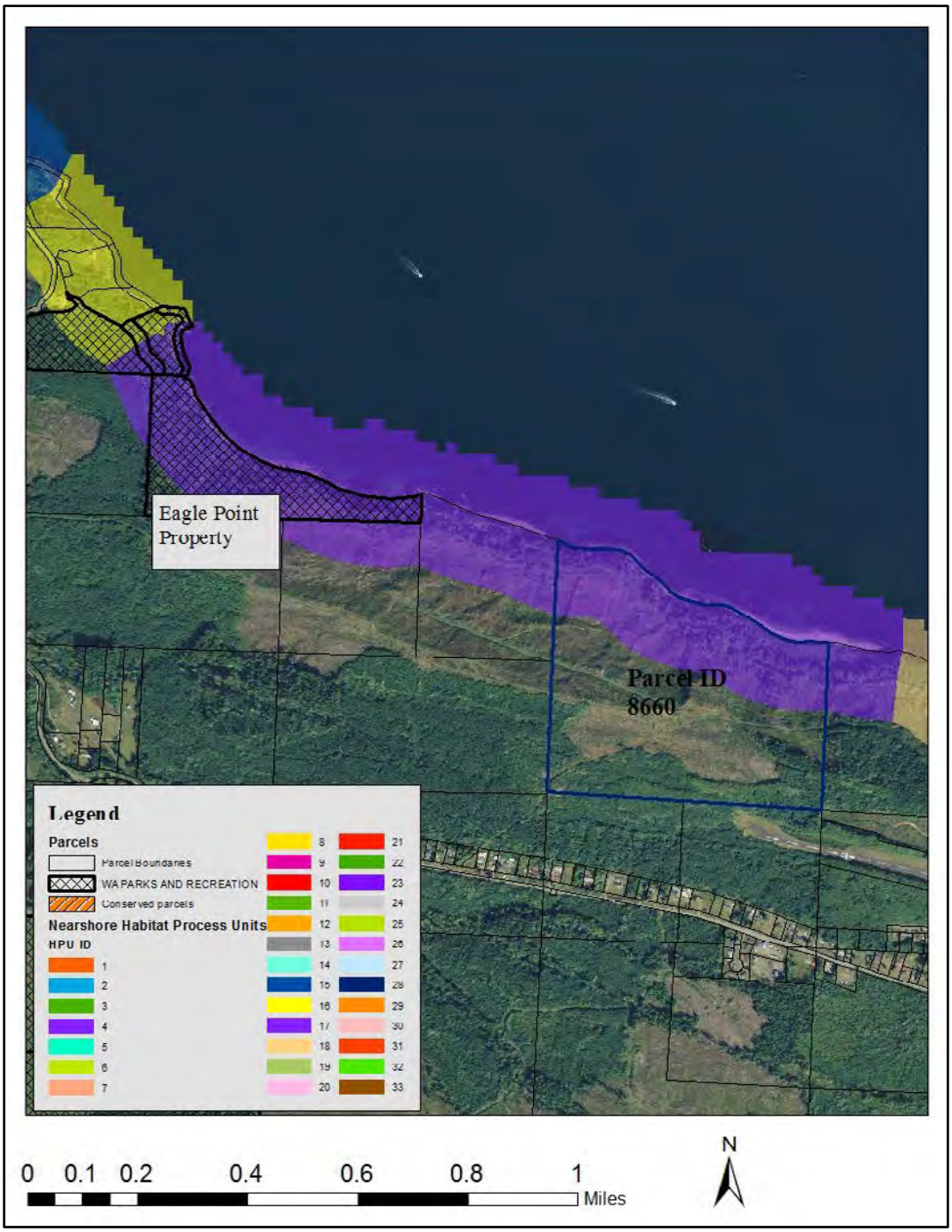
Parcel Priority	Priority 1
Parcel ID	74400
Parcel Size	18.2 acres
Habitat Process Unit(s)	33 (West Elwha River Drift Cell)
Shoreline Habitat Type(s)	Bluff backed beach
Forage Fish Spawning in HPU?	Yes
Legal Description	Township 31N Range 7W Section 33
Percent of Parcel Classified as Habitat	90%
Weighted Habitat Value	4.5
This parcel includes shoreline and uplands habitat. Includes feeder bluff that is up-drift from known forage fish spawning.	



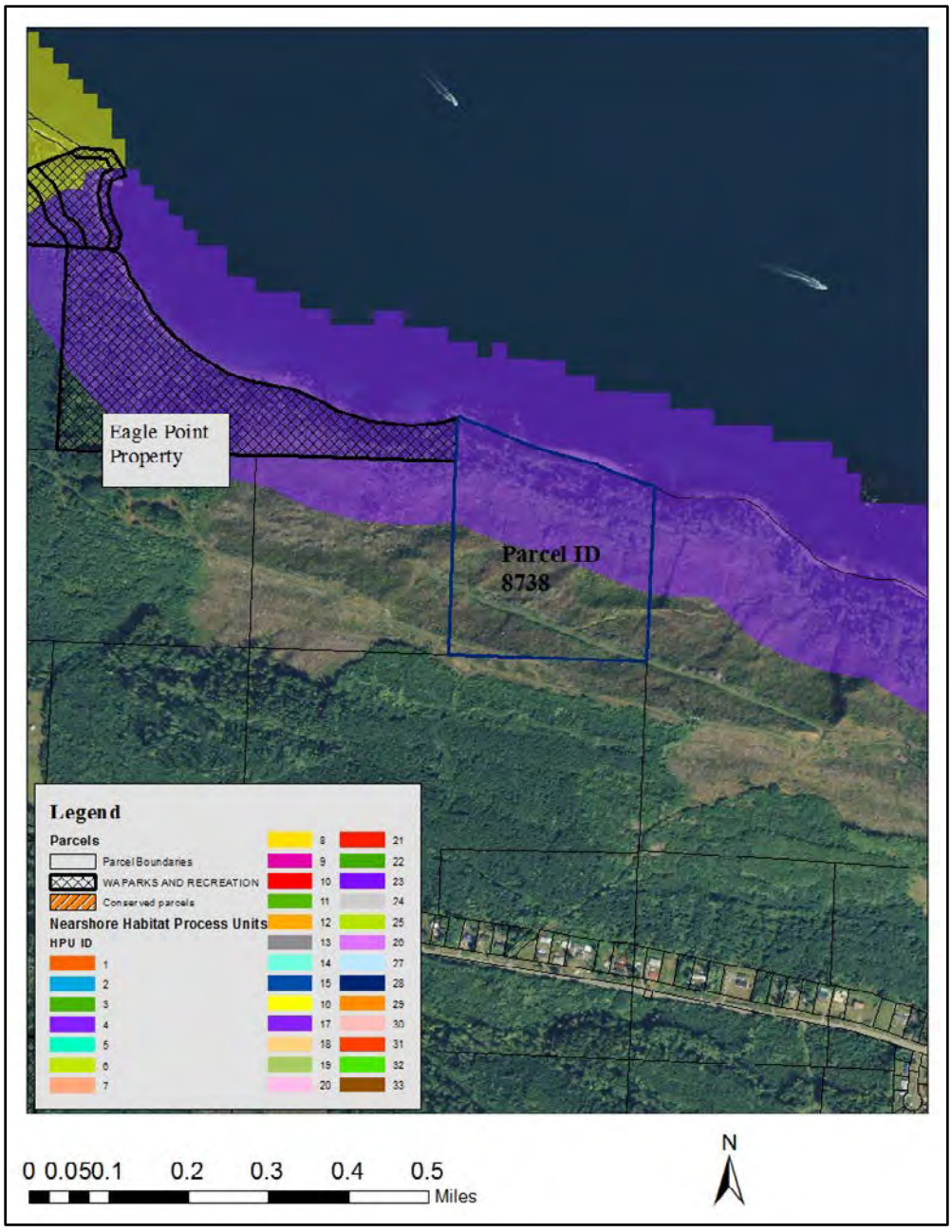
Parcel Priority	Priority 2
Parcel ID	74282
Parcel Size	17 acres
Habitat Process Unit(s)	33 (West Elwha River Drift Cell)
Shoreline Habitat Type(s)	Bluff backed beach
Forage Fish Spawning in HPU?	Yes
Legal Description	Township 31N Range 7W Section 32
Percent of Parcel Classified as Habitat	81%
Assigned Habitat Value	4.3
This parcel includes tidelands, shoreline, and uplands habitat. Includes feeder bluff that is up-drift from known forage fish spawning.	



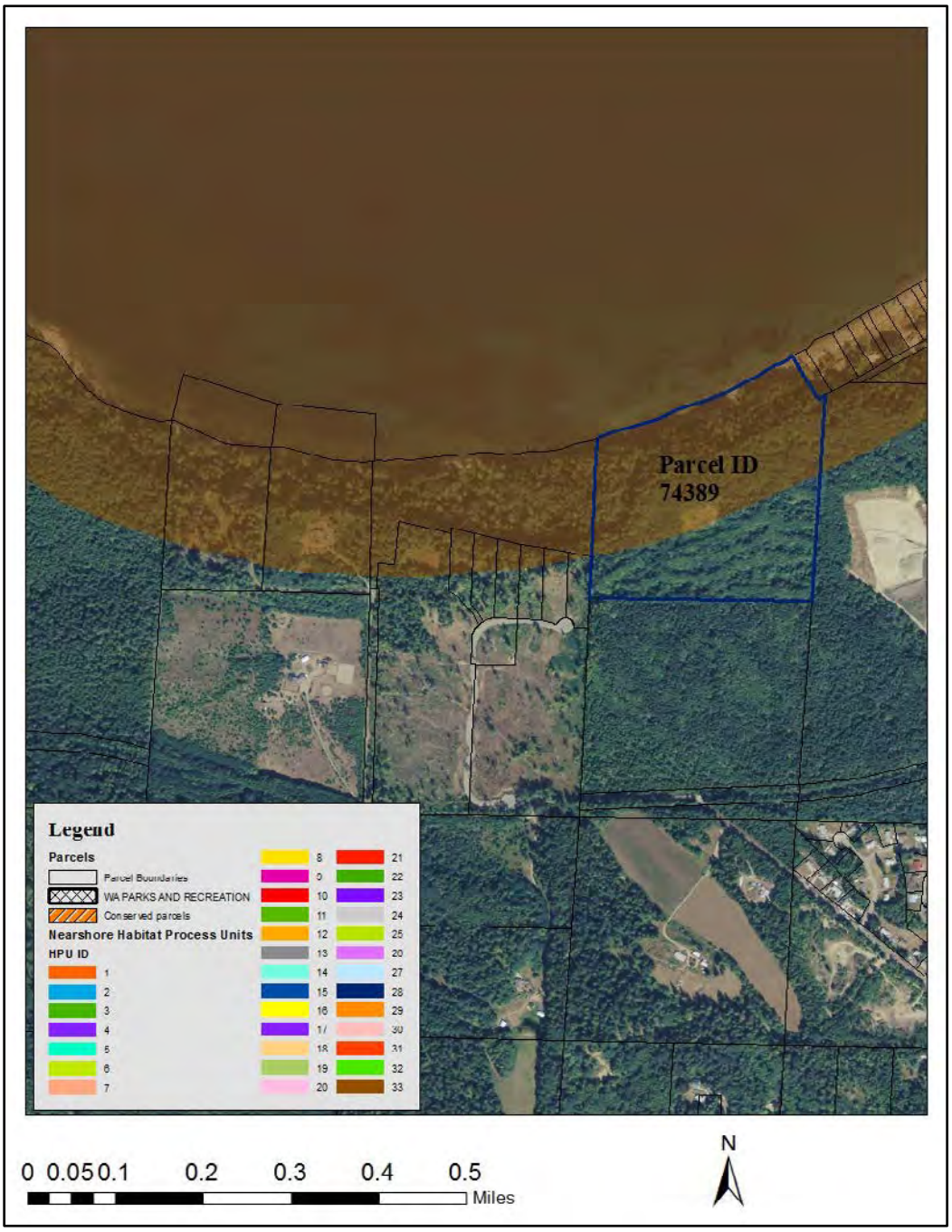
Parcel Priority	Priority 3
Parcel ID	77307
Parcel Size	86.3 acres
Habitat Process Unit(s)	29, 30, and 31 (Agate and Crescent Beaches)
Shoreline Habitat Type(s)	Pocket beach, rocky ramp platform, plunging rocky shoreline, and tidelands
Forage Fish Spawning in HPU?	Un-surveyed/unknown
Legal Description	Township 31N Range 8W Section 20
Percent of Parcel Classified as Habitat	98%
Assigned Habitat Value	3.3
This parcel includes shoreline and uplands habitat. Includes diverse nearshore habitat types. Forage fish spawning use in known.	



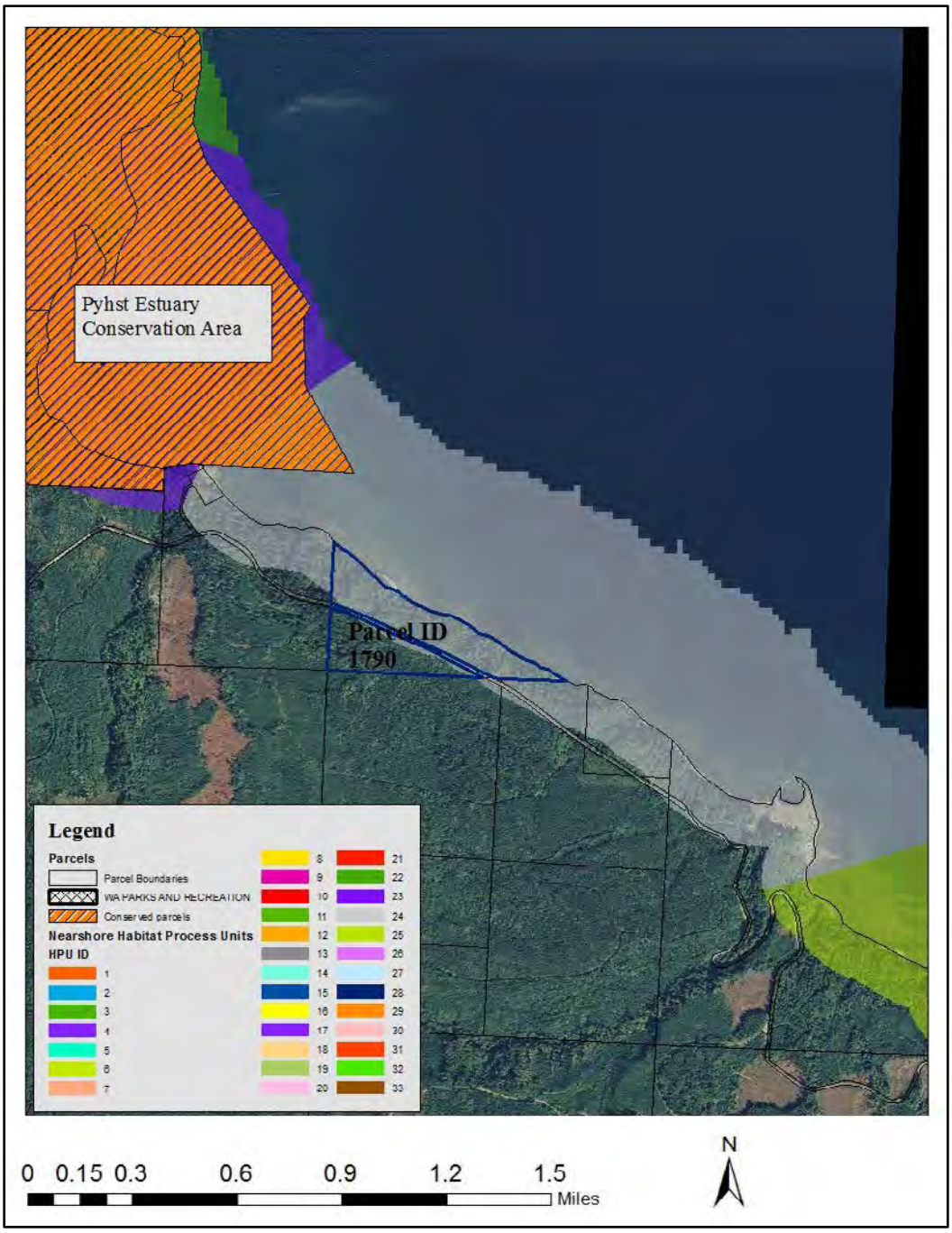
Parcel Priority	Priority 4
Parcel ID	8660
Parcel Size	120 acres
Habitat Process Unit(s)	17 (Near Eagle Point)
Shoreline Habitat Type(s)	Bluff backed beach
Forage Fish Spawning in HPU?	None documented
Legal Description	Township 32N Range 13W Section 13
Percent of Parcel Classified as Habitat	36%
Assigned Habitat Value	3.75
This parcel includes shoreline and uplands habitat. Parcel includes a bluff backed beach. It is near WA State Park land.	



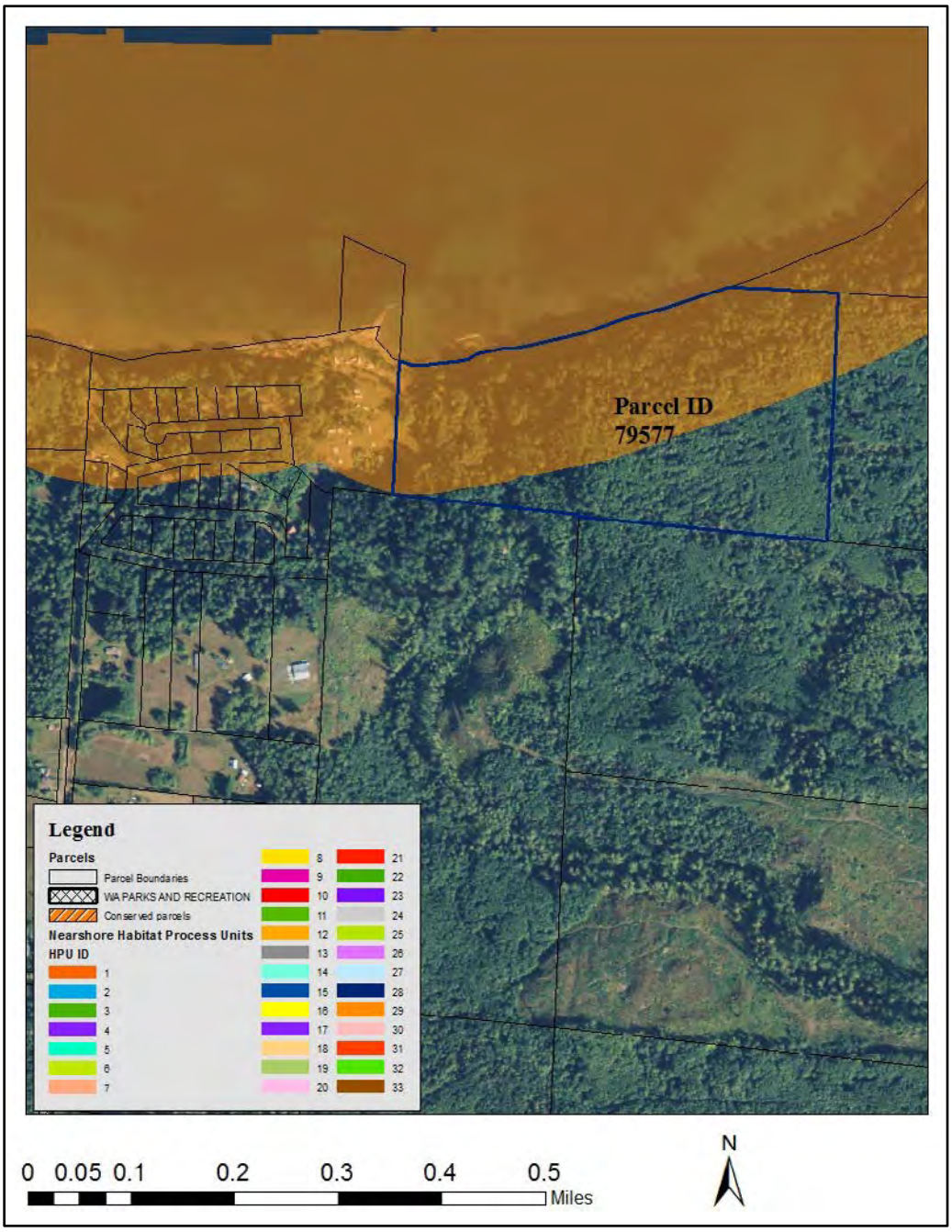
Parcel Priority	Priority 5
Parcel ID	8738
Parcel Size	41.1 acres
Habitat Process Unit(s)	17 (near Eagle Point)
Shoreline Habitat Type(s)	Bluff backed beach
Forage Fish Spawning in HPU?	Un-surveyed/unknown
Legal Description	Township 32N Range 13W Section 14
Percent of Parcel Classified as Habitat	51%
Assigned Habitat Value	3.75
This parcel includes shoreline and uplands habitat. Parcel includes a bluff backed beach. It is adjacent to WA State Park land.	



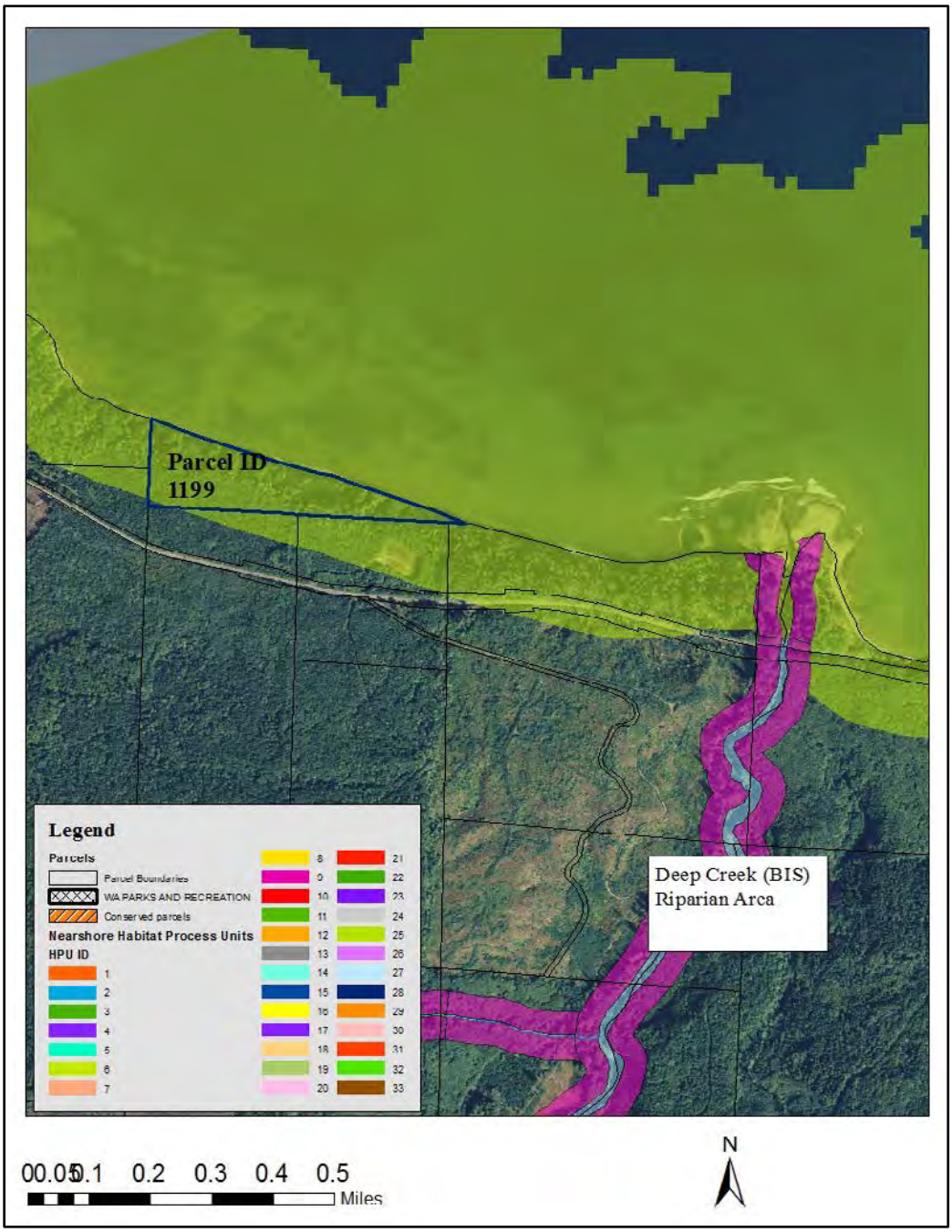
Parcel Priority	Priority 6
Parcel ID	74389
Parcel Size	37.3 acres
Habitat Process Unit(s)	33 (West Elwha River Drift Cell)
Shoreline Habitat Type(s)	Bluff backed beach
Forage Fish Spawning in HPU?	Yes
Legal Description	Township 31N Range 7W Section 33
Percent of Parcel Classified as Habitat	61%
Weighted Habitat Value	4.5
This parcel includes shoreline and uplands habitat. Parcel includes a bluff backed beach. It is up-drift from known forage fish spawning.	



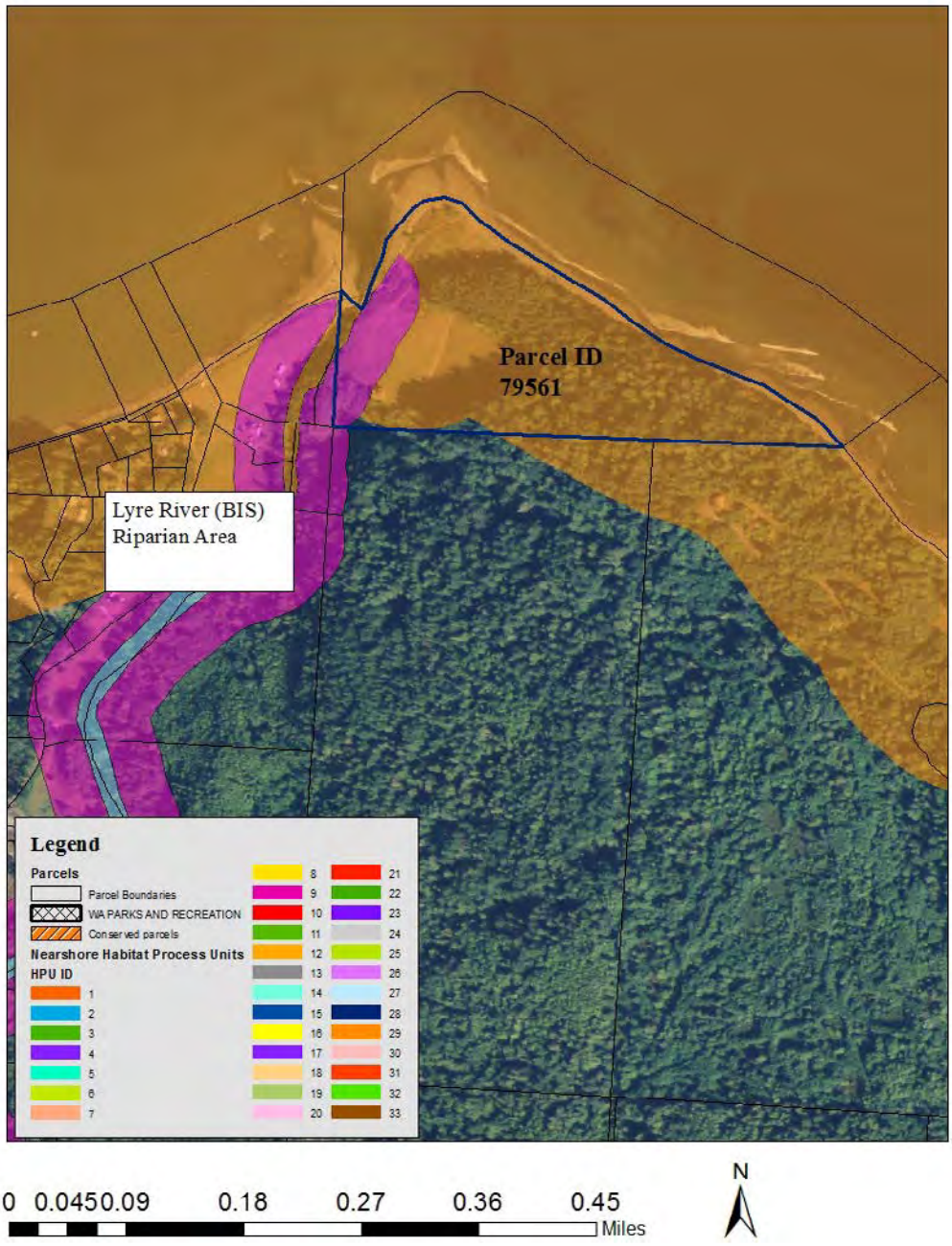
Parcel Priority	Priority 7
Parcel ID	1790
Parcel Size	70.9 acres
Habitat Process Unit(s)	24 (near Pysht River)
Shoreline Habitat Type(s)	Rocky ramp platform
Forage Fish Spawning in HPU?	Yes
Legal Description	Township 31N Range 11W Section 11
Percent of Parcel Classified as Habitat	66%
Assigned Habitat Value	3.75
This parcel includes shoreline and uplands habitat. Parcel includes known forage fish spawning and feeder bluff. Parcel is near Pysht Estuary Conservation Area.	



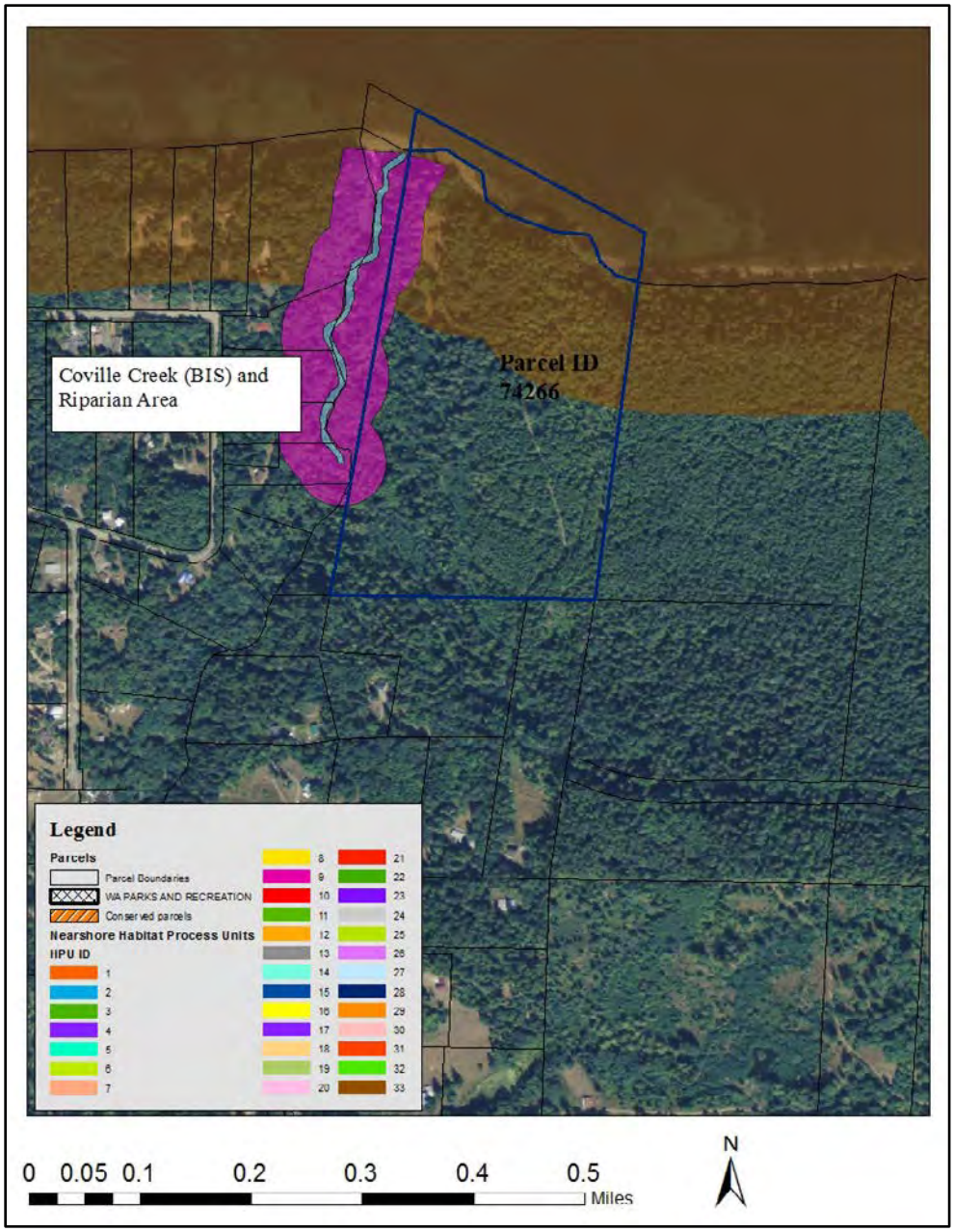
Parcel Priority	Priority 8
Parcel ID	79577
Parcel Size	51.1 acres
Habitat Process Unit(s)	29 (East Whiskey Creek Beach)
Shoreline Habitat Type(s)	Bluff backed beach
Forage Fish Spawning in HPU?	Yes
Legal Description	Township 31N Range 9W Section 25
Percent of Parcel Classified as Habitat	65%
Assigned Habitat Value	Primarily 4, some assigned a value of 2
This parcel includes shoreline and uplands habitat. Parcel includes known forage fish spawning and a small feeder bluff.	



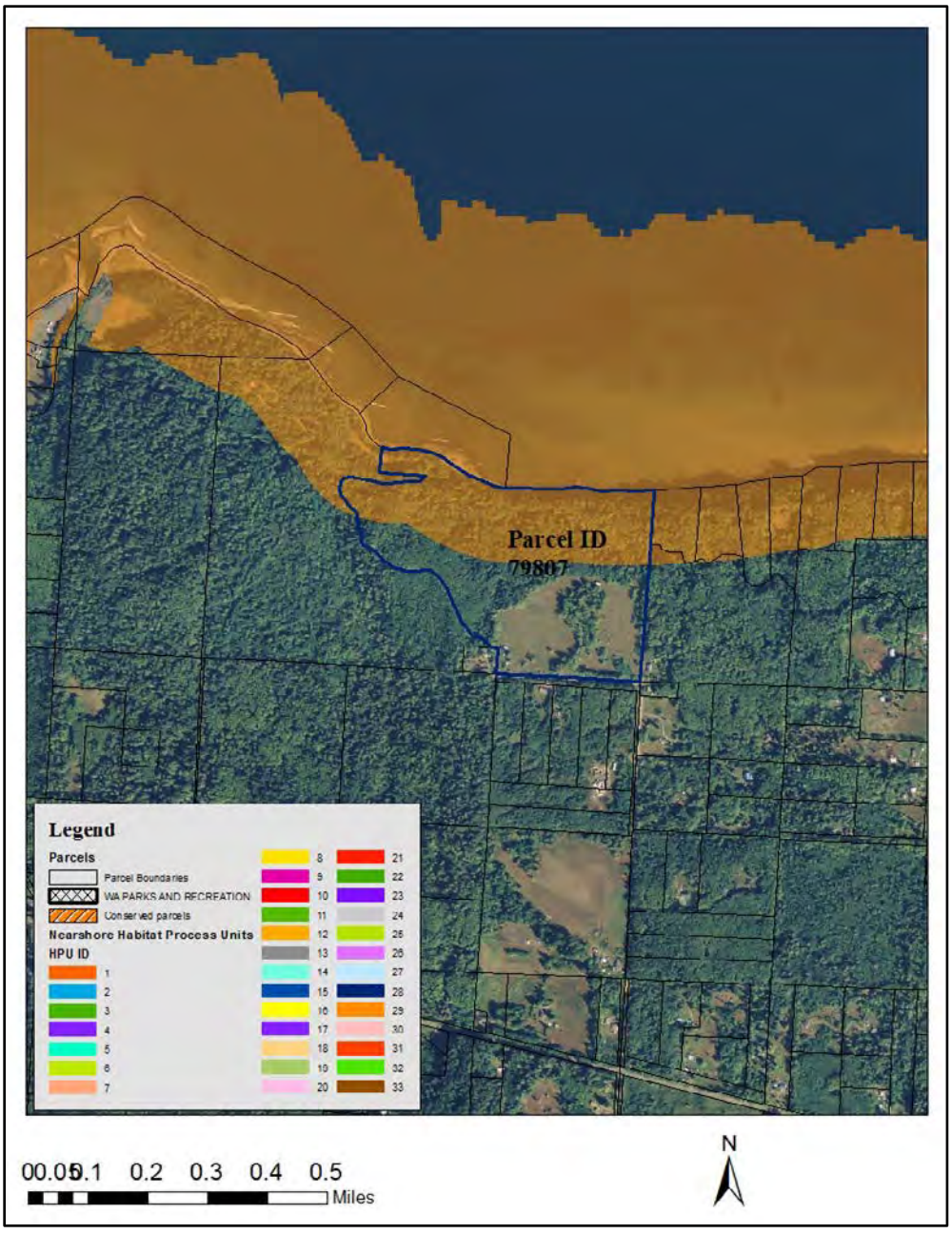
Parcel Priority	Priority 9
Parcel ID	1199
Parcel Size	24 acres
Habitat Process Unit(s)	25 (West Deep Creek)
Shoreline Habitat Type(s)	Bluff backed beach
Forage Fish Spawning in HPU?	None documented
Legal Description	Township 31N Range 10W Section 18
Percent of Parcel Classified as Habitat	99%
Assigned Habitat Value	3.75
This parcel includes shoreline and uplands habitat. Forage fish spawning has not been documented on this segment of shoreline.	



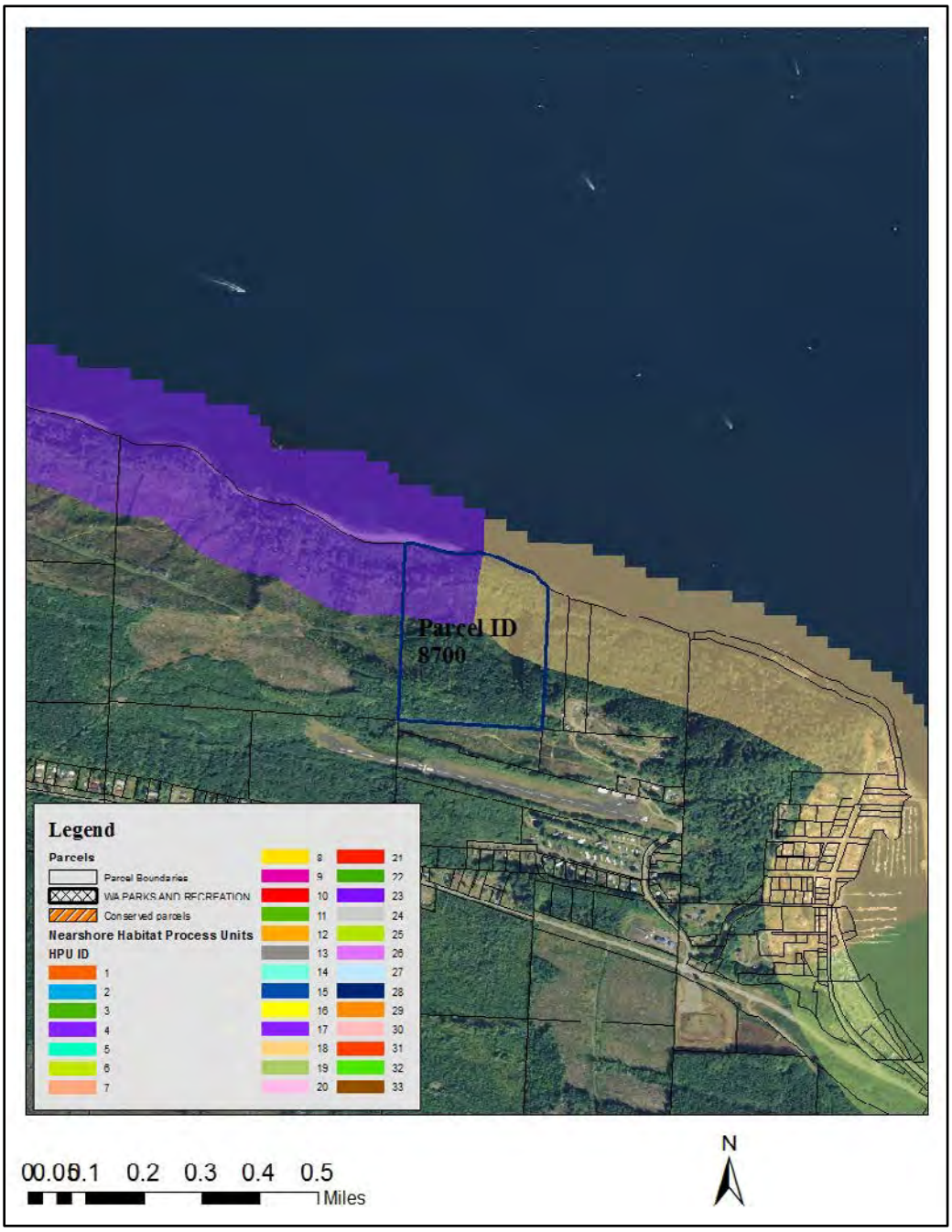
Parcel Priority	Priority 10
Parcel ID	79561
Parcel Size	25 acres
Habitat Process Unit(s)	29 (East Lyre River)
Shoreline Habitat Type(s)	Barrier beach and bluff backed Beach
Forage Fish Spawning in HPU?	Un-surveyed/unknown
Legal Description	Township 31N Range 9W Section 22
Percent of Parcel Classified as Habitat	88%
Assigned Habitat Value	3.75
This parcel includes shoreline and uplands habitat, as well as a portion of the Lyre River Estuary. Forage fish spawning surveys have not occurred at this site.	



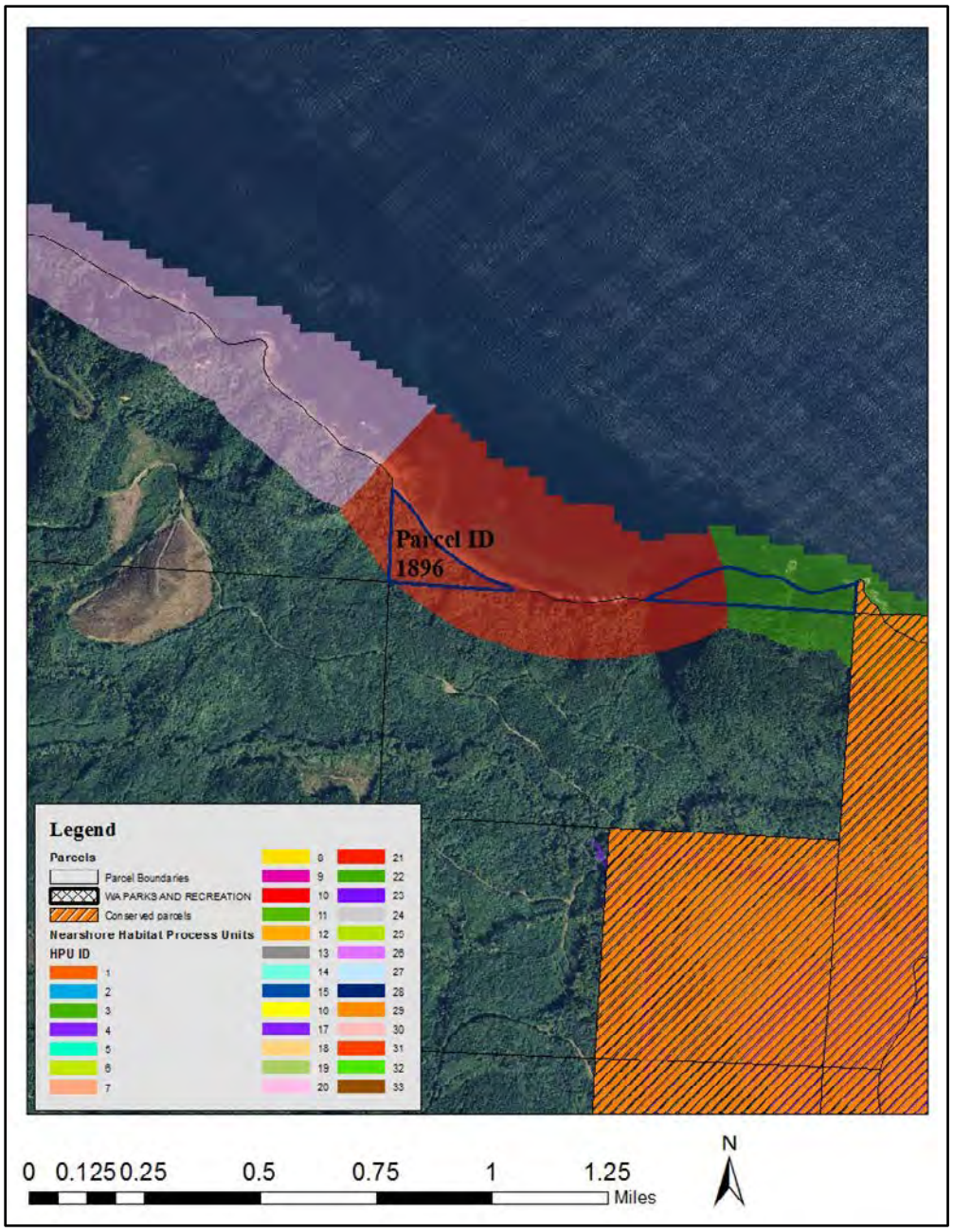
Parcel Priority	Priority 11
Parcel ID	74389
Parcel Size	56.6 acres
Habitat Process Unit(s)	33 (West Elwha River Drift Cell)
Shoreline Habitat Type(s)	Bluff backed beach
Forage Fish Spawning in HPU?	Yes
Legal Description	Township 31N Range 7W Section 32
Percent of Parcel Classified as Habitat	40% (not including BIS riparian)
Weighted Habitat Value	3.75
This parcel includes shoreline and uplands habitat. Mapped as primary transport reach. It is up-drift from known forage fish spawning. Parcel also includes Coville Creek (BIS) riparian habitat.	



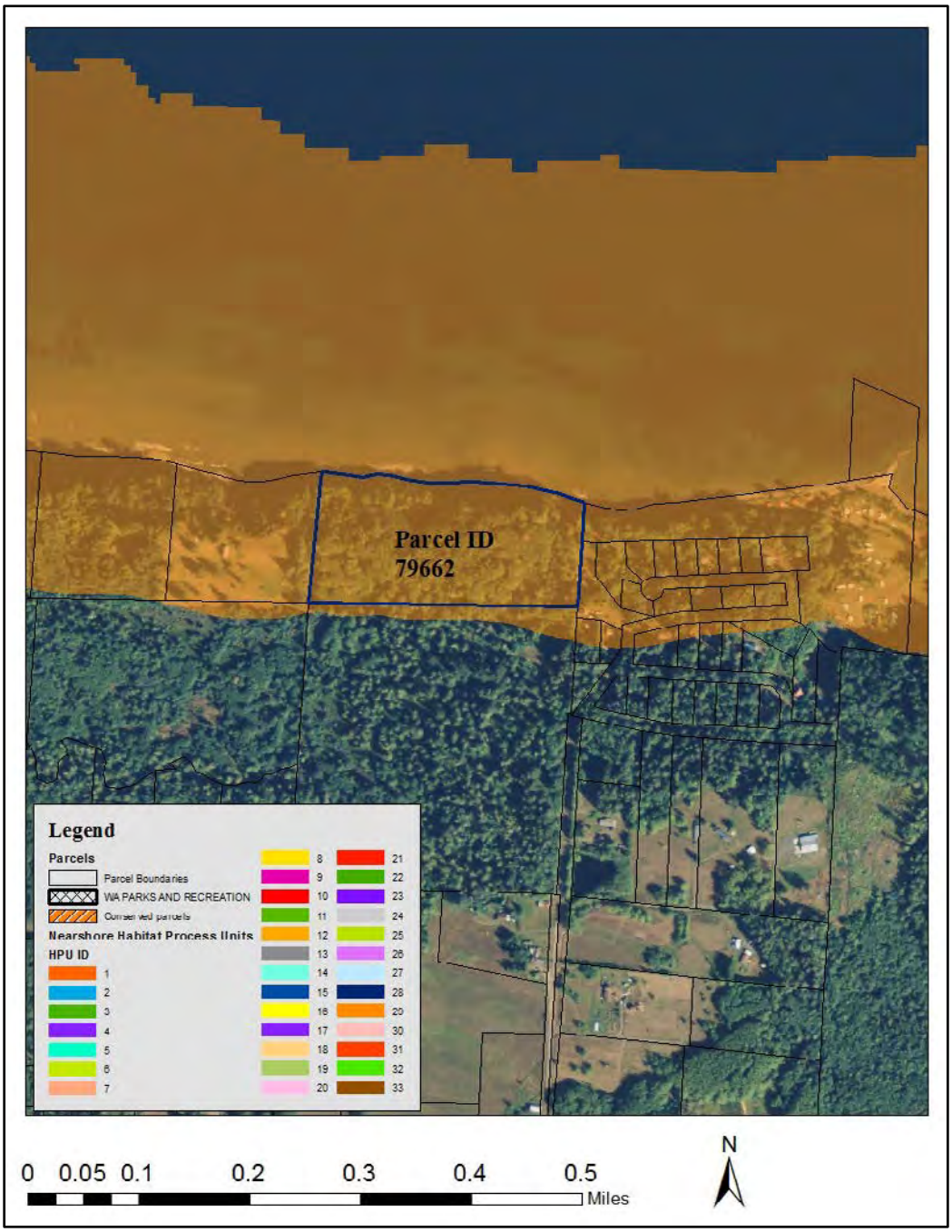
Parcel Priority	Priority 12
Parcel ID	79807
Parcel Size	81.4 acres
Habitat Process Unit(s)	29 (East Lyre/West Whiskey Creek)
Shoreline Habitat Type(s)	Bluff backed beach
Forage Fish Spawning in HPU?	Un-surveyed/unknown
Legal Description	Township 31N Range 9W Section 27
Percent of Parcel Classified as Habitat	48%
Assigned Habitat Value	3.75
This parcel includes shoreline and uplands habitat, a portion of the parcel is mapped feeder bluff. Forage fish spawning surveys have not occurred at this site.	



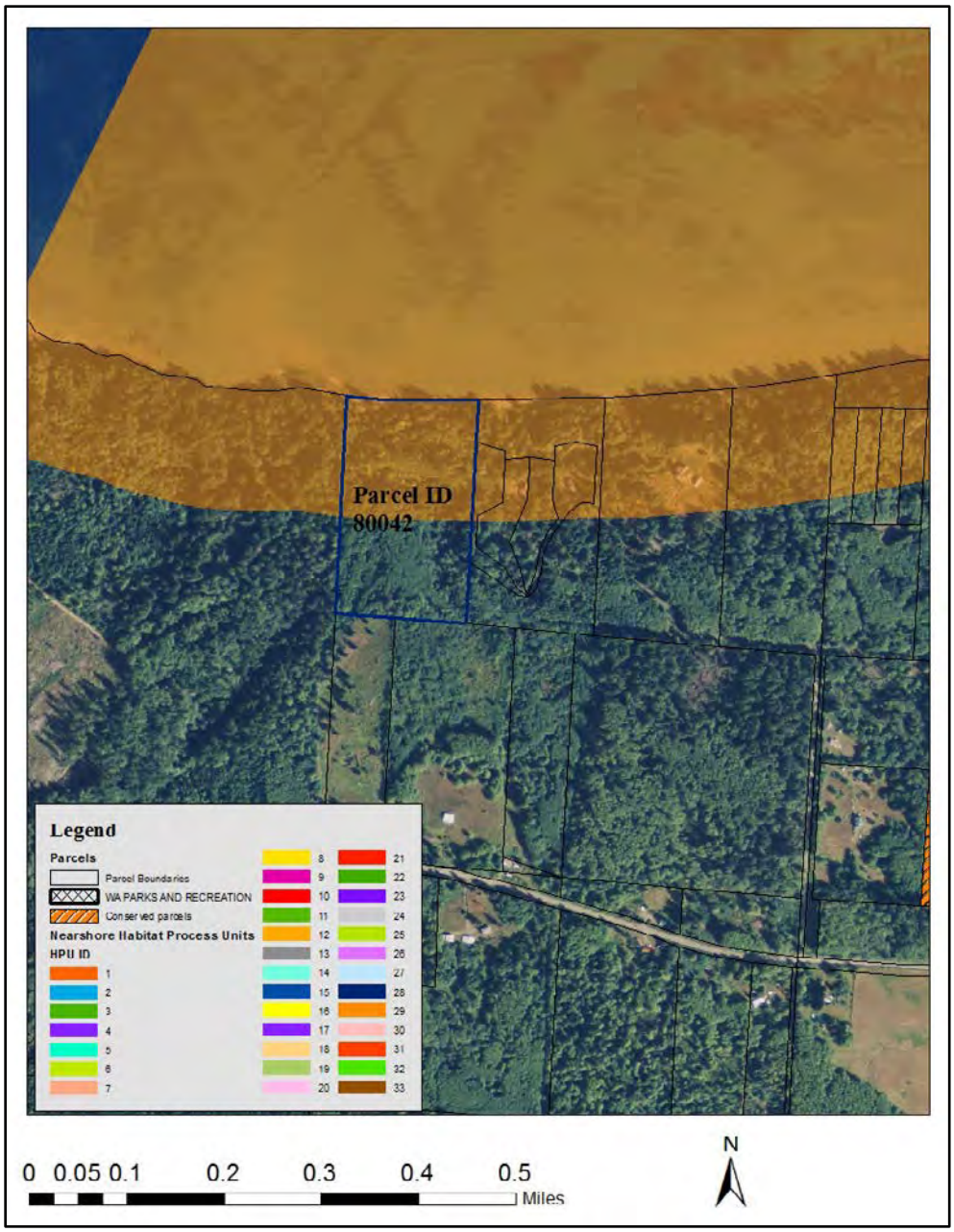
Parcel Priority	Priority 13
Parcel ID	8700
Parcel Size	45.9 acres
Habitat Process Unit(s)	17 and 18
Shoreline Habitat Type(s)	Bluff backed beach and rocky ramp platform
Forage Fish Spawning in HPU?	Un-surveyed/Unknown
Legal Description	Township 32N Range 13W Section 13
Percent of Parcel Classified as Habitat	47%
Assigned Habitat Value	3.75
This parcel includes shoreline and uplands habitat. Forage fish spawning has not been documented on this segment of shoreline.	



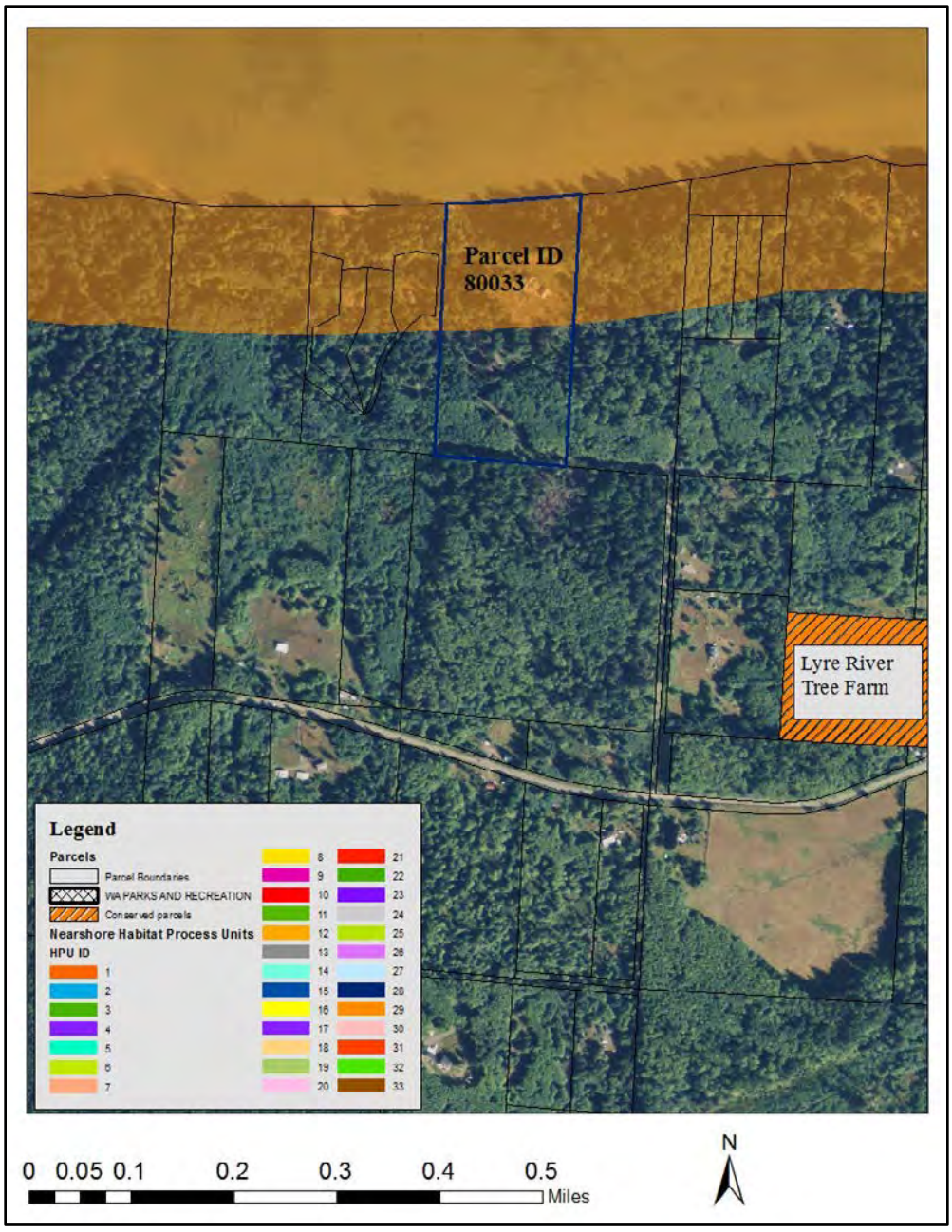
Parcel Priority	Priority 14
Parcel ID	1896
Parcel Size	29 acres
Habitat Process Unit(s)	21 (Pillar Pocket)
Shoreline Habitat Type(s)	Pocket beach and rocky ramp platform
Forage Fish Spawning in HPU?	None documented
Legal Description	Township 32N Range 11W Section 33
Percent of Parcel Classified as Habitat	99%
Assigned Habitat Value	Weighted Average=3.3
This parcel includes shoreline and uplands habitat. Highly intact habitat forming processes but no documented forage fish spawning.	



Parcel Priority	Priority 15
Parcel ID	796621
Parcel Size	16.9 acres
Habitat Process Unit(s)	29 (West Whiskey Creek)
Shoreline Habitat Type(s)	Bluff backed beach
Forage Fish Spawning in HPU?	Un-surveyed, unknown
Legal Description	Township 31N Range 9W Section 26
Percent of Parcel Classified as Habitat	100%
Assigned Habitat Value	3.75
This parcel includes shoreline and uplands habitat. No Forage fish spawning surveys have taken place near this parcel. Highly intact bluff backed beach.	



Parcel Priority	Priority 16
Parcel ID	80042
Parcel Size	19.6 acres
Habitat Process Unit(s)	29 (Harrison Beach)
Shoreline Habitat Type(s)	Bluff backed beach
Forage Fish Spawning in HPU?	Un-surveyed, unknown
Legal Description	Township 31N Range 9W Section 29
Percent of Parcel Classified as Habitat	55%
Assigned Habitat Value	4
This parcel includes shoreline and uplands habitat. Forage fish spawning has not been documented on this segment of shoreline but parcel is up-drift from documented forage fish spawning. Beach is mapped as primary transport reach.	



Parcel Priority	Priority 17
Parcel ID	80033
Parcel Size	21.1 acres
Habitat Process Unit(s)	29 (Harrison Beach)
Shoreline Habitat Type(s)	Bluff backed beach
Forage Fish Spawning in HPU?	Un-surveyed, unknown
Legal Description	Township 31N Range 9W Section 29
Percent of Parcel Classified as Habitat	49%
Assigned Habitat Value	4
This parcel includes shoreline and uplands habitat. Forage fish spawning has not been documented on this segment of shoreline but parcel is up-drift from documented forage fish spawning. Beach is mapped as primary transport reach.	

APPENDIX D: Freshwater and Estuary Prioritized Parcels

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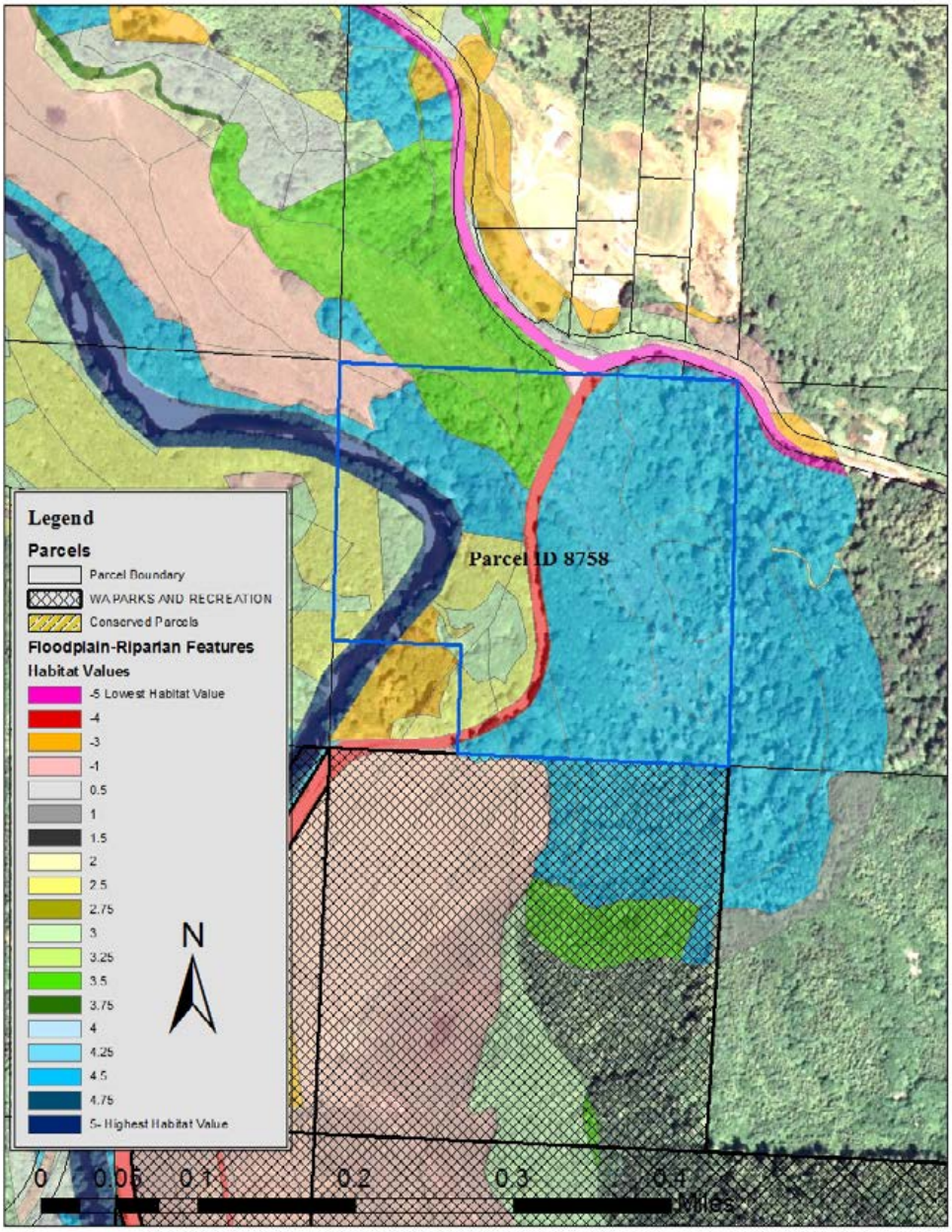
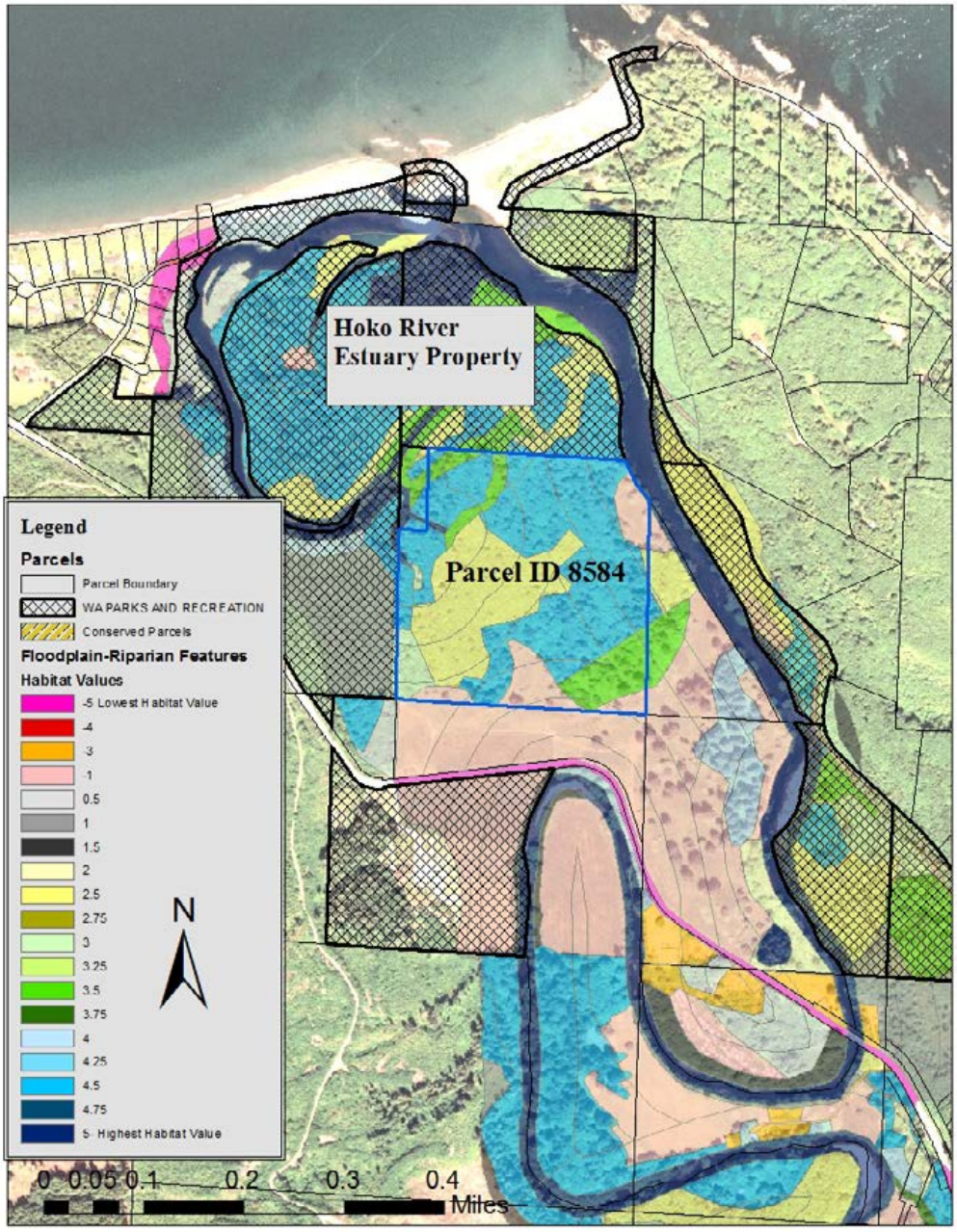
APPENDIX D: Freshwater and Estuary Prioritized Parcels

PLEASE READ THE FOLLOWING NOTE PRIOR TO VIEWING MAPS.

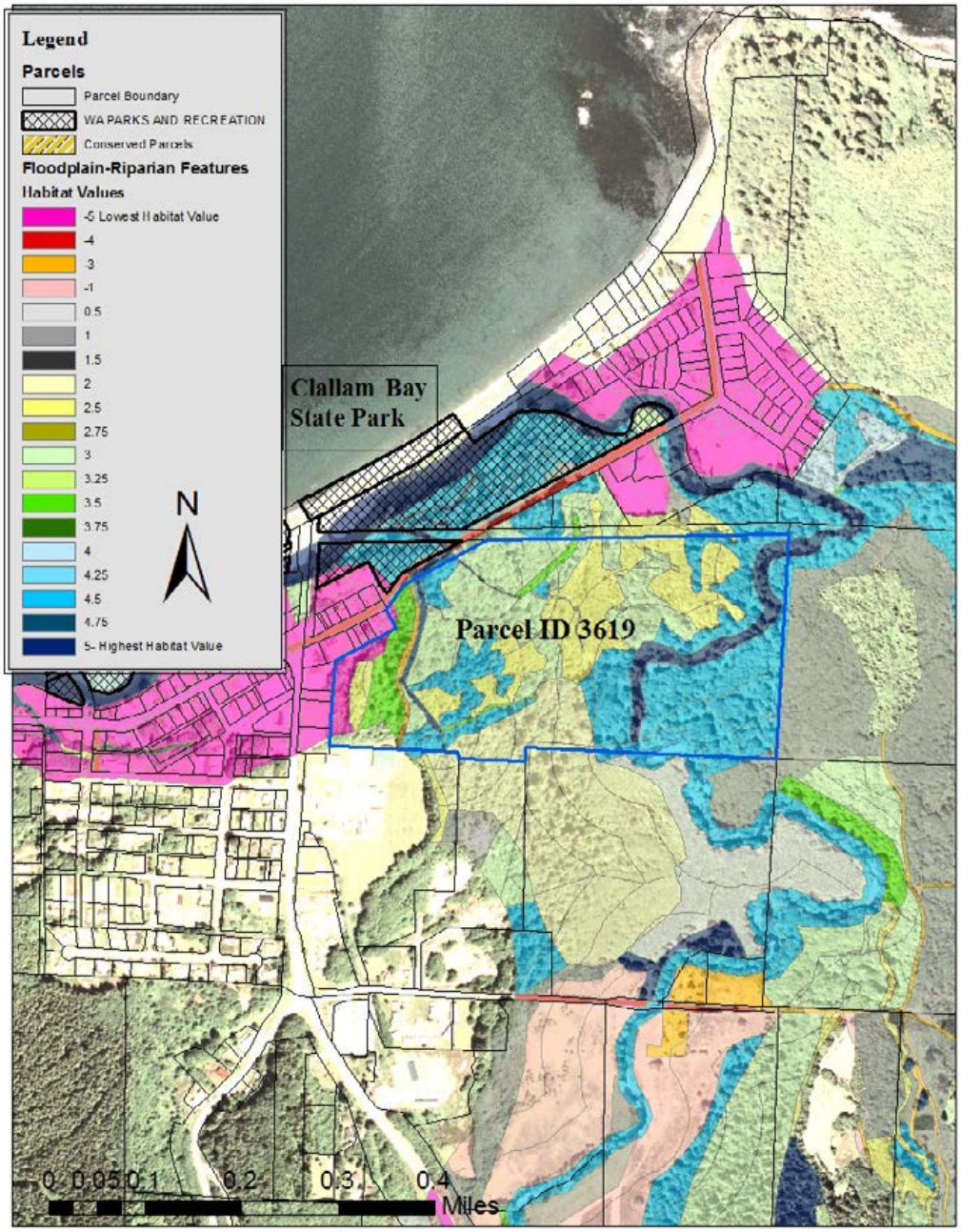
NOTE: each of the maps included in this appendix have certain features that should be understood prior to examing the maps. First, the parcel being described is outlined with a bright blue line around the perimeter of the parcel boundaries. The parcel ID is included within the boundaries of the parcel in black font. Parks and other conserved lands are denoted with cross-hatching (parks) and diagonal orage and black lines (other conserved lands). Where parks and conserved lands have names the names are displayed in gray text boxes.



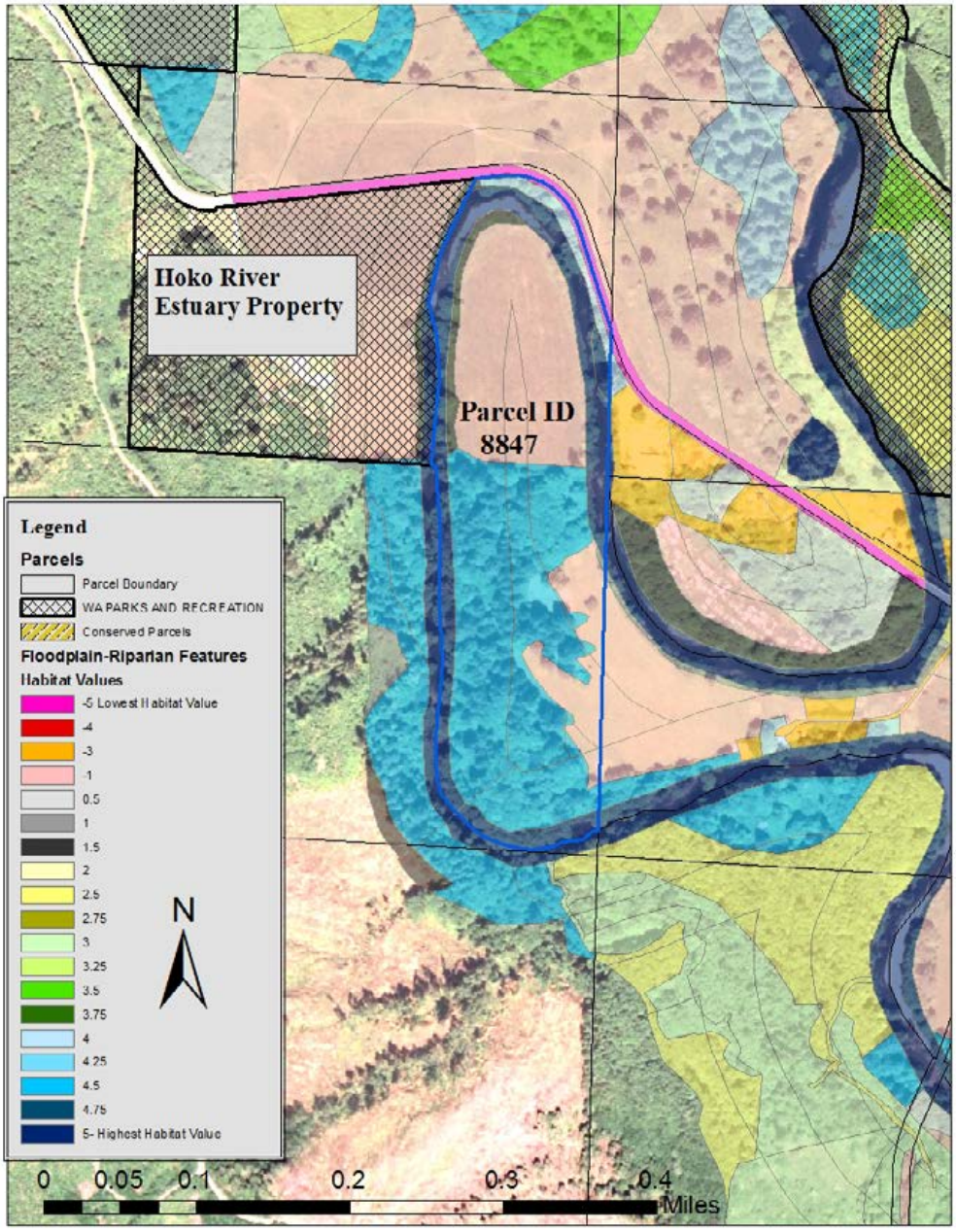
Parcel Priority	Priority 1
Parcel ID	8758
Parcel Size	36 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Seg1; Lower Hoko Wetland Complex
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, migration, and off-channel habitat
Legal Description	Township 32N Range13W Section 14
Percent of Parcel Classified as Habitat	100%
Weighted Habitat Value	FP-BIS Value = 4.56; Feature value=3.6
This parcel contains habitat that includes high fish use, high fish species diversity, and high habitat diversity. It shares a boundary with WA State Park land. It also includes one of the largest off-channel wetland habitats in the planning area.	



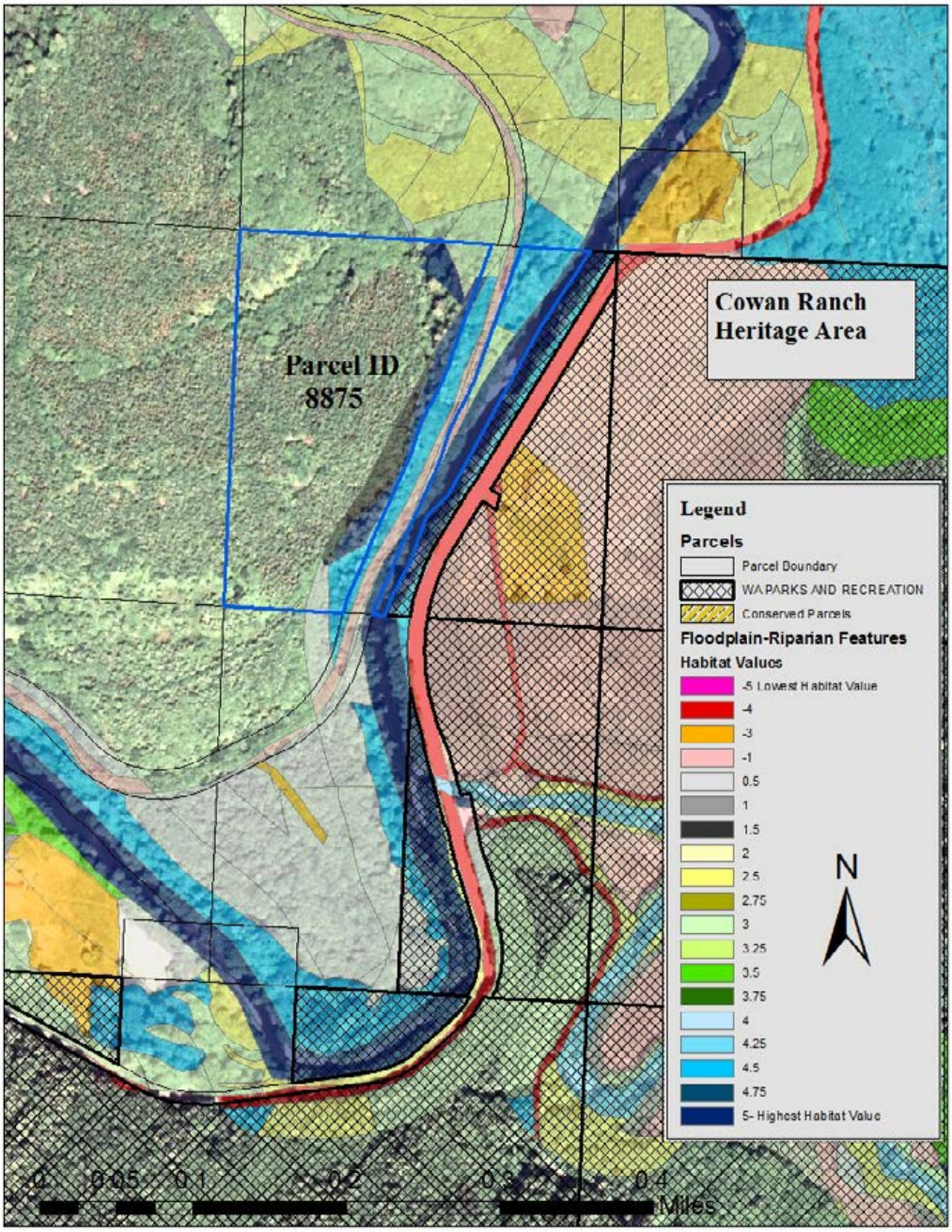
Parcel Priority	Priority 2
Parcel ID	8584
Parcel Size	38.7 acres
Watershed	Hoko River
Stream Segment(S)	Hoko Segment 0 (estuary)
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Estuary, rearing, migration, and off-channel habitat
Legal Description	Township 32N Range 13W Section 10
Percent of Parcel Classified as Habitat	100%
Weighted Habitat Value	FP-BIS Value =5; Feature value= 3.3
This parcel contains habitat that includes high fish use, high fish species diversity, and important estuarine and floodplain habitat. It shares a boundary with WA State Park land. It also includes a highly active floodplain, off-channel estuarine and freshwater wetlands.	



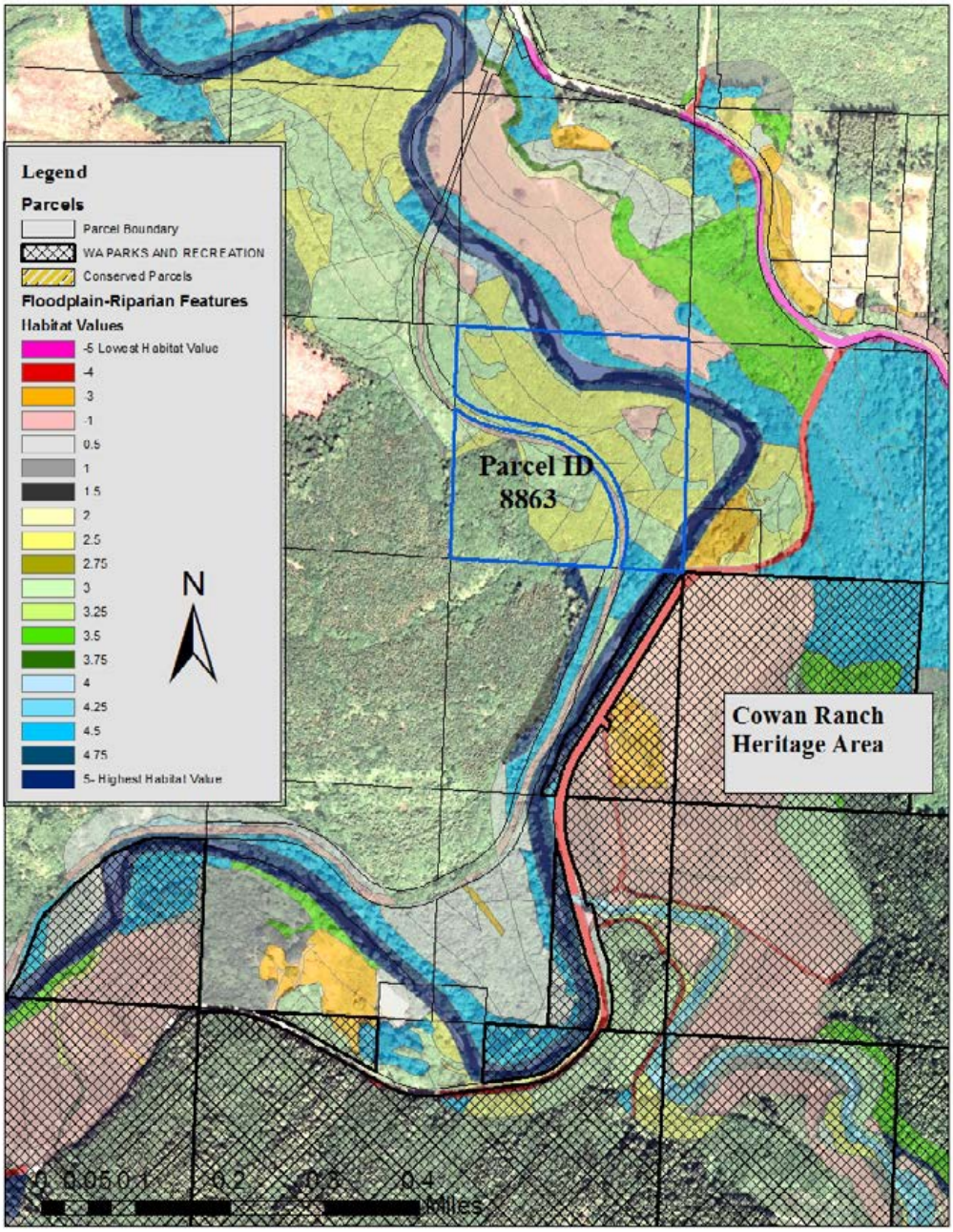
Parcel Priority	Priority 3
Parcel ID	3619
Parcel Size	60.2 acres
Watershed	Clallam River
Stream Segment(S)	Clallam River Segment 0 (estuary)
Salmonid Species Present	Coho, chum, steelhead, and cutthroat; infrequent Chinook
Habitat Types	Estuary, rearing, migration, and off-channel habitat
Legal Description	Township 32N Range 12W Section 21
Percent of Parcel Classified as Habitat	99%
Weighted Habitat Value	FP-BIS Value = 5; Feature value= 3.3
This parcel contains habitat that includes high fish use, moderate high fish species diversity, and high habitat diversity. It is adjacent to WA State Park land. It also includes a very highly active floodplain/floodway, excellent estuarine channels and wetlands, as well as diverse freshwater off-channel wetland habitats.	



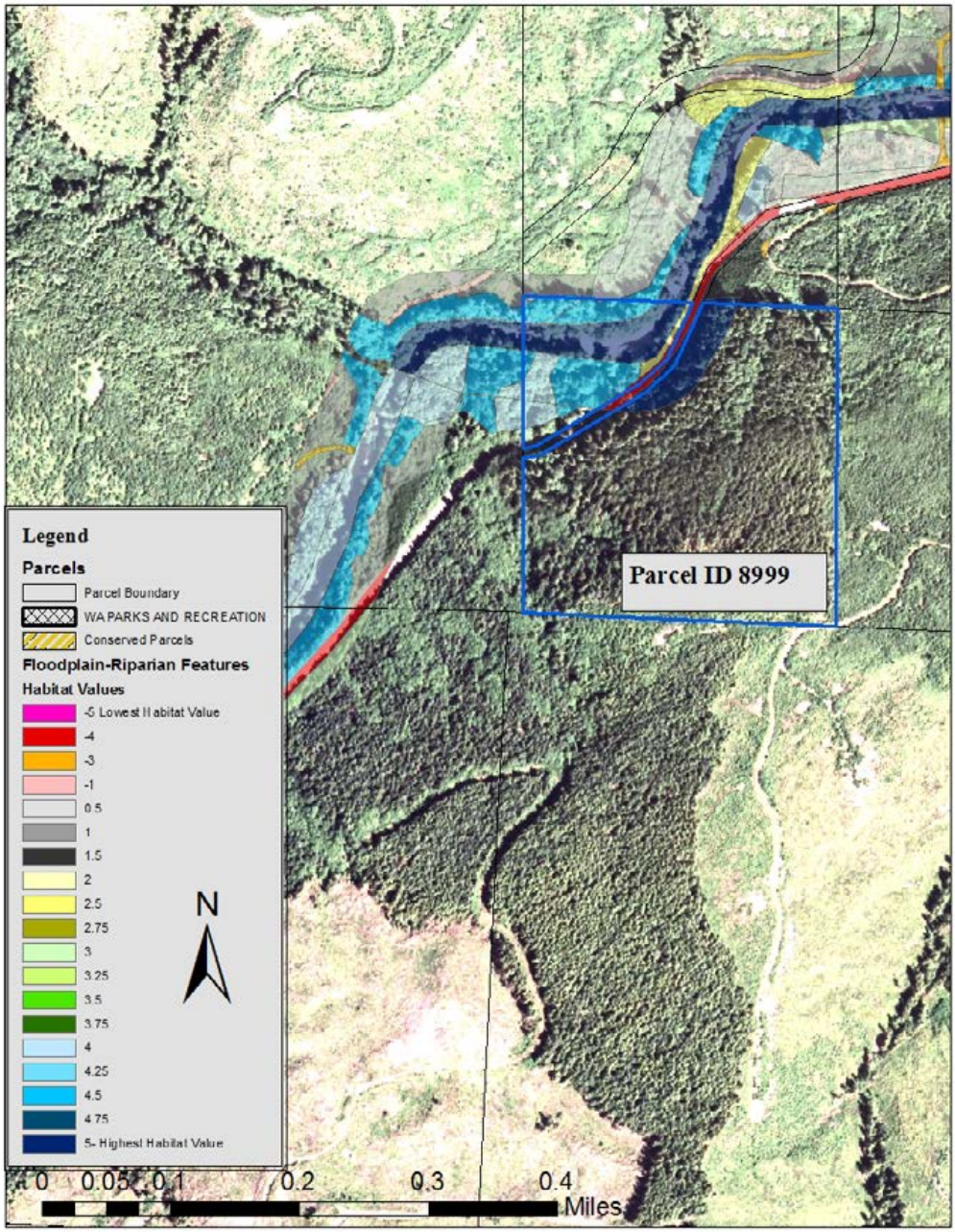
Parcel Priority	Priority 4
Parcel ID	8847
Parcel Size	28.8 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segments 0 and 1
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Estuary, migration, rearing, and some spawing
Legal Description	Township 32N Range 13W Section 15
Percent of Parcel Classified as Habitat	100%
Weighted Habitat Value	FP-BIS Value 5=; Feature value= 2.6
This parcel contains habitat that includes high fish use and high fish species diversity. It shares a boundary with WA State Park land. It also includes a highly active floodplain and one of few stands of mature forest in the estuary/freshwater interface.	



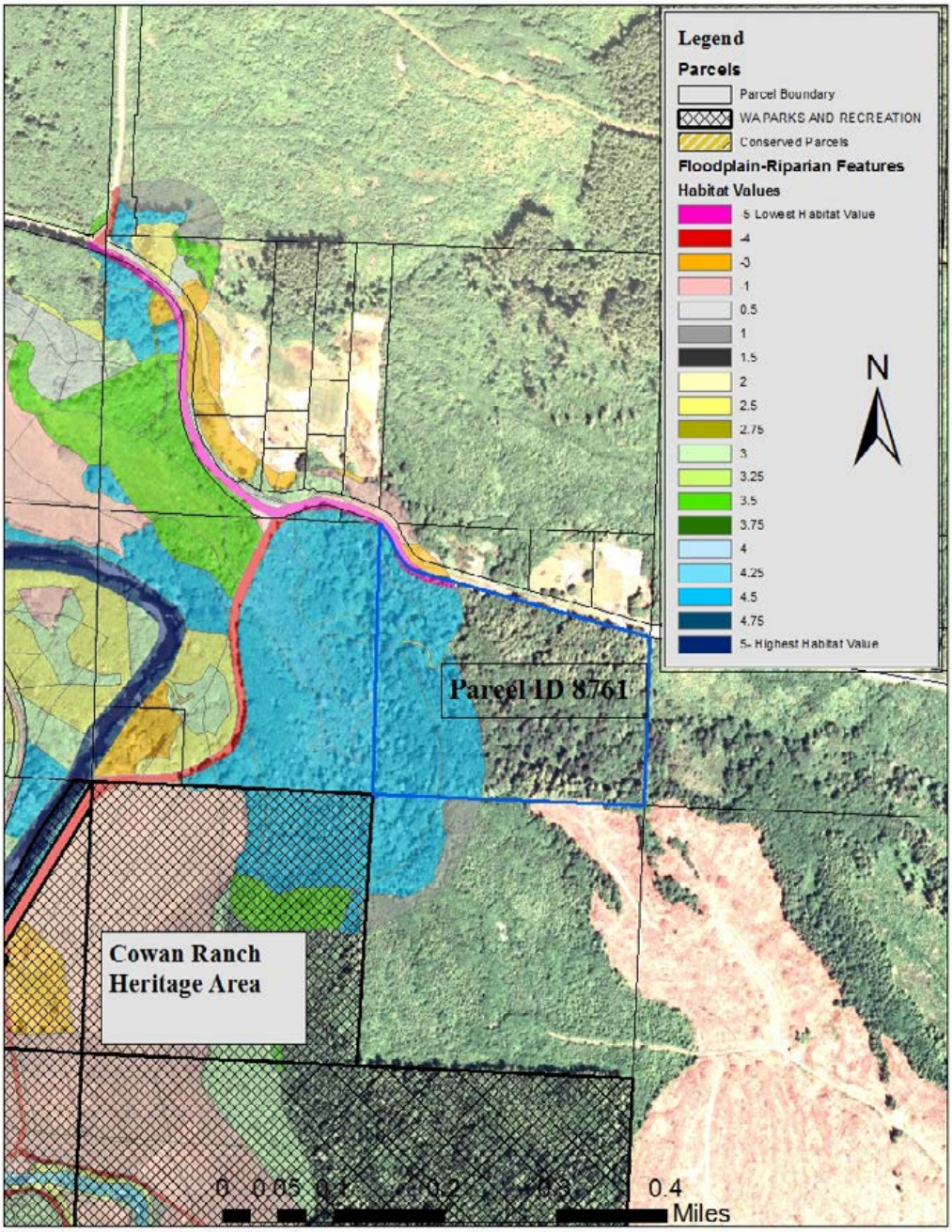
Parcel Priority	Priority 5
Parcel ID	8875
Parcel Size	22.5acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 1
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 32N Range 13W Section 22
Percent of Parcel Classified as Habitat	29%
Weighted Habitat Value	FP-BIS Value =5; Feature value= 4
This parcel contains habitat that includes high fish use and high fish species diversity. It shares a boundary with WA State Park land. The parcel includes large river mainstem habitat and mature riparian forest.	



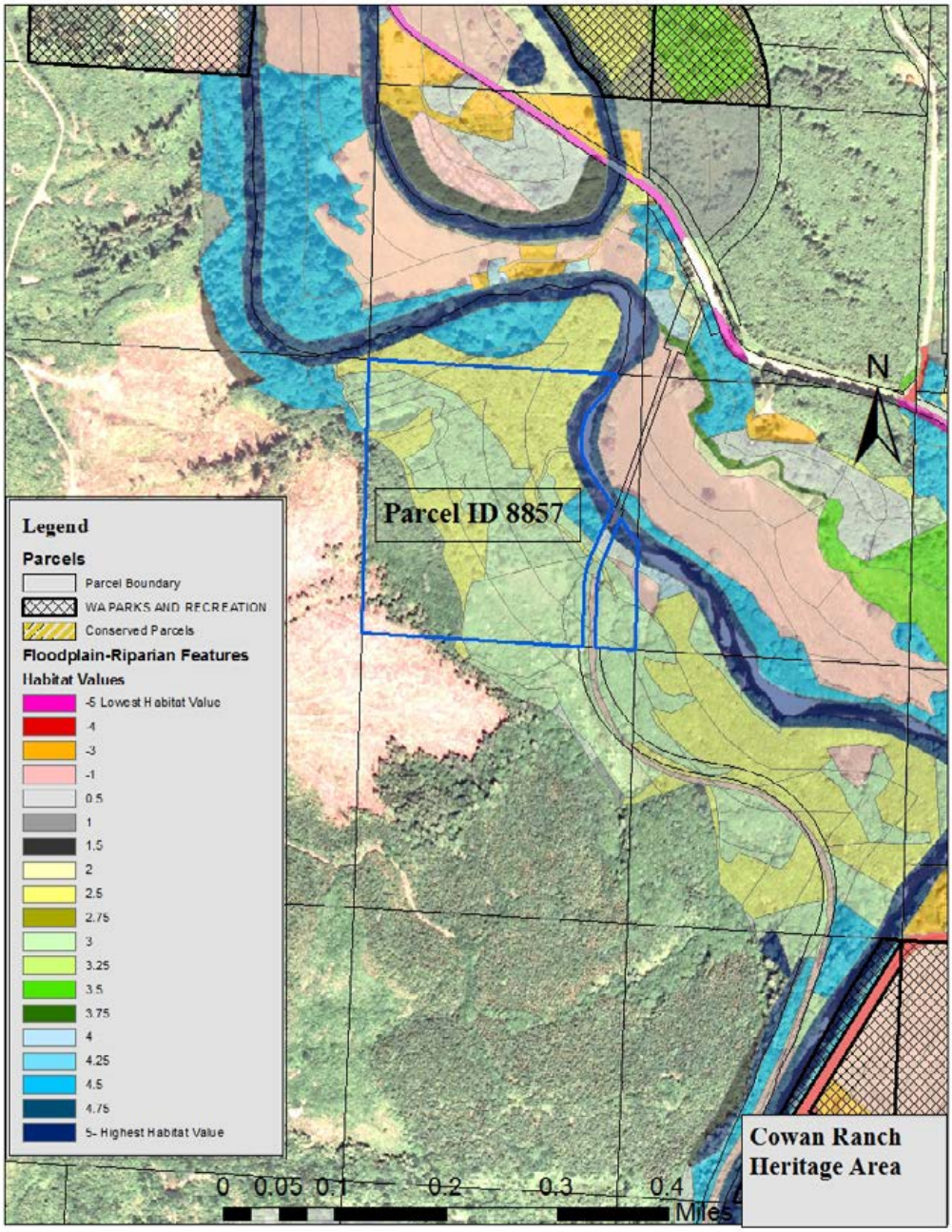
Parcel Priority	Priority 6
Parcel ID	8863
Parcel Size	36.8 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 1
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, migration, rearing, and off-channel habitat
Legal Description	Township 32N Range 13W Section 15
Percent of Parcel Classified as Habitat	82%
Weighted Habitat Value	FP-BIS Value = 5; Feature value= 2.7
This parcel contains habitat that includes high fish use, high fish species diversity, and high habitat diversity. It is adjacent to WA State Park land. It also includes extensive wetland habitat. Some of this wetland is known off-channel habitat, further field review is needed to determine to the total extent of off-channel habitat.	



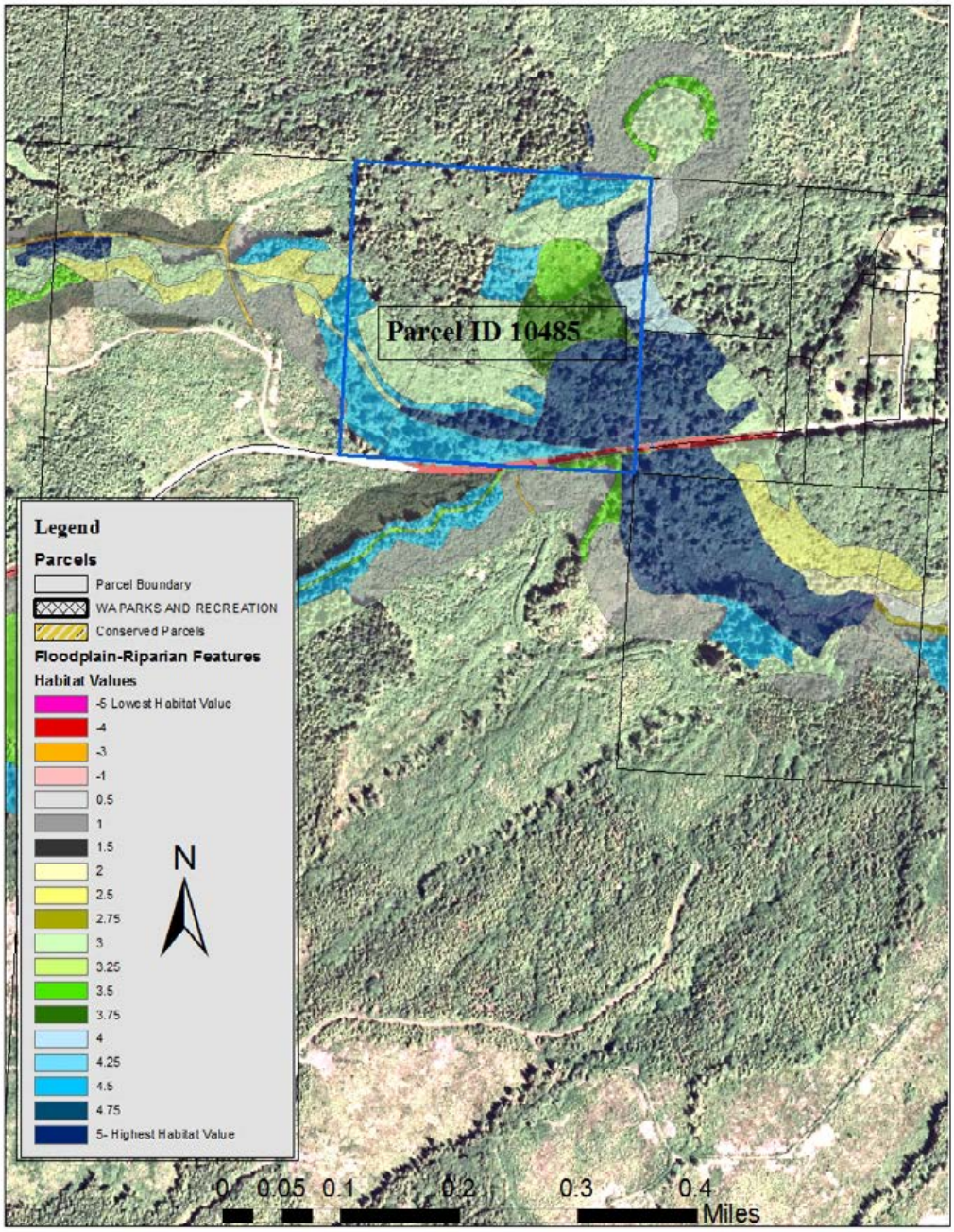
Parcel Priority	Priority 7
Parcel ID	8999
Parcel Size	37.6 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 3
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 32N Range 13W Section 28
Percent of Parcel Classified as Habitat	20%
Weighted Habitat Value	FP-BIS Value = 5; Feature value= 4.4
This parcel contains habitat that includes high fish use and high fish species diversity. The parcel includes large river mainstem habitat and mature riparian/floodplain forest. It includes some of the highest use Chinook spawning habitat in the planning area.	



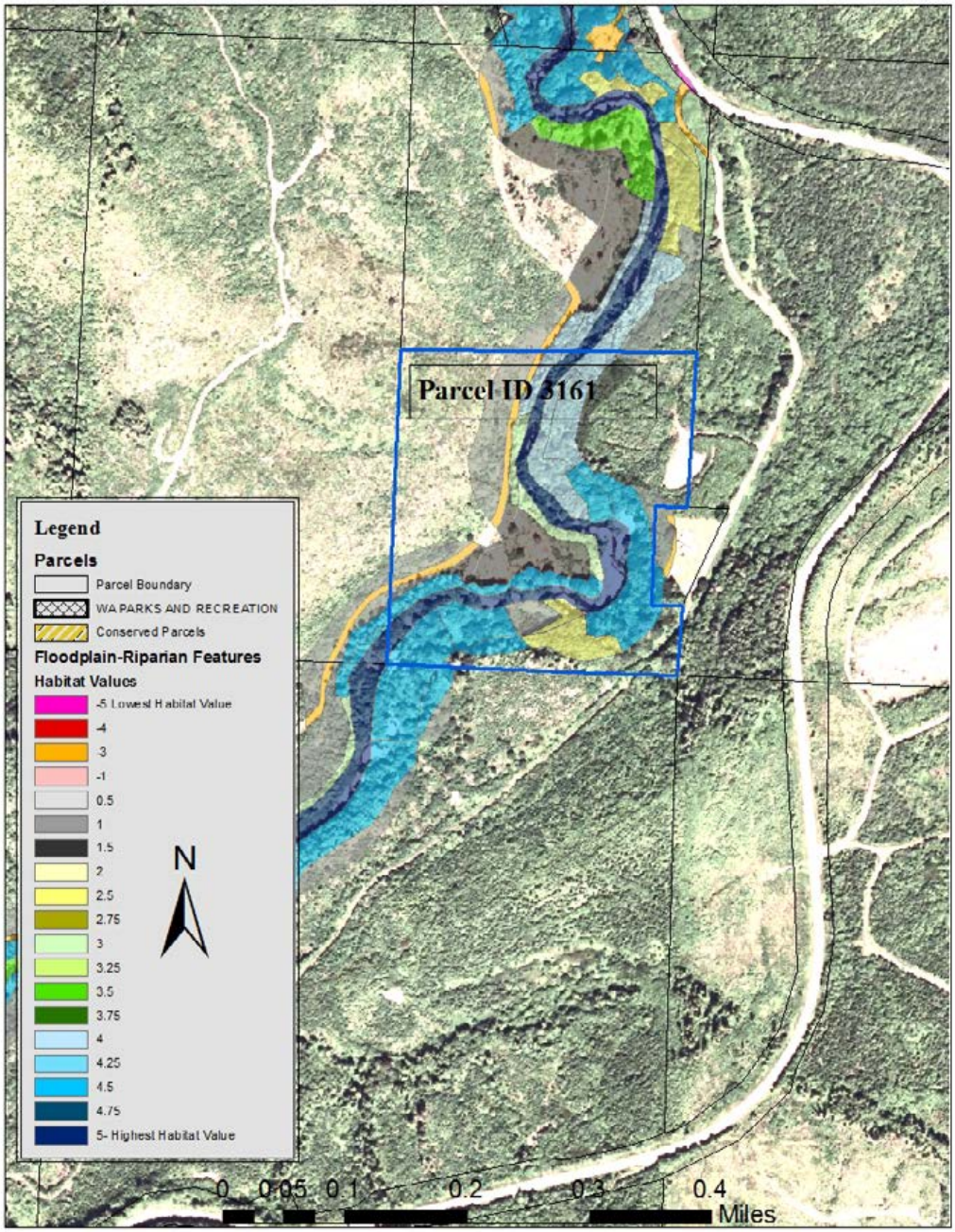
Parcel Priority	Priority 8
Parcel ID	8761
Parcel Size	28.8 acres
Watershed	Hoko River
Stream Segment(S)	Lower Hoko Wetland Complex
Salmonid Species Present	Primarily coho, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and off-channel habitat
Legal Description	Township 32N Range 13W Section 11
Percent of Parcel Classified as Habitat	39%
Weighted Habitat Value	FP-BIS Value = 4.5; Feature value= 4.3
This parcel contains habitat that includes high fish use and moderately high habitat diversity. It shares a common corner with WA State Park land. It also includes one of the largest off-channel wetland habitats in the planning area.	



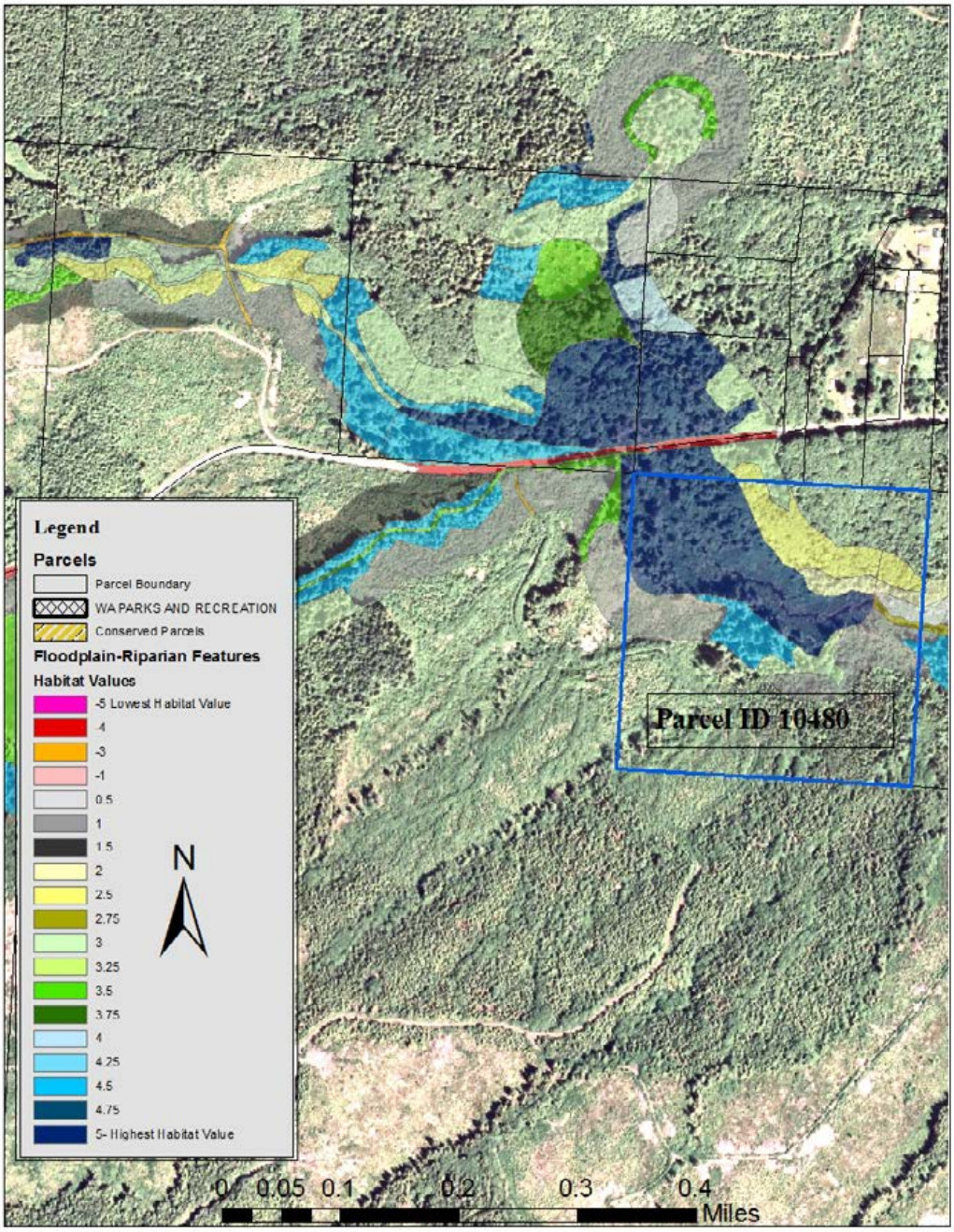
Parcel Priority	Priority 9
Parcel ID	8857
Parcel Size	34.5 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 1
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, migration, rearing, and off-channel habitat
Legal Description	Township 32N Range 13W Section 15
Percent of Parcel Classified as Habitat	80%
Weighted Habitat Value	FP-BIS Value = 5; Feature value= 2.9
This parcel contains habitat that includes high fish use, high fish species diversity, and high habitat diversity. It is near WA State Park land. This parcel includes extensive wetland habitat, some of this wetland is known off-channel habitat, further field review is needed to determine the total extent of off-channel habitat. This would potentially increase the parcels priority.	



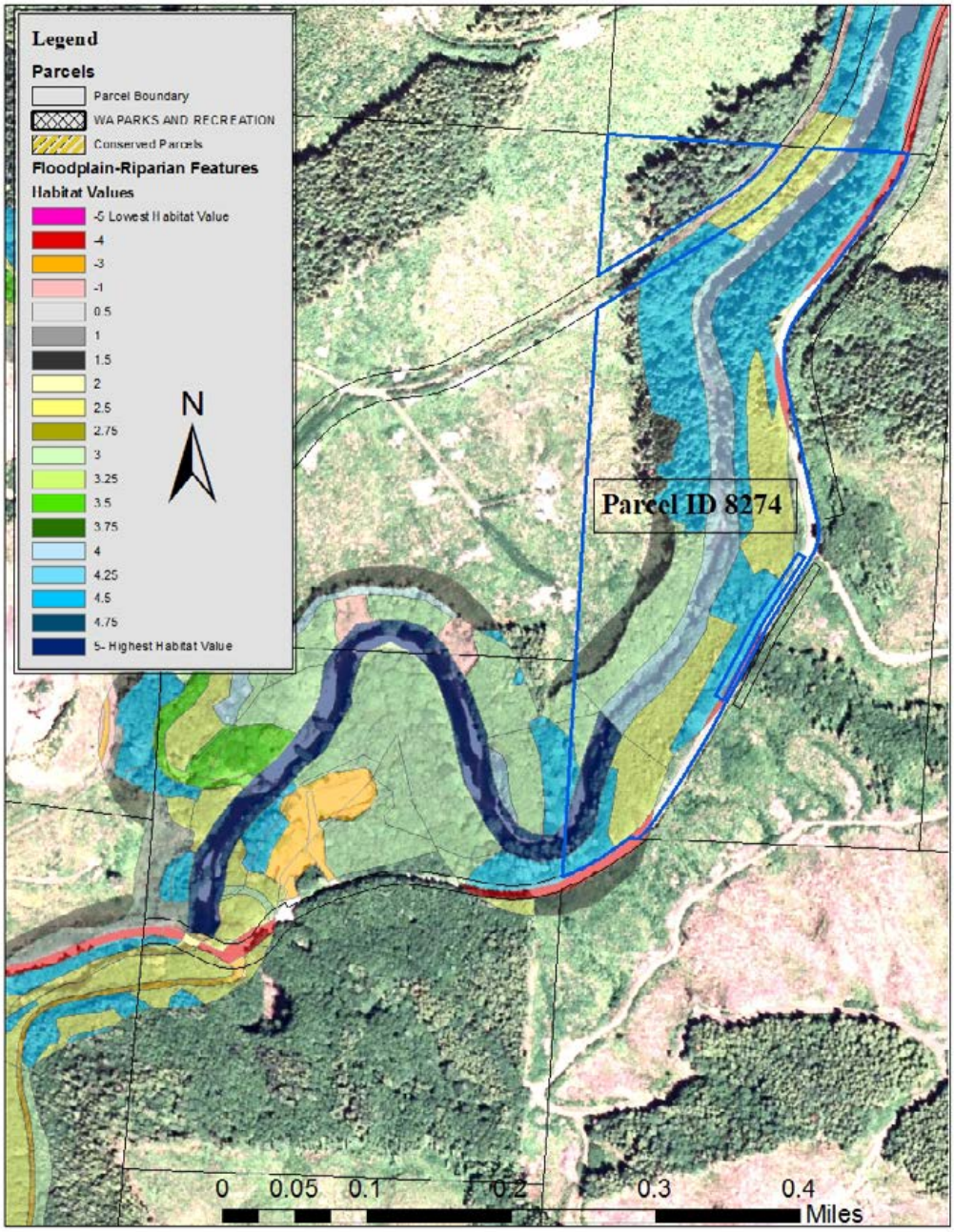
Parcel Priority	Priority 10
Parcel ID	10485
Parcel Size	40 acres
Watershed	Hoko River
Stream Segment(S)	Johnson Creek
Salmonid Species Present	Coho, steelhead, and cutthroat
Habitat Types	Spawning, migration, rearing, and off-channel habitat
Legal Description	Township 31N Range 14W Section 23
Percent of Parcel Classified as Habitat	71%
Weighted Habitat Value	FP-BIS Value = 4.0; Feature value= 3.8
This parcel includes very high fish use. The Johnson Creek wetland complex contains in excellent mix of spawning and off-channel habitat. This parcel includes mostly off-channel habitat and is directly downstream from two high density coho spawning segments.	



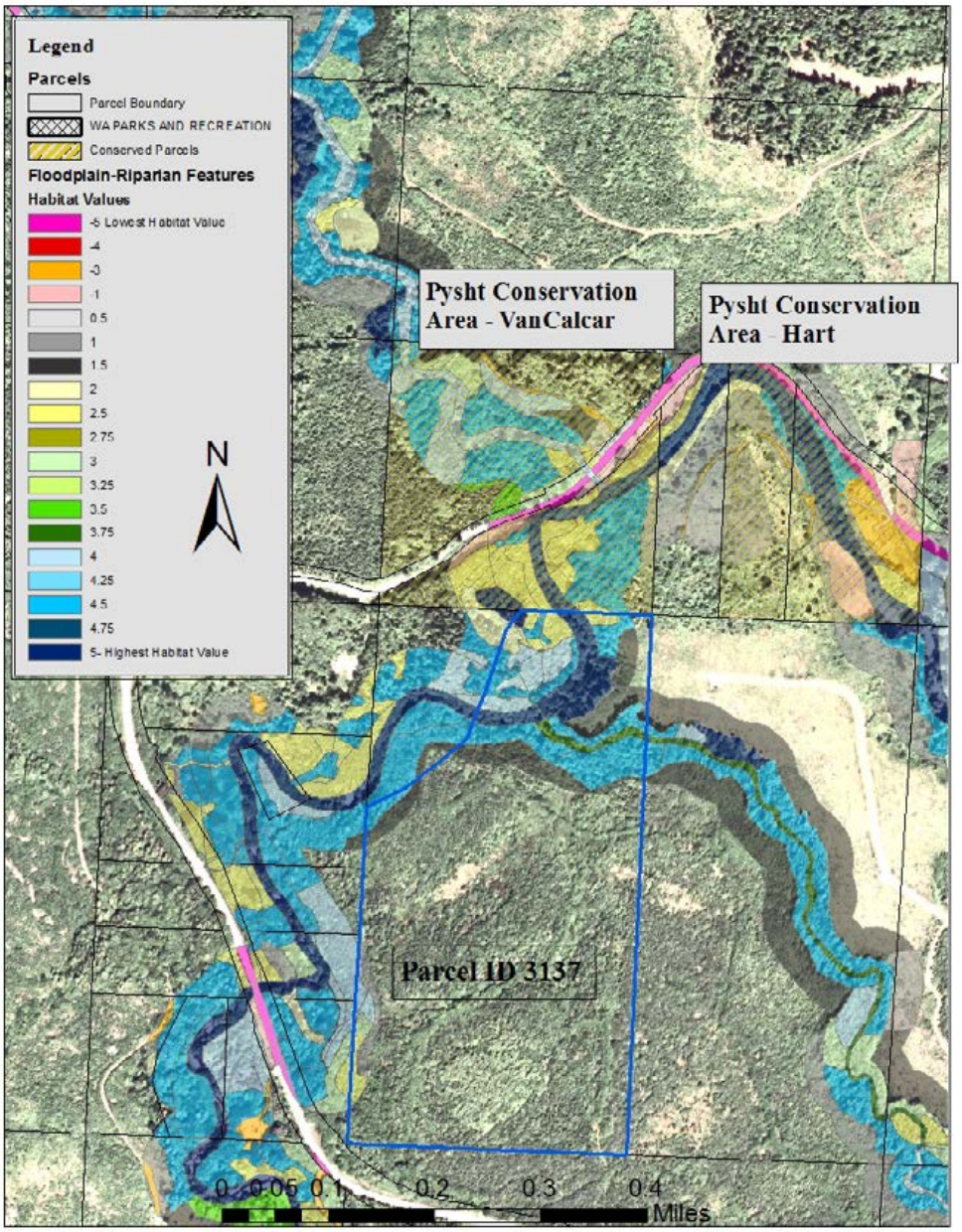
Parcel Priority	Priority 11
Parcel ID	3161
Parcel Size	38.7 acres
Watershed	Pysht River
Stream Segment(S)	Pysht River Segment 5
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, migration, and rearing
Legal Description	Township 31N Range 12W Section 23
Percent of Parcel Classified as Habitat	62%
Weighted Habitat Value	FP-BIS Value = 5; Feature value= 3.1
This parcel contains habitat that includes high fish use and high fish species diversity. The parcel includes large river mainstem habitat and mature riparian/floodplain forest.	



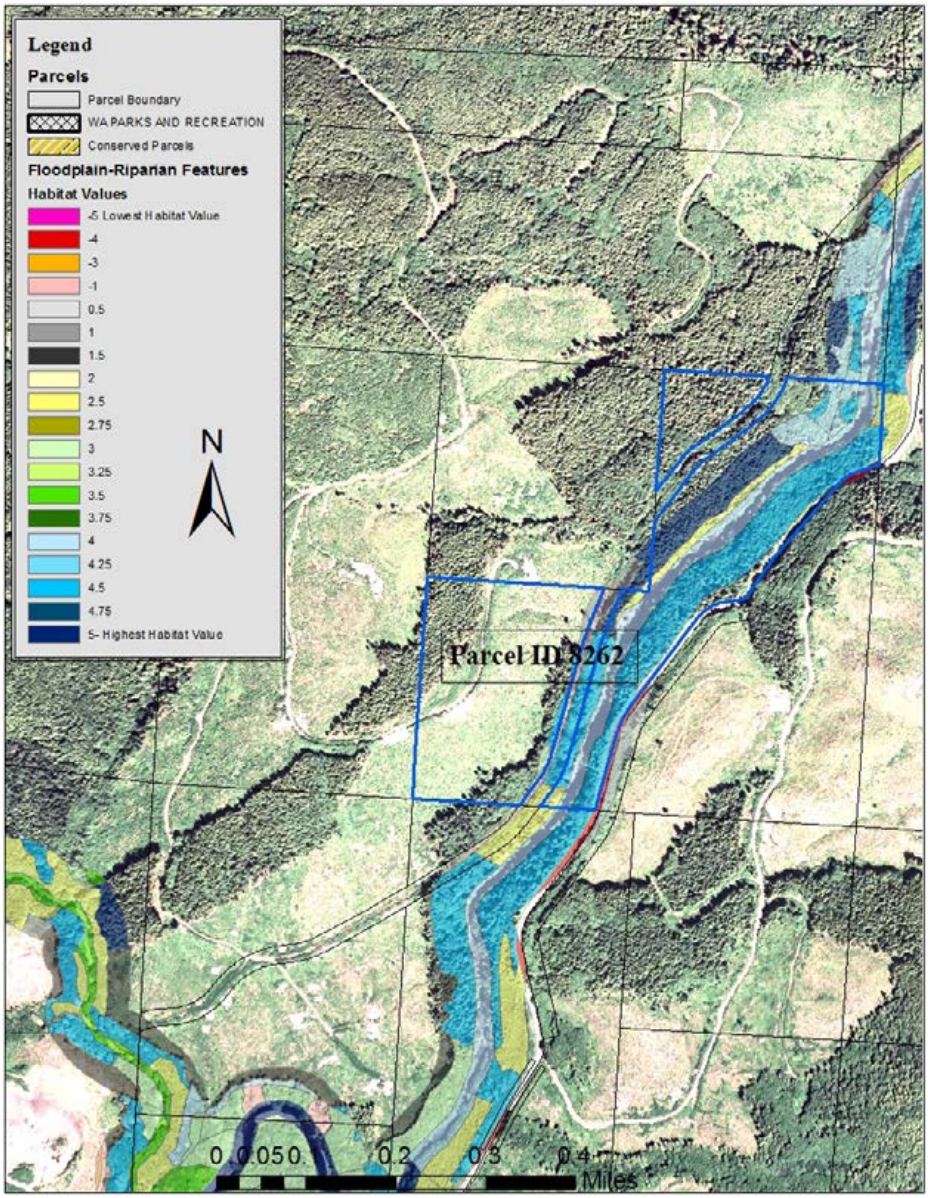
Parcel Priority	Priority 12
Parcel ID	10480
Parcel Size	40 acres
Watershed	Hoko River
Stream Segment(S)	Johnson Creek Segment 2 and 3
Salmonid Species Present	Coho, steelhead, and cutthroat
Habitat Types	Spawning, migration, rearing, and off-channel habitat
Legal Description	Township 31N Range 14W Section 23
Percent of Parcel Classified as Habitat	53%
Weighted Habitat Value	FP-BIS Value = 4.8; Feature value= 3.4
This parcel includes very high fish use. The Johnson Creek wetland complex contains in excellent mix of spawning and off-channel habitat. This parcel includes mostly off-channel habitat (segment 3), segment 2 supports spawning.	



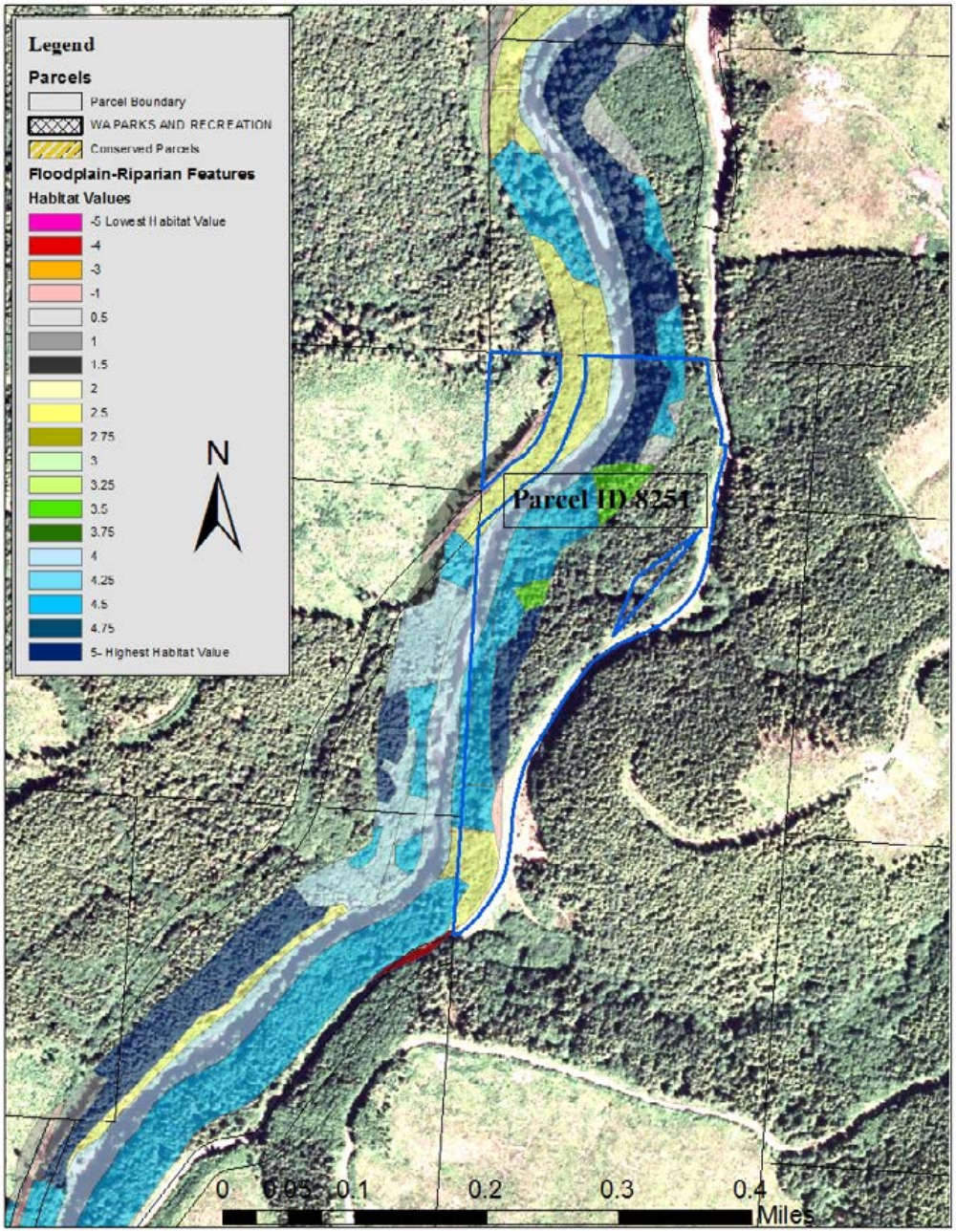
Parcel Priority	Priority 13
Parcel ID	8274
Parcel Size	40.7 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 4 and 5
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, migration, and rearing
Legal Description	Township 31N Range 13W Section 7
Percent of Parcel Classified as Habitat	71%
Weighted Habitat Value	FP-BIS Value = 4.1; Feature value= 3.5
This parcel contains habitat that includes high fish use and high fish species diversity. The parcel includes large river mainstem habitat and mature riparian/floodplain forest.	



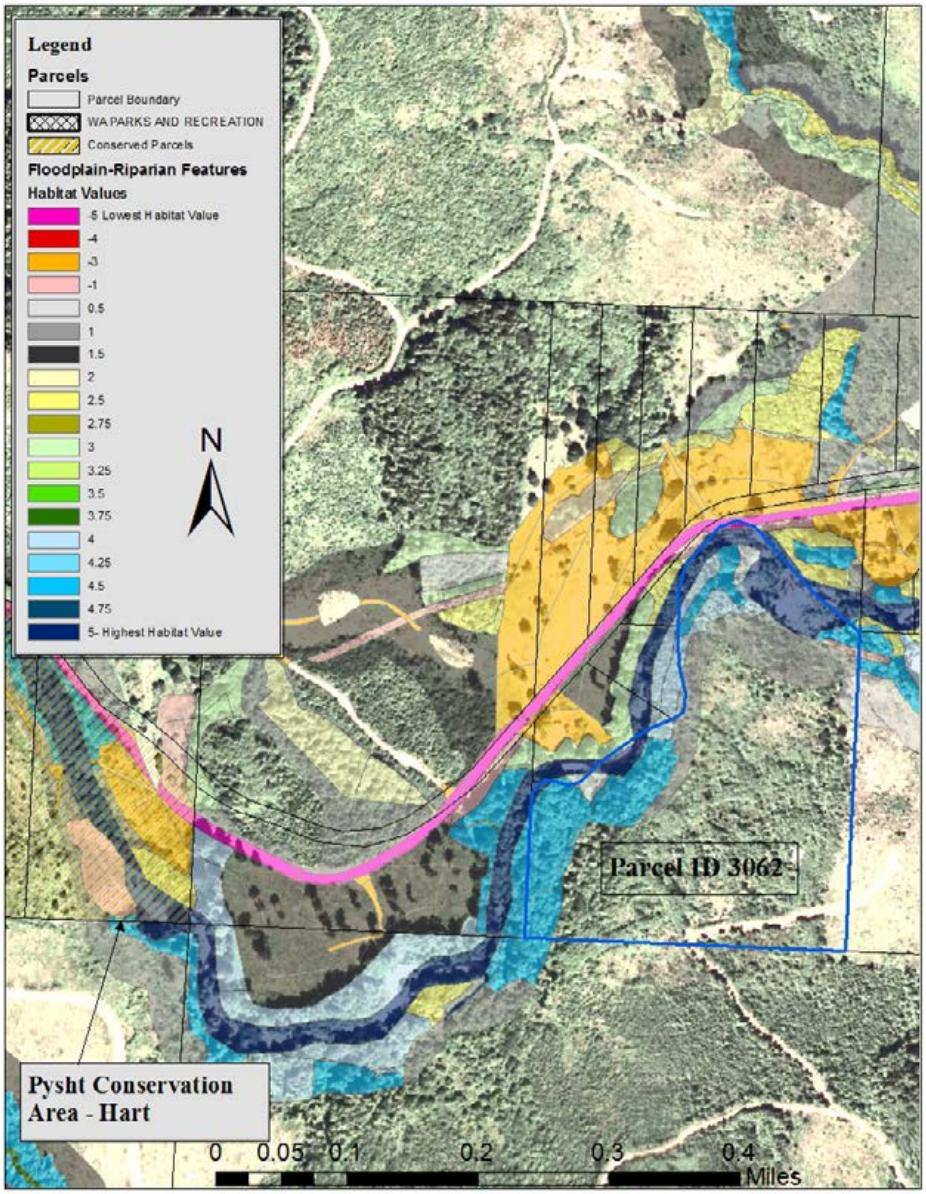
Parcel Priority	Priority 14
Parcel ID	3137
Parcel Size	74acres
Watershed	Pysht River
Stream Segment(S)	Pysht River Segment 4 and 5; Needham Creek Segment 1
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, migration, and rearing
Legal Description	Township 31N Range 12W Section 23
Percent of Parcel Classified as Habitat	24%
Weighted Habitat Value	FP-BIS Value =4.7; Feature value= 3.5
This parcel contains habitat that includes high fish use and high fish species diversity. The parcel includes large river mainstem habitat and mature riparian/floodplain forest. In addition this parcel includes tributary spawning, rearing, and migration habitat. The parcel shares a common boundary with the Pysht Conservation Area-VanCalcar property.	



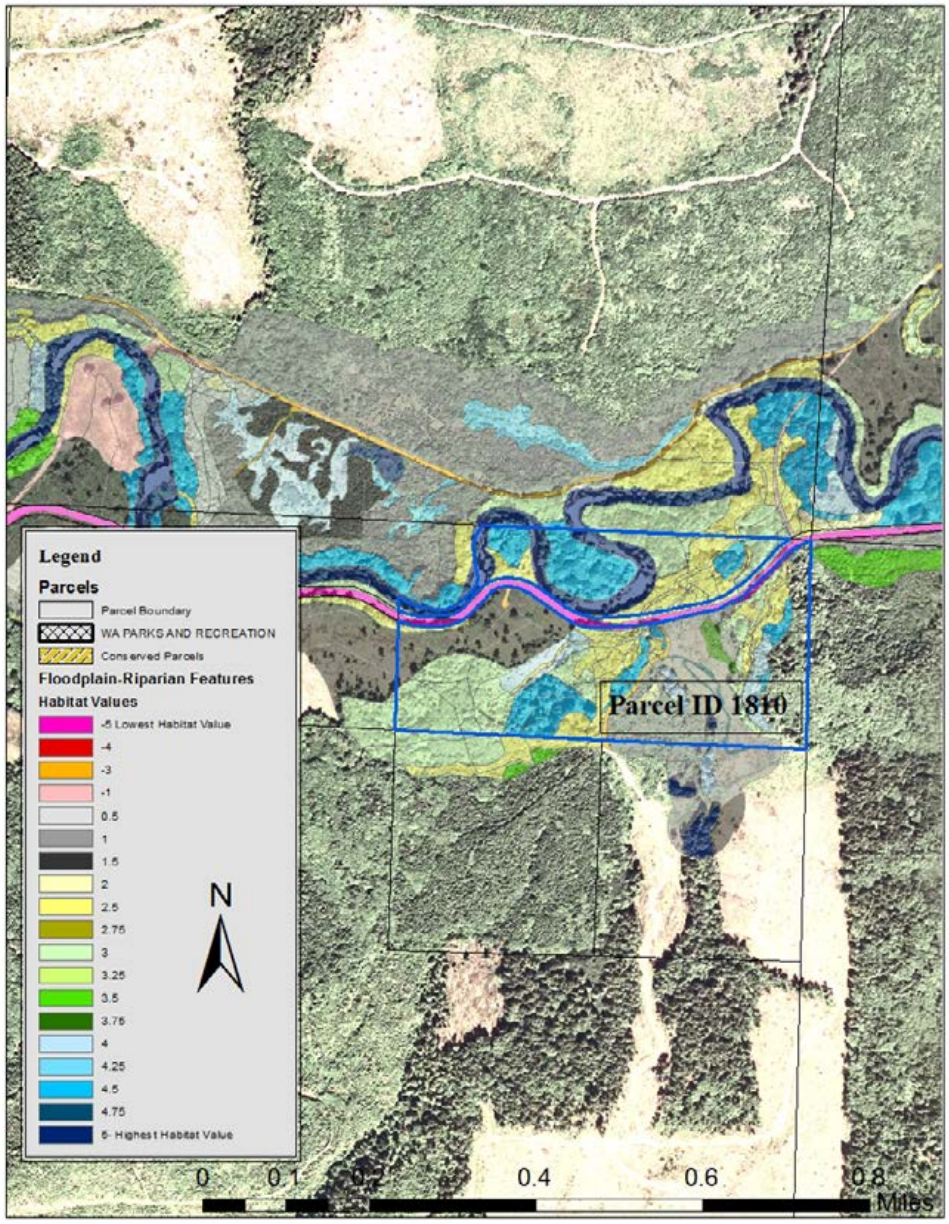
Parcel Priority	Priority 15
Parcel ID	8262
Parcel Size	64.6 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 4
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, migration, and rearing
Legal Description	Township 31N Range 13W Section 6
Percent of Parcel Classified as Habitat	45%
Weighted Habitat Value	FP-BIS Value =4.0; Feature value= 4.1
This parcel contains habitat that includes high fish use and high fish species diversity. The parcel includes large river mainstem habitat and mature riparian/floodplain forest.	



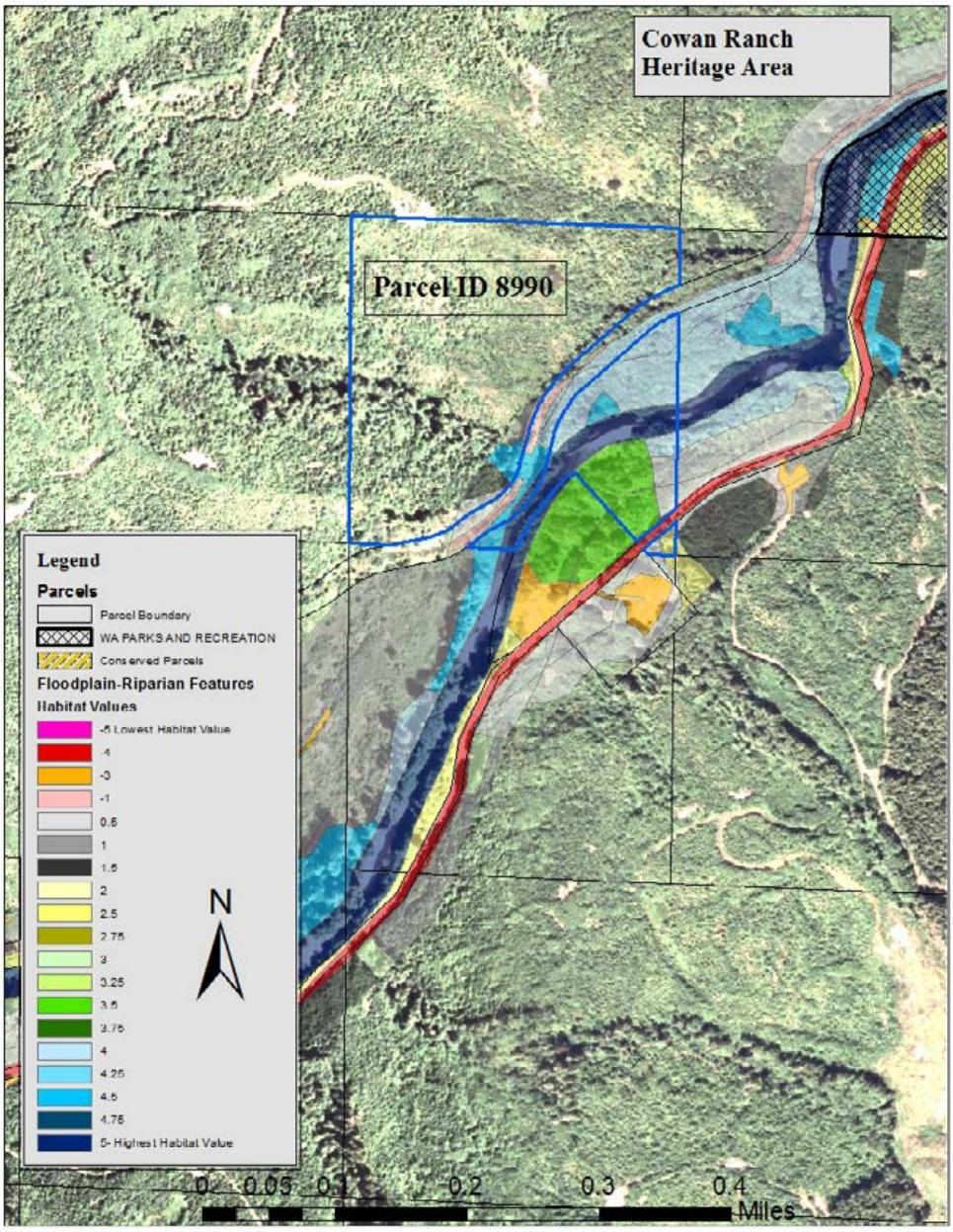
Parcel Priority	Priority 16
Parcel ID	8251
Parcel Size	28.4 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 4
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, migration, and rearing
Legal Description	Township 31N Range 13W Section 5
Percent of Parcel Classified as Habitat	52%
Weighted Habitat Value	FP-BIS Value = 4.0; Feature value= 3.8
This parcel contains habitat that includes high fish use and high fish species diversity. The parcel includes large river mainstem habitat and mature riparian/floodplain forest.	



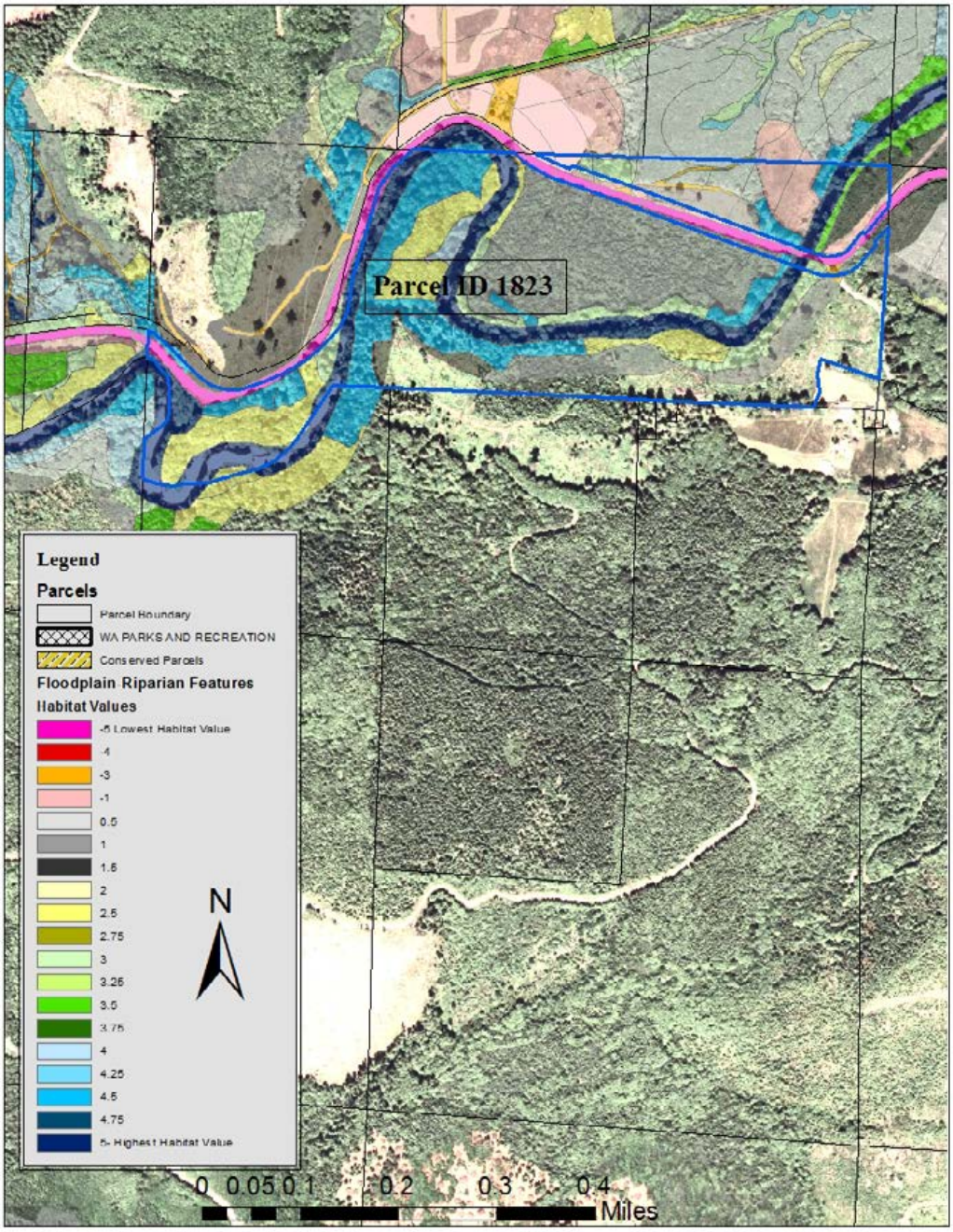
Parcel Priority	Priority 17
Parcel ID	3062
Parcel Size	35.3 acres
Watershed	Pysht River
Stream Segment(S)	Pysht River Segment 3
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, migration, and rearing
Legal Description	Township 31N Range 12W Section 13
Percent of Parcel Classified as Habitat	53%
Weighted Habitat Value	FP-BIS Value = 5; Feature value= 3.0
This parcel contains habitat that includes high fish use and high fish species diversity. The parcel includes large river mainstem habitat and mature riparian/floodplain forest. The floodplain here is highly active. This parcel includes one of the largest channel spanning log jams in the planning area.	



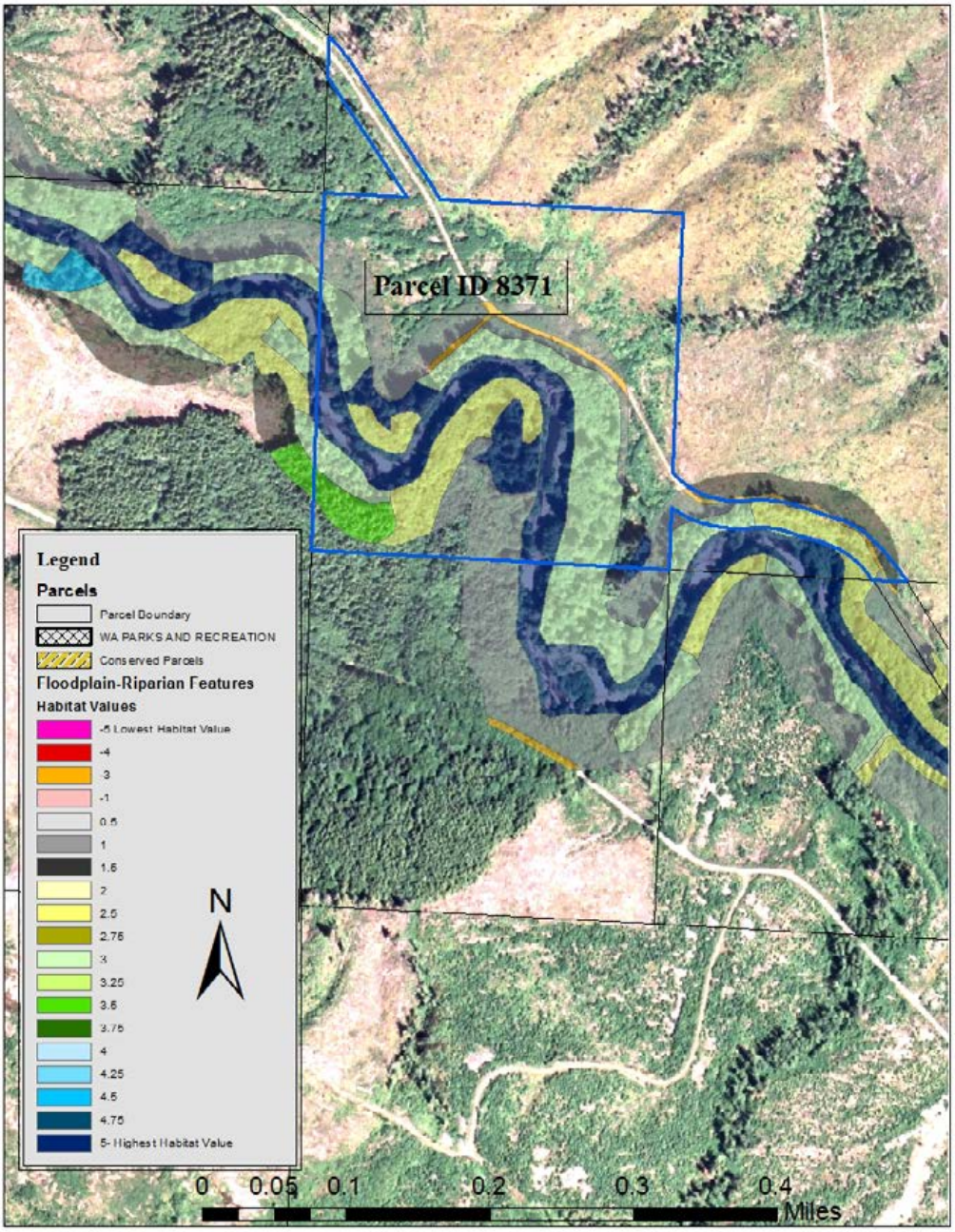
Parcel Priority	Priority 18
Parcel ID	1810
Parcel Size	69.2 acres
Watershed	Pysht River
Stream Segment(S)	Pysht River Segment 2; Razz Creek Complex
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, migration, rearing, and off-channel habitat
Legal Description	Township 31N Range 11W Section 17
Percent of Parcel Classified as Habitat	92%
Weighted Habitat Value	FP-BIS Value = 4.3; Feature value= 2.8
This parcel contains habitat that includes high fish use, high fish species diversity, and high habitat diversity. It also includes one of the most complex off-channel wetland habitats in the planning area.	



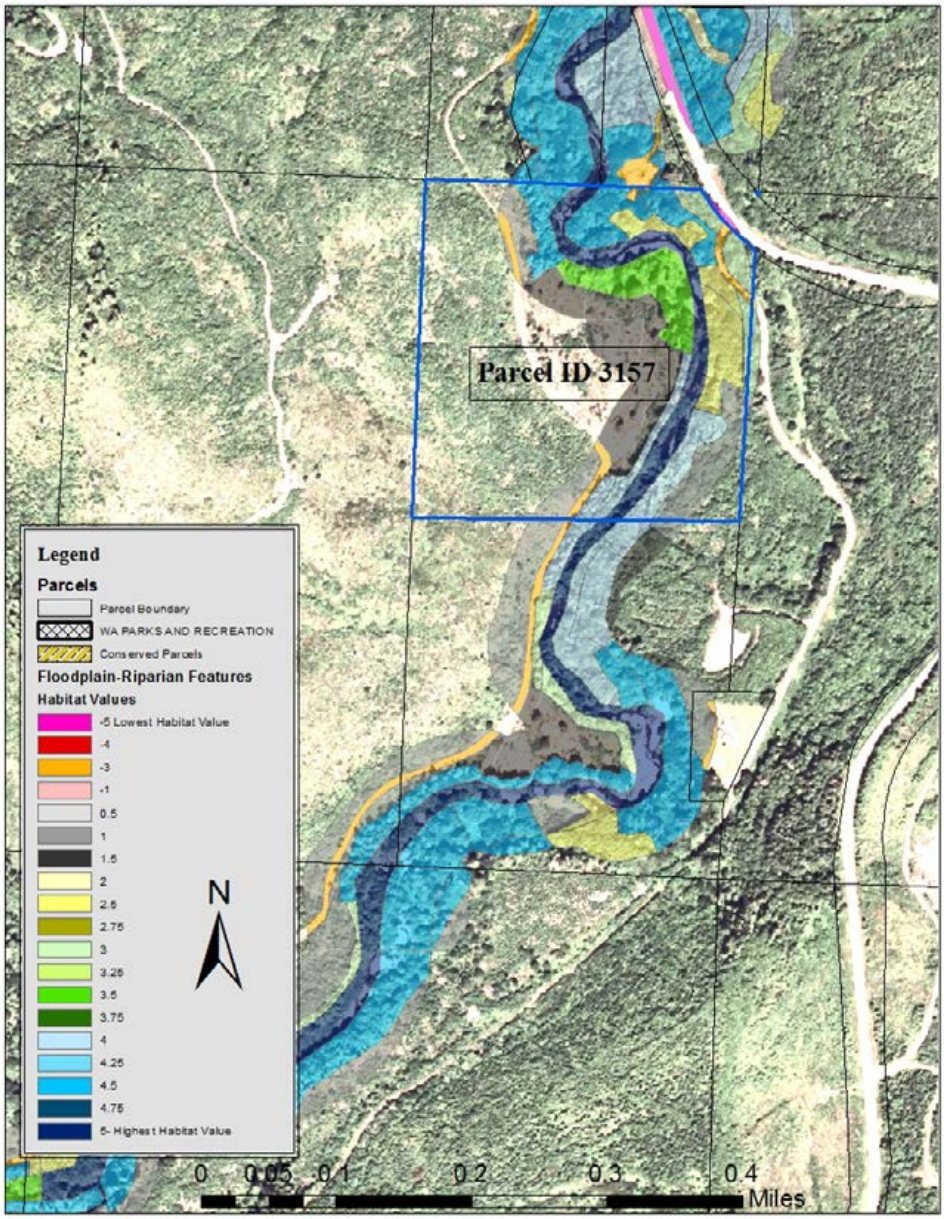
Parcel Priority	Priority 19
Parcel ID	8990
Parcel Size	33.6 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 3
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, migration, and rearing
Legal Description	Township 32N Range 13W Section 28
Percent of Parcel Classified as Habitat	26%
Weighted Habitat Value	FP-BIS Value = 5; Feature value= 3.6
This parcel contains habitat that includes high fish use and high fish species diversity. The parcel includes large river mainstem habitat and mature riparian/floodplain forest.	



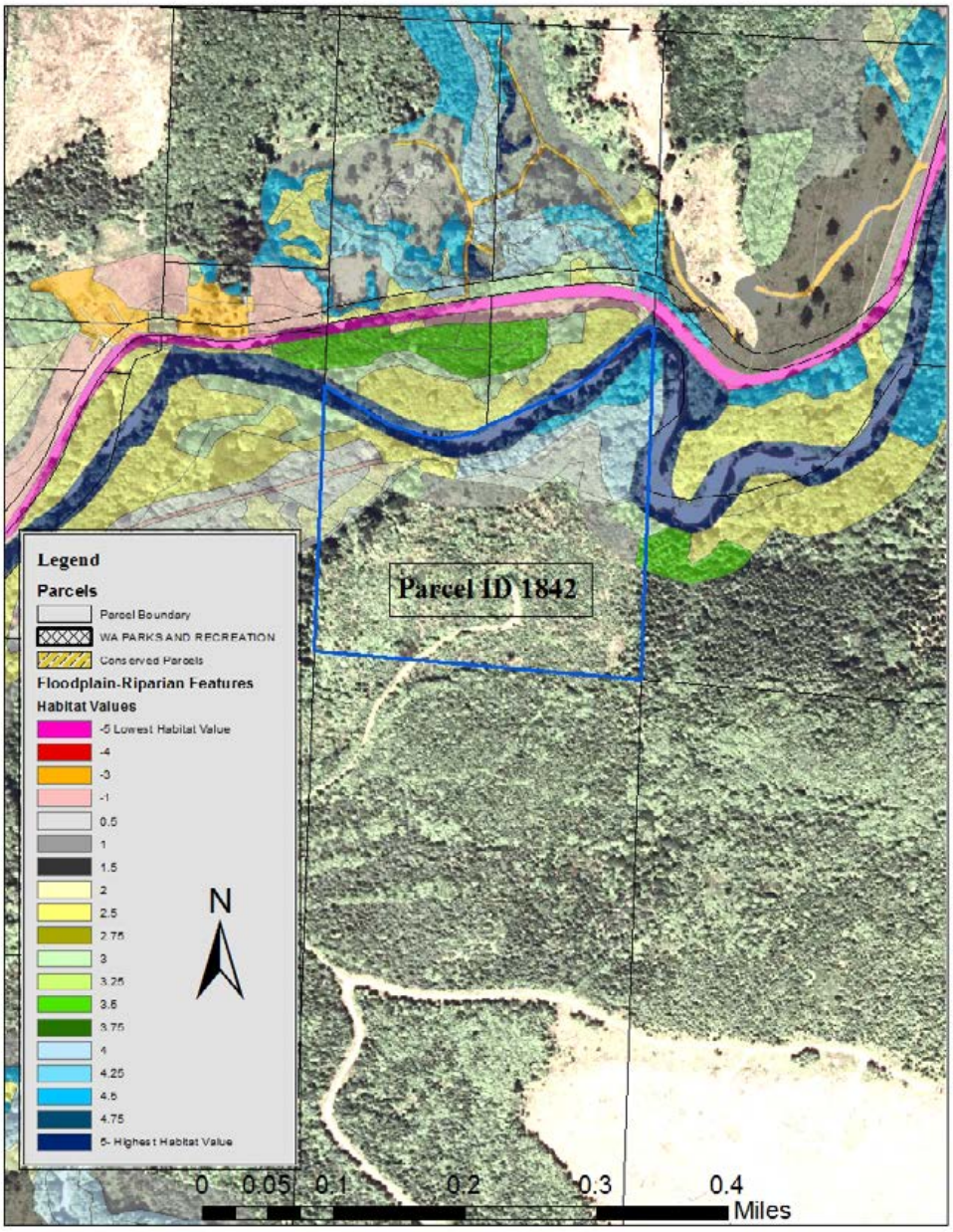
Parcel Priority	Priority 20
Parcel ID	1823
Parcel Size	77 acres
Watershed	Pysht River
Stream Segment(S)	Pysht River Segment 2
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, migration, and rearing.
Legal Description	Township 31N Range 11W Section 18
Percent of Parcel Classified as Habitat	86%
Weighted Habitat Value	FP-BIS Value = 5; Feature value= 2.4
This parcel contains habitat that includes high fish use and high fish species diversity. The parcel includes large river mainstem habitat and some mature riparian/floodplain forest. This parcel also includes an active side-channel.	



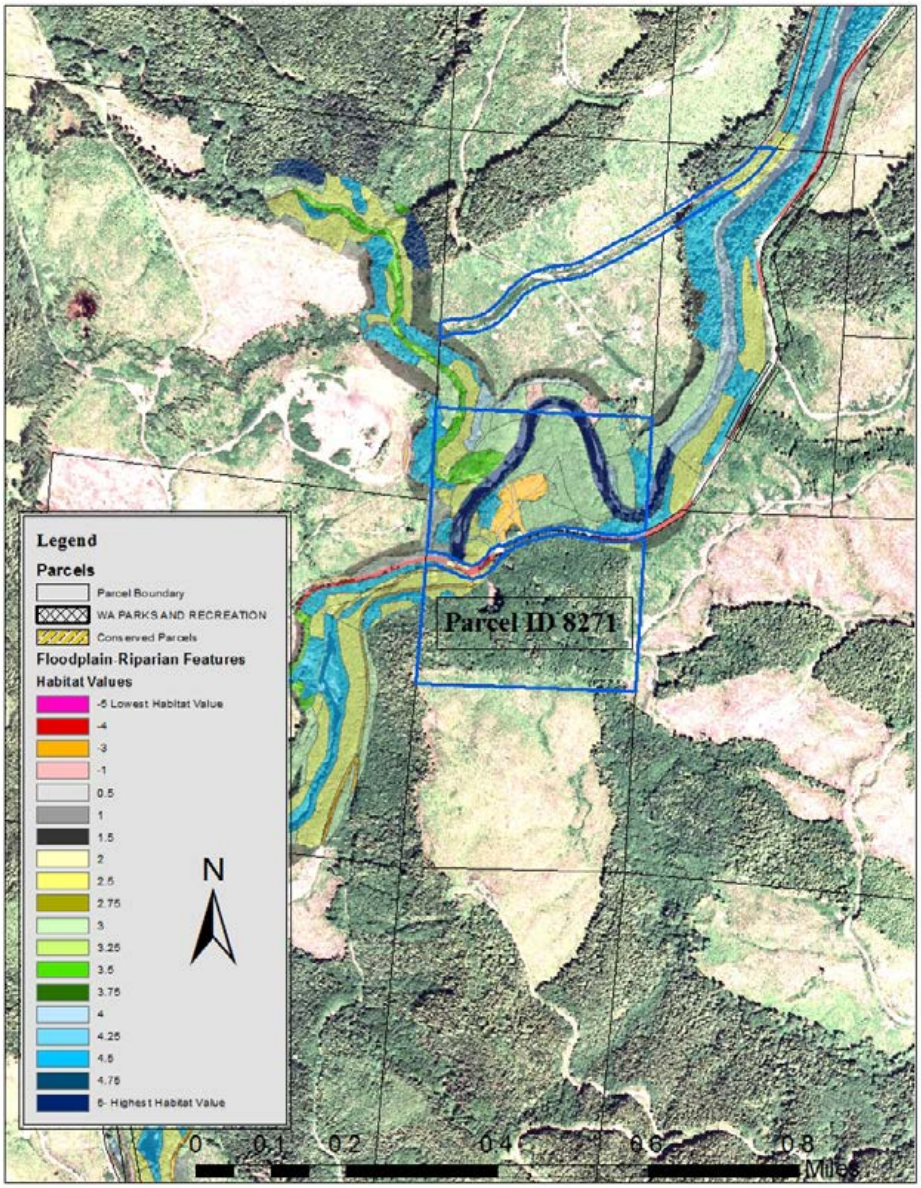
Parcel Priority	Priority 21
Parcel ID	8371
Parcel Size	43.3 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 9
Salmonid Species Present	Chinook, coho, chum (?), steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 31N Range 13W Section 32
Percent of Parcel Classified as Habitat	59%
Weighted Habitat Value	FP-BIS Value =5; Feature value= 2.81
This parcel contains includes high fish use and high fish species diversity. The parcel includes medium stream BIS habitat and some mature riparian forest.	



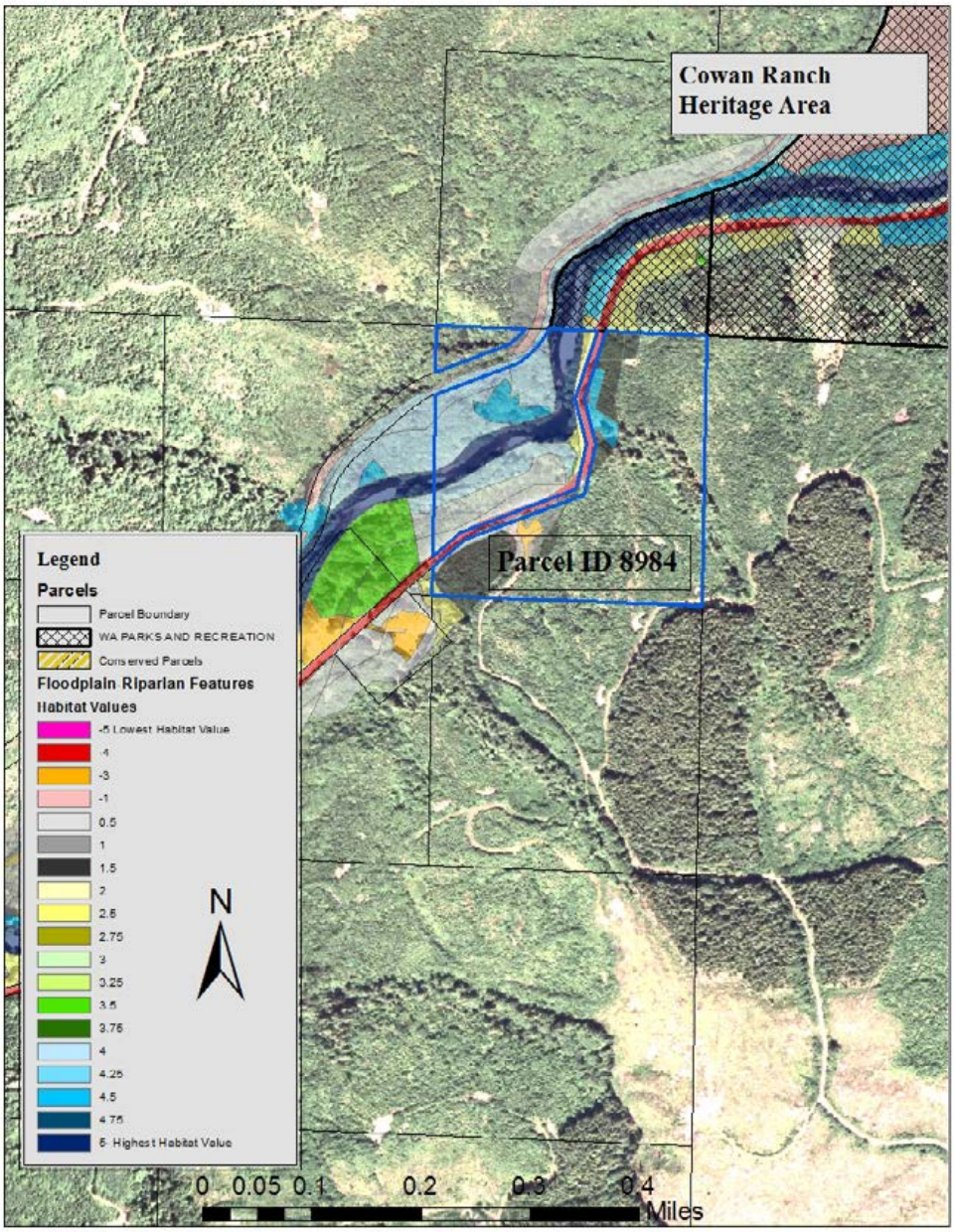
Parcel Priority	Priority 22
Parcel ID	3157
Parcel Size	38.1 acres
Watershed	Pysht River
Stream Segment(S)	Pysht River Segment 5
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 31N Range 12W Section 23
Percent of Parcel Classified as Habitat	54%
Weighted Habitat Value	FP-BIS Value =5; Feature value=2.8
This parcel includes high fish use and high fish species diversity. The parcel includes large river mainstem habitat and some mature riparian/floodplain forest. This parcel also includes an active side-channel/overflow channel	



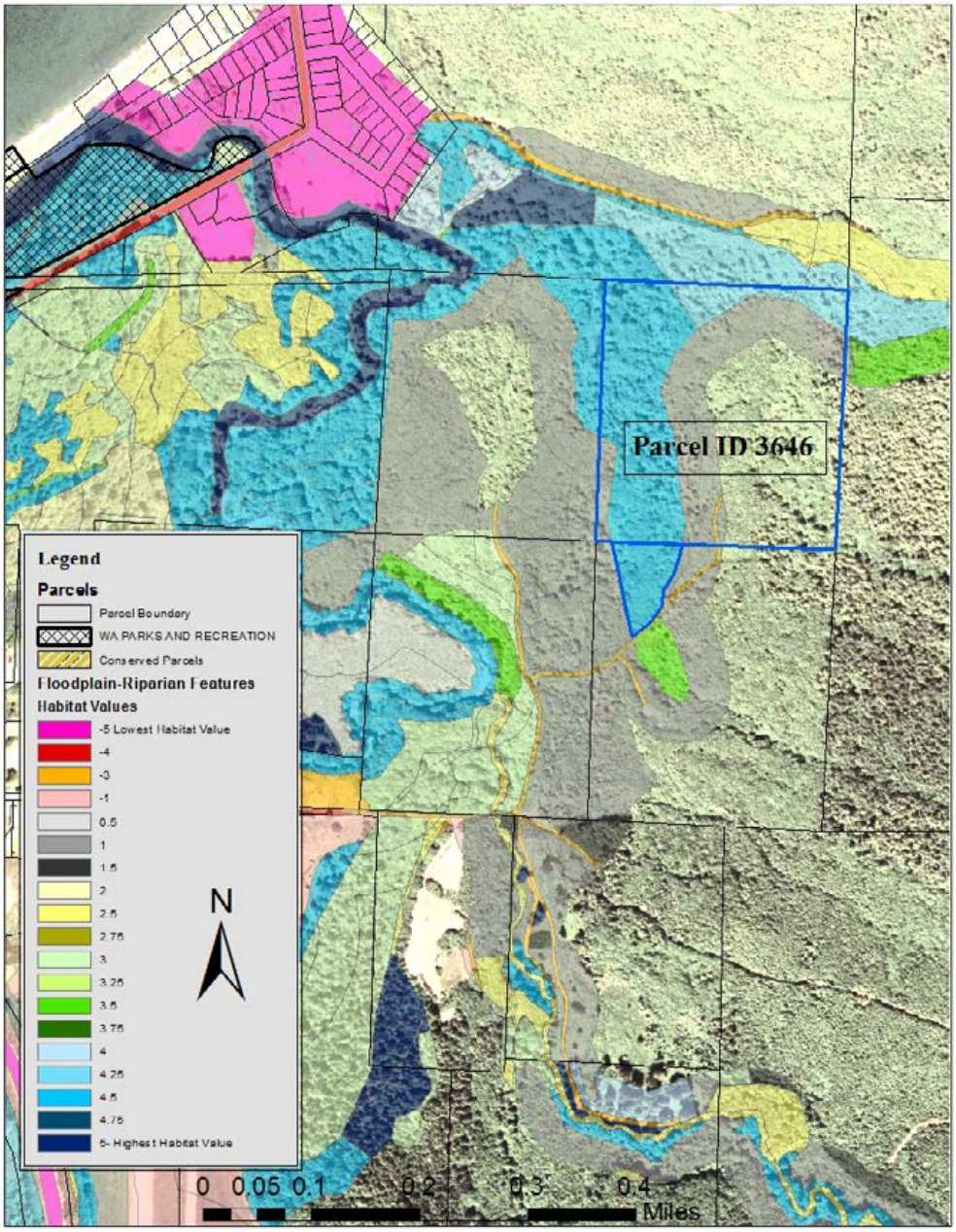
Parcel Priority	Priority 23
Parcel ID	1842
Parcel Size	31.9 acres
Watershed	Pysht River
Stream Segment(S)	Pysht River Segment 2
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 31N Range 11W Section 18
Percent of Parcel Classified as Habitat	42%
Weighted Habitat Value	FP-BIS Value =5; Feature value= 2.8
This parcel includes high fish use and high fish species diversity. The parcel includes large river mainstem spawning habitat for Chinook and chum salmon, as well as steelhead. The parcel contains some mature riparian/floodplain forest.	



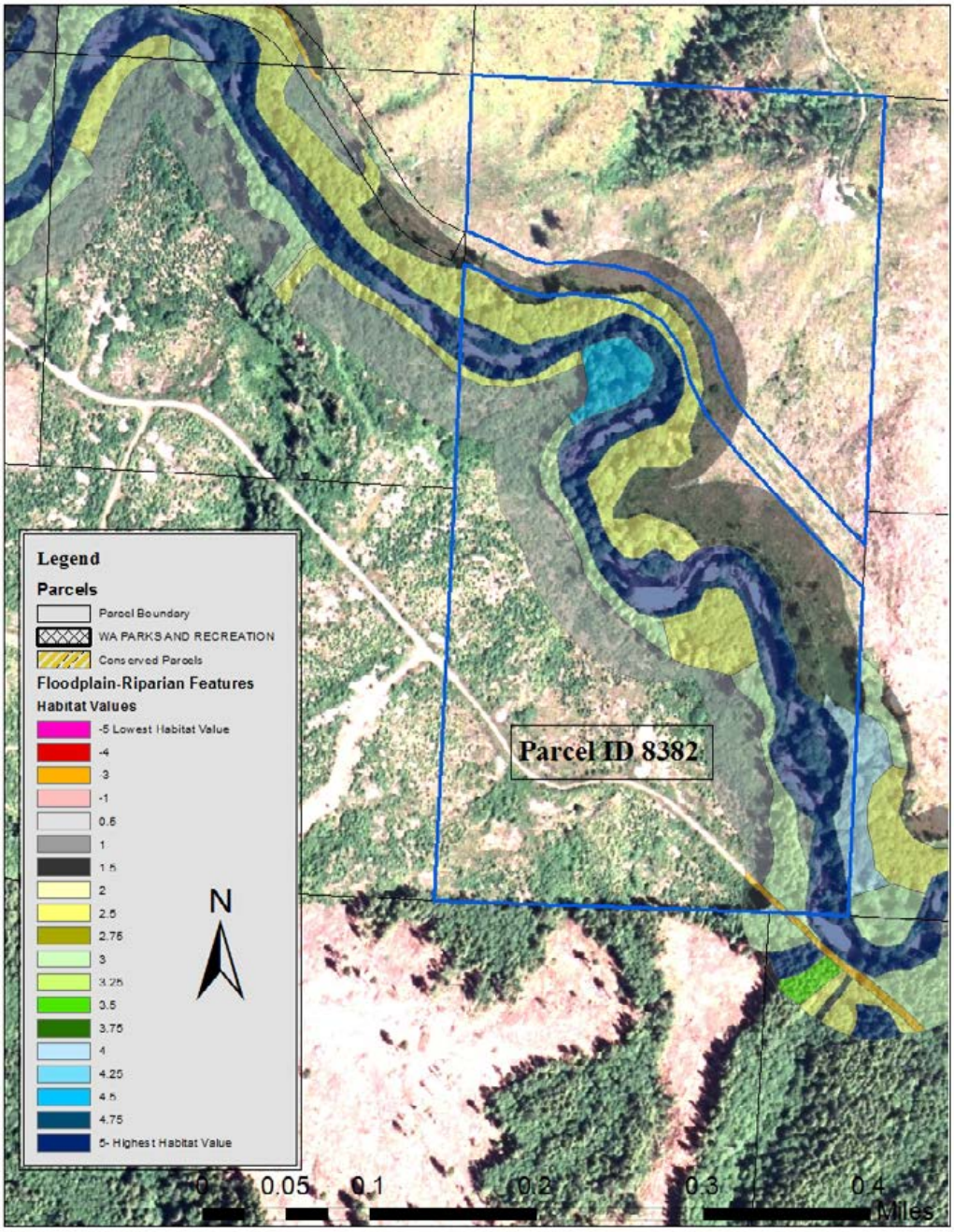
Parcel Priority	Priority 24
Parcel ID	8271
Parcel Size	71 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 5/Brownes Creek Segment 1
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 31N Range 13W Section 7
Percent of Parcel Classified as Habitat	48%
Weighted Habitat Value	FP-BIS Value =4.7; Feature value= 2.9
This parcel includes high fish use and high fish species diversity. The parcel includes large river mainstem spawning habitat for Chinook and chum salmon, as well as steelhead. The parcel also includes tributary habitat in Brownes Creek which is used by Chinook salmon for spawning (also includes use by coho, chum, steelhead, and cutthroat). Wrights Creek, a non-BIS classified stream also flows through this parcel. Wrights Creek is used by coho salmon and steelhead and cutthroat trout.	



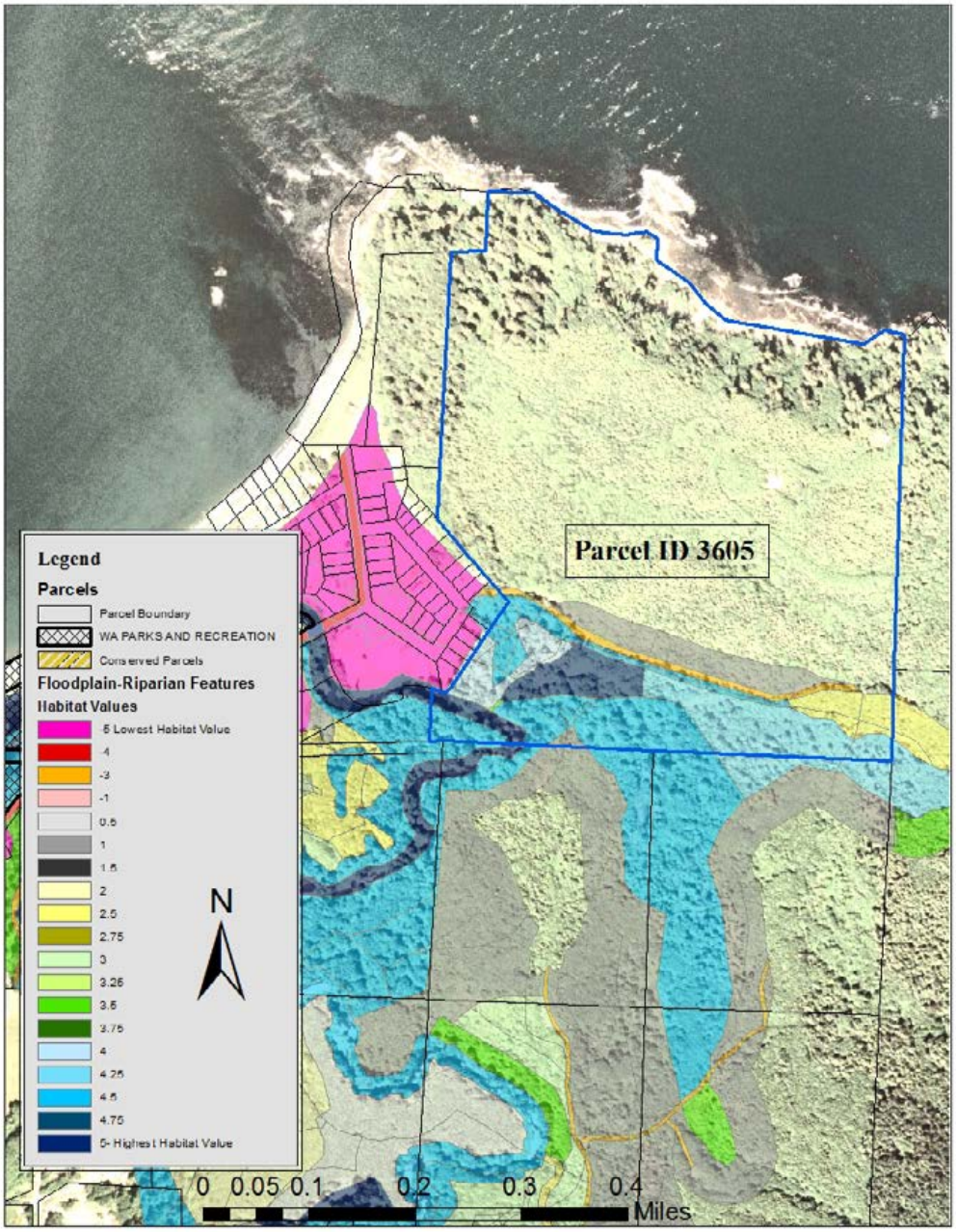
Parcel Priority	Priority 25
Parcel ID	8984
Parcel Size	36.4 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 3
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, migration, and off-channel habitat
Legal Description	Township 32N Range 13W Section 28
Percent of Parcel Classified as Habitat	49%
Weighted Habitat Value	FP-BIS Value = 5; Feature value= 2.7
This parcel includes high fish use and high fish species diversity. The parcel includes large river mainstem spawning habitat for Chinook and chum salmon, as well as steelhead. The parcel also includes off-channel rearing habitat.	



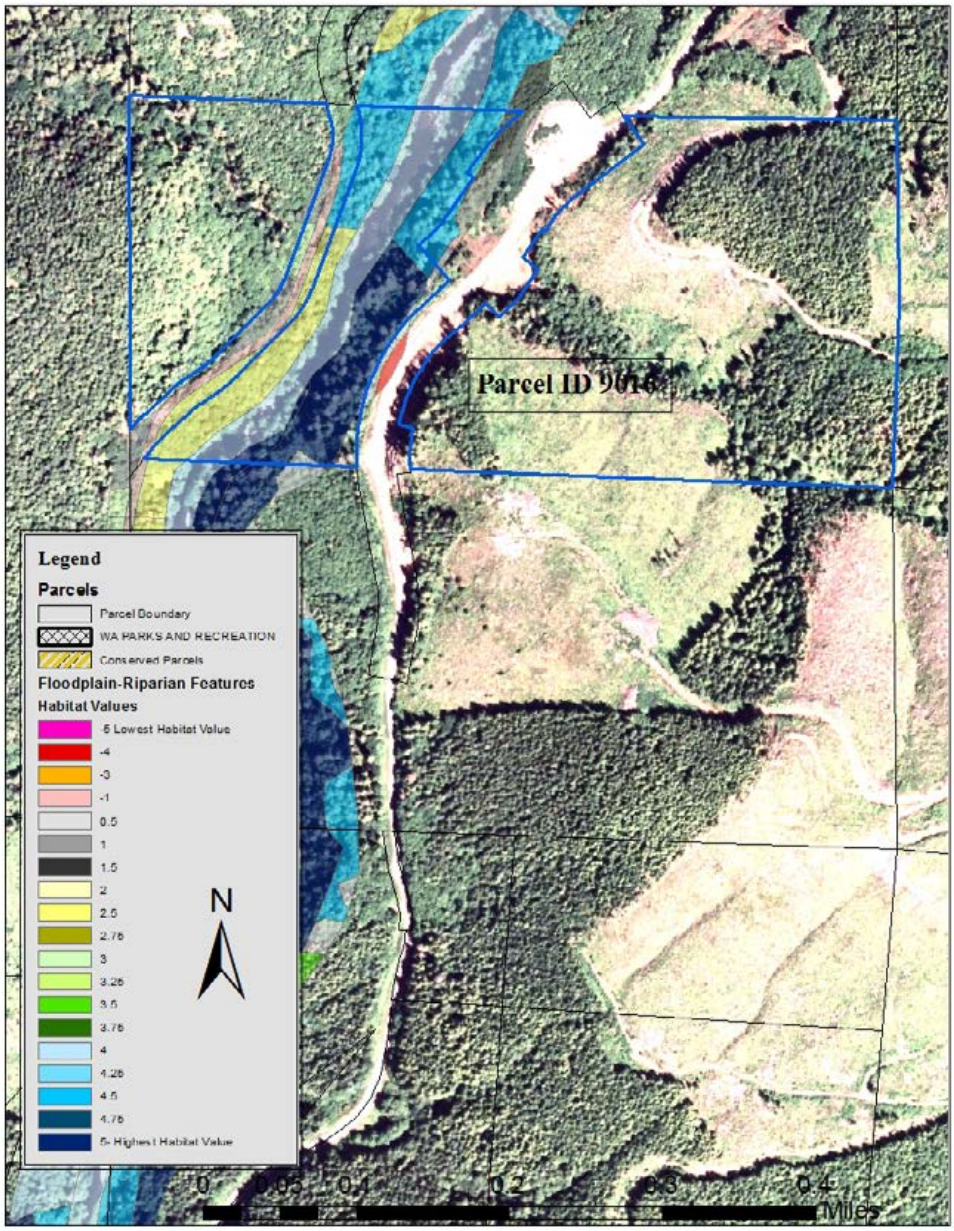
Parcel Priority	Priority 26
Parcel ID	3646
Parcel Size	34.4 acres
Watershed	Clallam River
Stream Segment(S)	Hatchery Creek Segment 2 and 3, T1 Segment 1
Salmonid Species Present	Coho, chum, steelhead, and cutthroat
Habitat Types	Primarily off-channel rearing habitat
Legal Description	Township 32N Range 12W Section 21
Percent of Parcel Classified as Habitat	62%
Weighted Habitat Value	FP-BIS Value =4.1; Feature value= 3.0
This parcel contains primarily off-channel rearing habitat used by coho salmon. Adult chum salmon have also been observed in this stream. A small amount of potential spawning habitat exists upstream of the wetland habitat.	



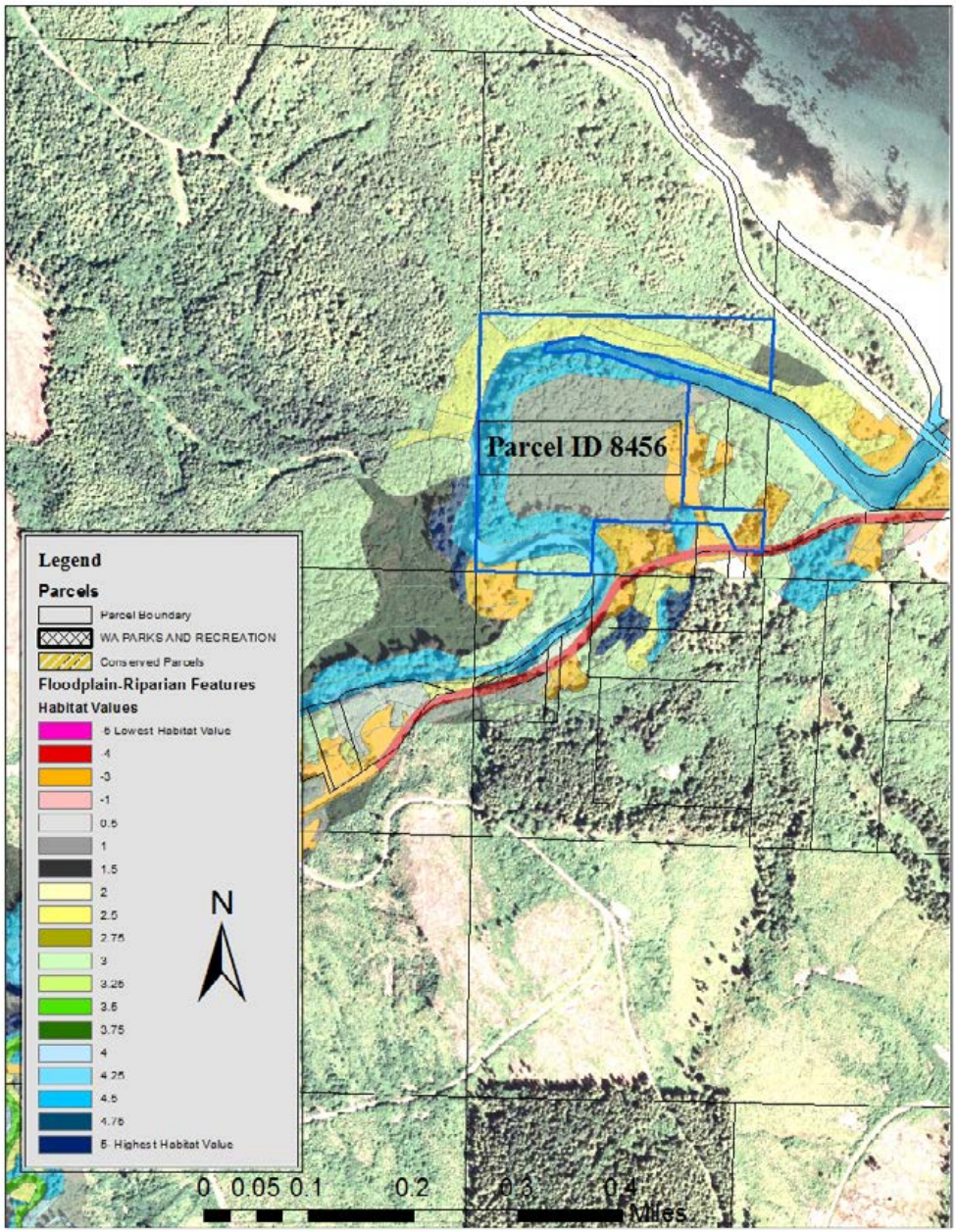
Parcel Priority	Priority 27
Parcel ID	8382
Parcel Size	74 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 9
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 31N Range 13W Section 33
Percent of Parcel Classified as Habitat	42%
Weighted Habitat Value	FP-BIS Value =5; Feature value= 2.7
This parcel includes high fish use and high fish species diversity. The parcel includes Hoko River mainstem spawning habitat for Chinook salmon, as well as steelhead.	



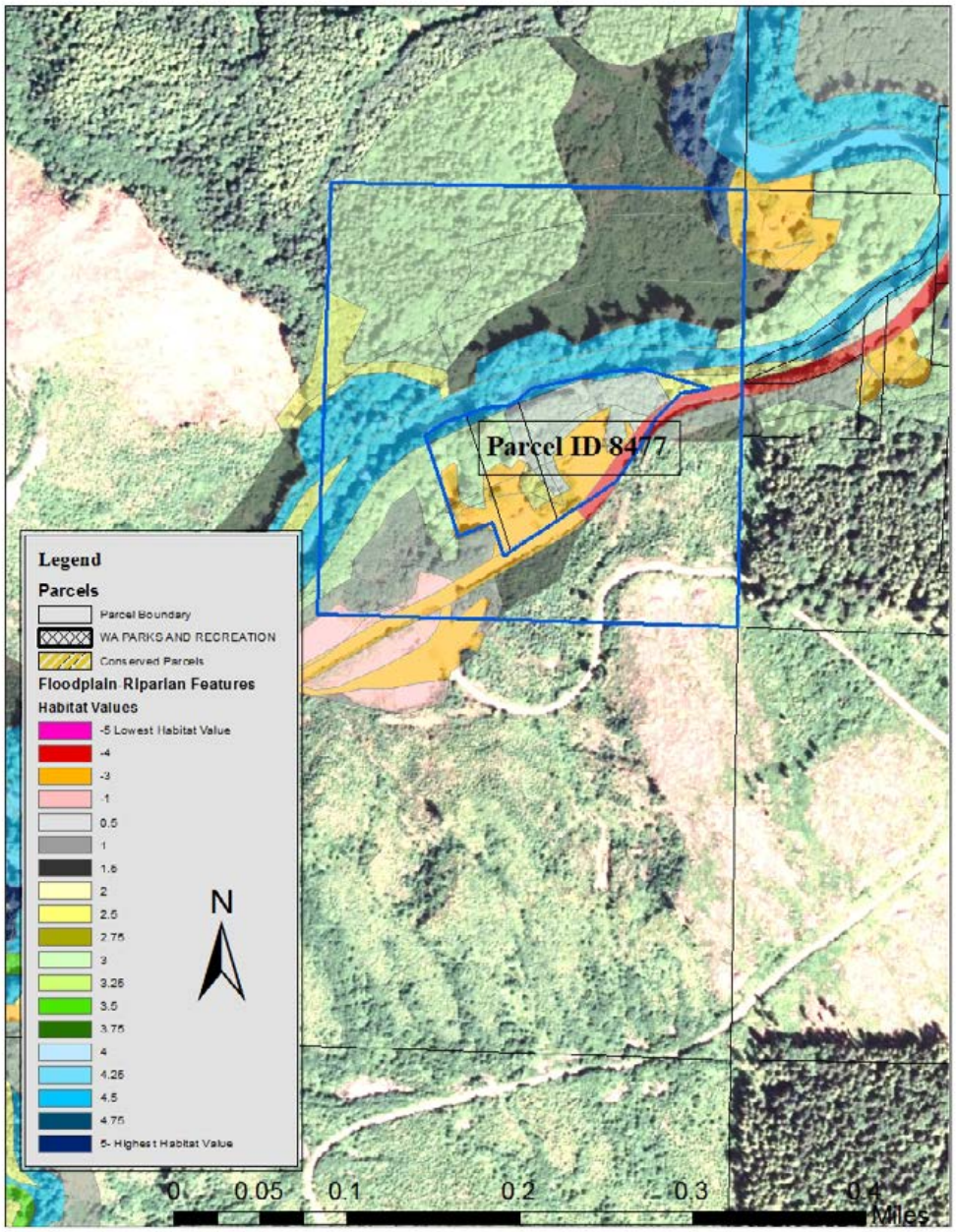
Parcel Priority	Priority 28
Parcel ID	3605
Parcel Size	120.7 acres
Watershed	Clallam River
Stream Segment(S)	Clallam River Segment 0, Hatchery Creek Segment 1
Salmonid Species Present	Coho, chum, steelhead, and cutthroat; infrequent Chinook
Habitat Types	Estuarine habitat, rearing, migration, and off-channel habitat
Legal Description	Township 32N Range 12W Section 21
Percent of Parcel Classified as Habitat	23%
Weighted Habitat Value	FP-BIS Value =4.6; Feature value= 3.4
This parcel contains habitat that includes high fish use, moderate high fish species diversity, and high habitat diversity. It also includes a very highly active floodplain/floodway. The Hatchery Creek off-channel rearing habitat in Segment 1 and 2 provides open water and forested wetland habitat used by juvenile salmonids.	



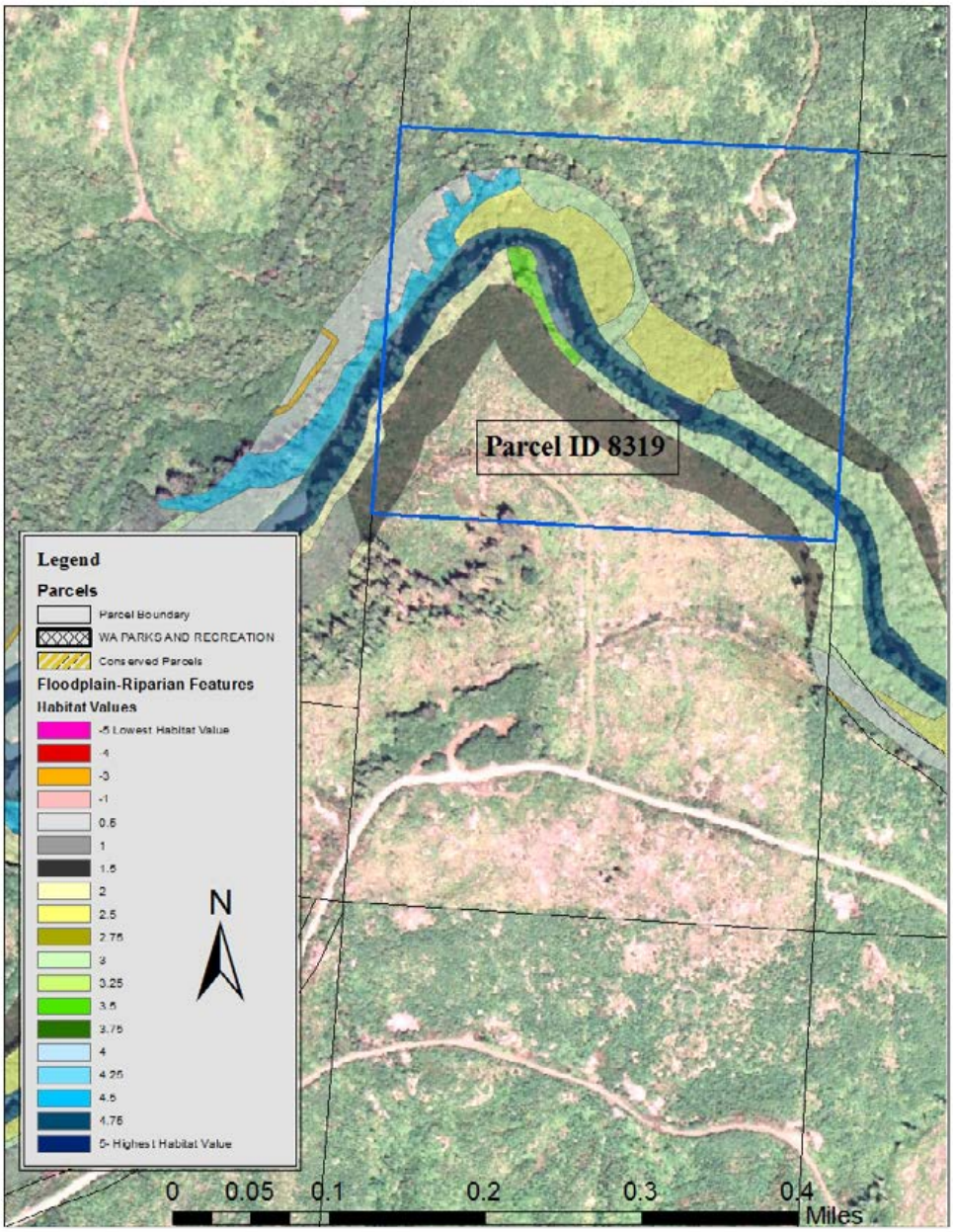
Parcel Priority	Priority 29
Parcel ID	9016
Parcel Size	64 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 4
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 32N Range 13W Section 32
Percent of Parcel Classified as Habitat	20%
Weighted Habitat Value	FP-BIS Value =4; Feature value= 4
This parcel includes high fish use and high fish species diversity. The parcel includes large river mainstem habitat and mature riparian/floodplain forest.	



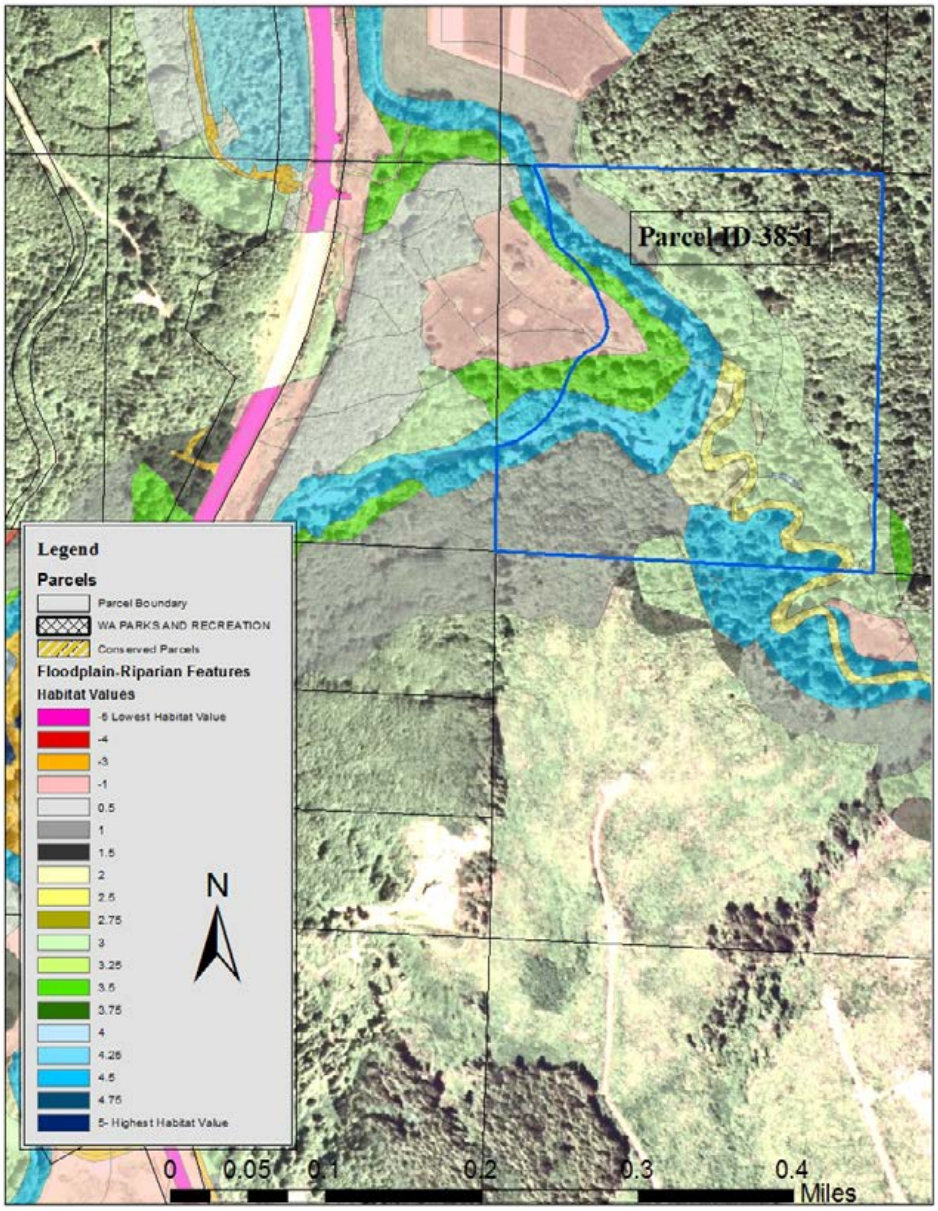
Parcel Priority	Priority 30
Parcel ID	8456
Parcel Size	31.4 acres
Watershed	Sekiu River
Stream Segment(S)	Sekiu River Segment 0
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Estuarine habitat, rearing and migration
Legal Description	Township 32N Range 13W Section 8
Percent of Parcel Classified as Habitat	98%
Weighted Habitat Value	FP-BIS Value =4.5; Feature value= 2.2
This parcel contains habitat that includes high fish use high fish species diversity, and moderate habitat diversity. This parcel includes important estuary habitat.	



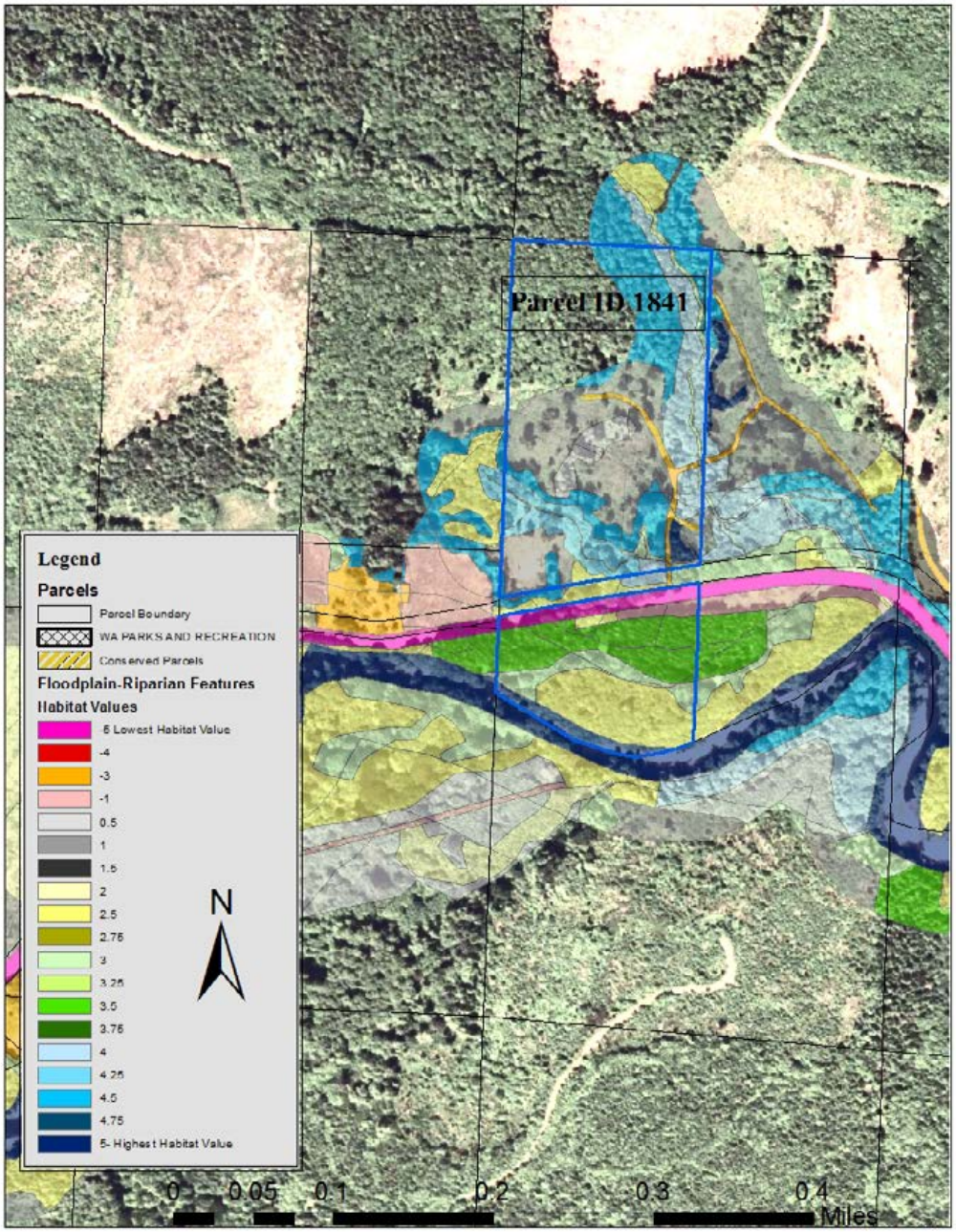
Parcel Priority	Priority 31
Parcel ID	8477
Parcel Size	33 acres
Watershed	Sekiu River
Stream Segment(S)	Sekiu River Segment 0 and 1
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 32N Range 13W Section 8
Percent of Parcel Classified as Habitat	81%
Weighted Habitat Value	FP-BIS Value =4.5; Feature value= 2.3
This parcel contains habitat that includes high fish use high fish species diversity, and moderate habitat diversity. This parcel includes some estuary habitat but most of the parcel is in segment 1 which provides mostly rearing habitat with limited spawning.	



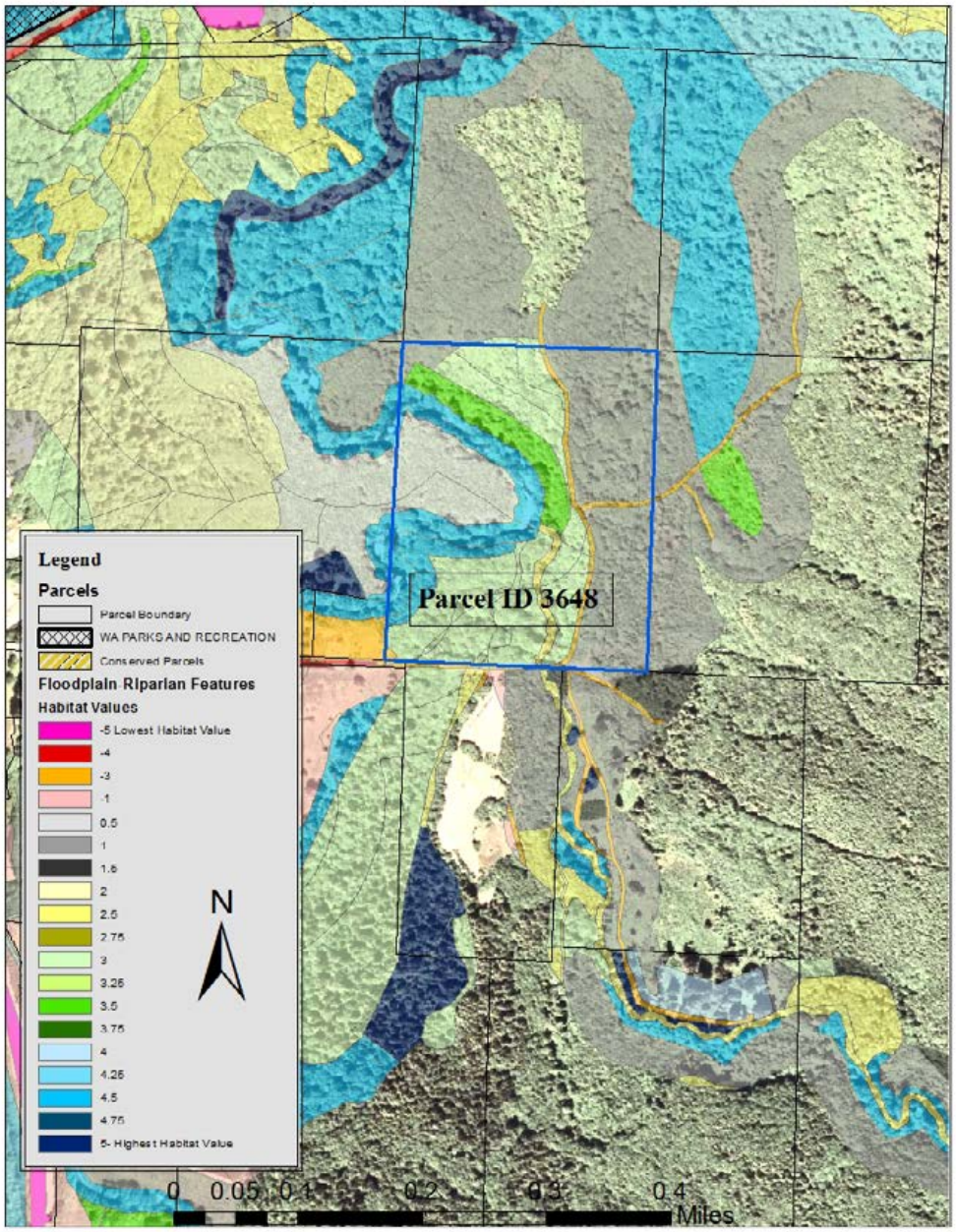
Parcel Priority	Priority 32
Parcel ID	8319
Parcel Size	46.8 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 8
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 31N Range 13W Section 19
Percent of Parcel Classified as Habitat	51%
Weighted Habitat Value	FP-BIS Value =4.75; Feature value= 2.7
This parcel includes high fish use and high fish species diversity. The parcel includes Hoko River mainstem spawning habitat for Chinook salmon, as well as steelhead.	



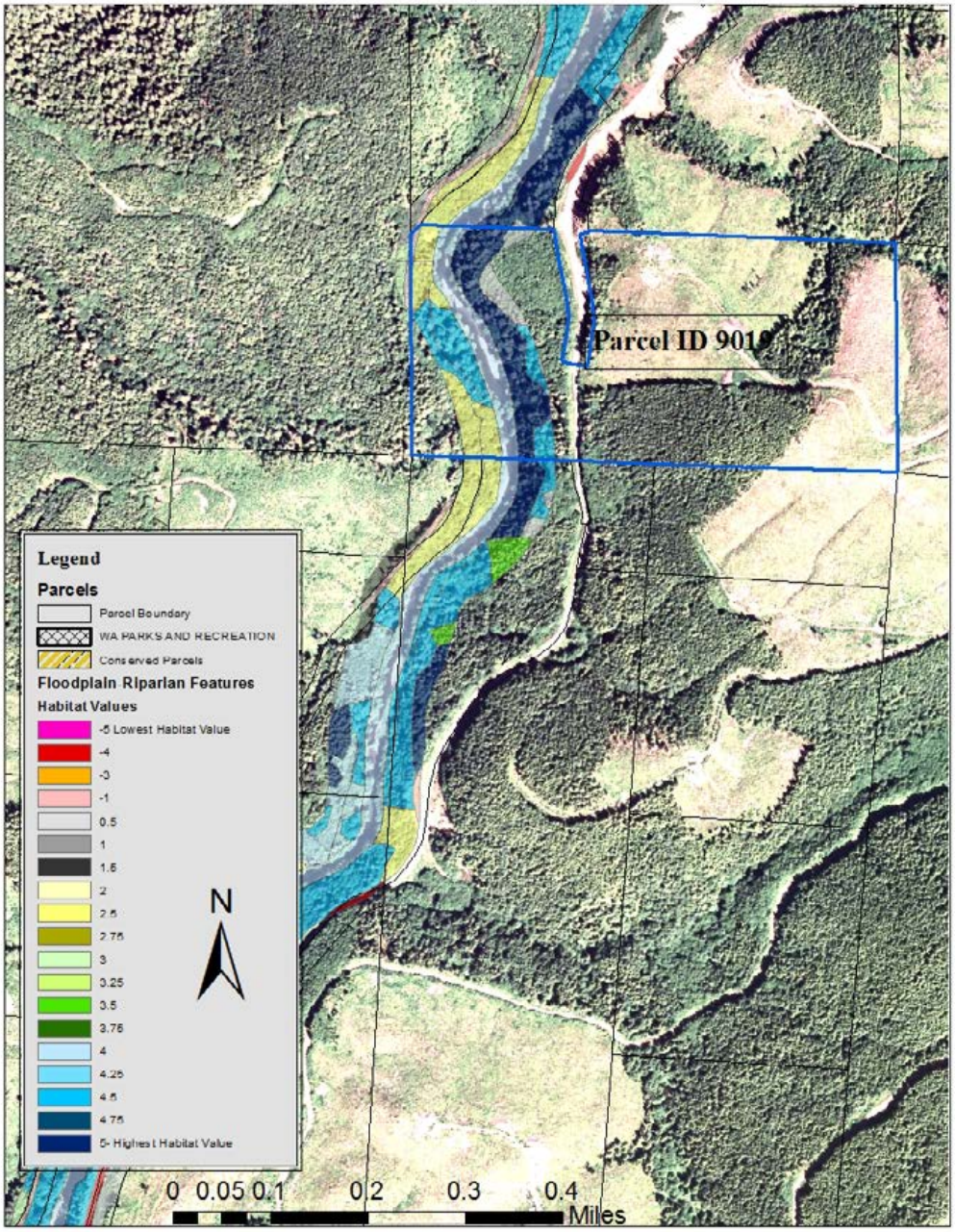
Parcel Priority	Priority 33
Parcel ID	3851
Parcel Size	34.1 acres
Watershed	Clallam River
Stream Segment(S)	Clallam River Segment 2 & 3, Last Creek Segment 1
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, migration, and off-channel habitat
Legal Description	Township 32N Range 12W Section 28
Percent of Parcel Classified as Habitat	71%
Weighted Habitat Value	FP-BIS Value =4; Feature value= 2.8
This parcel contains habitat that includes high fish use, moderate high fish species diversity, and high habitat diversity. It also includes a very highly active floodplain/floodway. Last Creek and its tributaries provide off-channel wetland habitat used by juvenile salmonids.	



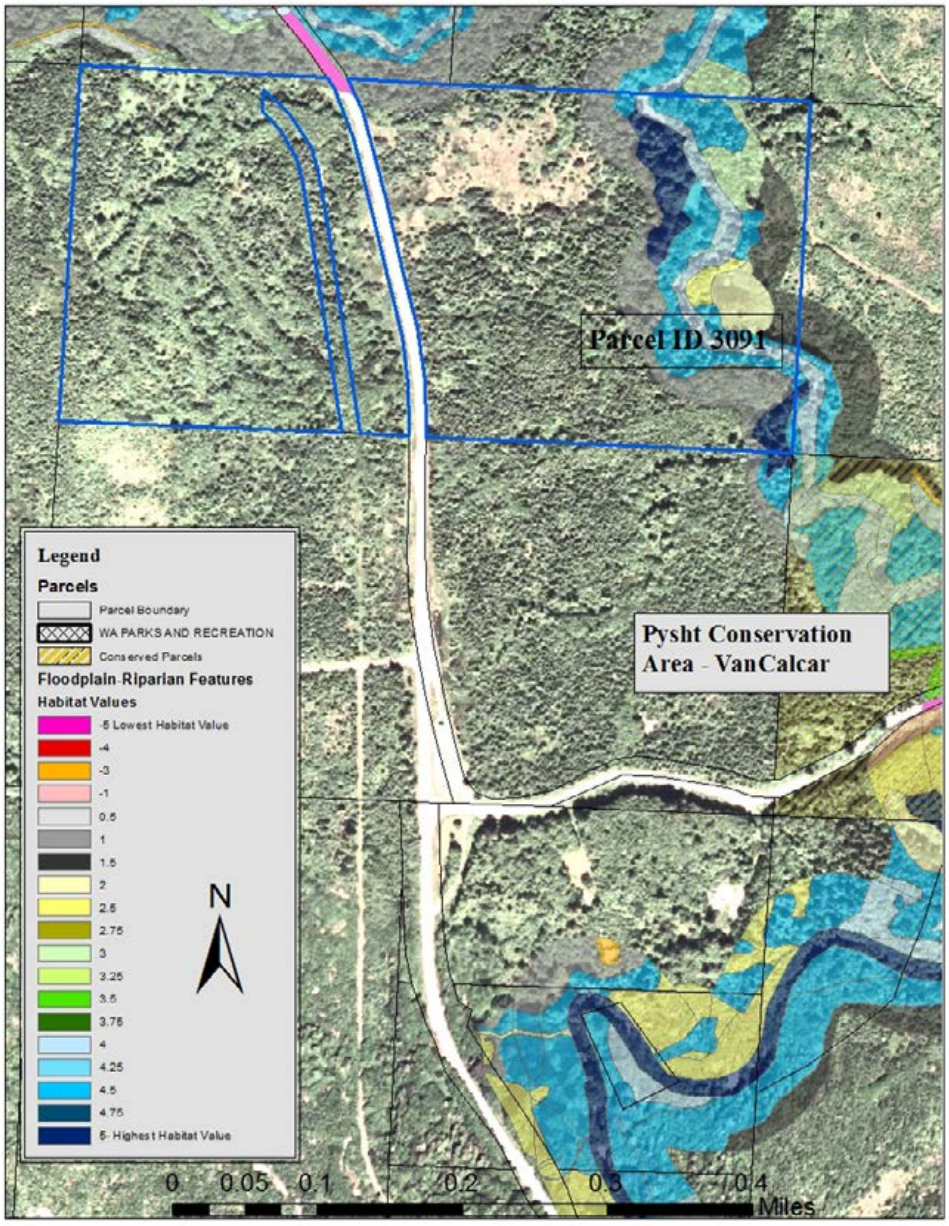
Parcel Priority	Priority 34
Parcel ID	1841
Parcel Size	23.5 acres
Watershed	Pysht River
Stream Segment(S)	Pysht River Segment 2, Hamerquist Creek Segment 2, T1_Seg 1 and 2.
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, migration, and off-channel habitat
Legal Description	Township 31N Range 11W Section 18
Percent of Parcel Classified as Habitat	83%
Weighted Habitat Value	FP-BIS Value =4.1; Feature value= 2.9
This parcel includes high fish use and high fish species diversity. The parcel includes large river mainstem spawning habitat for Chinook and chum salmon, as well as steelhead. The parcel contains active floodplain forest and off-channel wetland habitat. In addition, there is coho, cutthroat and steelhead trout spawning in the tributary.	



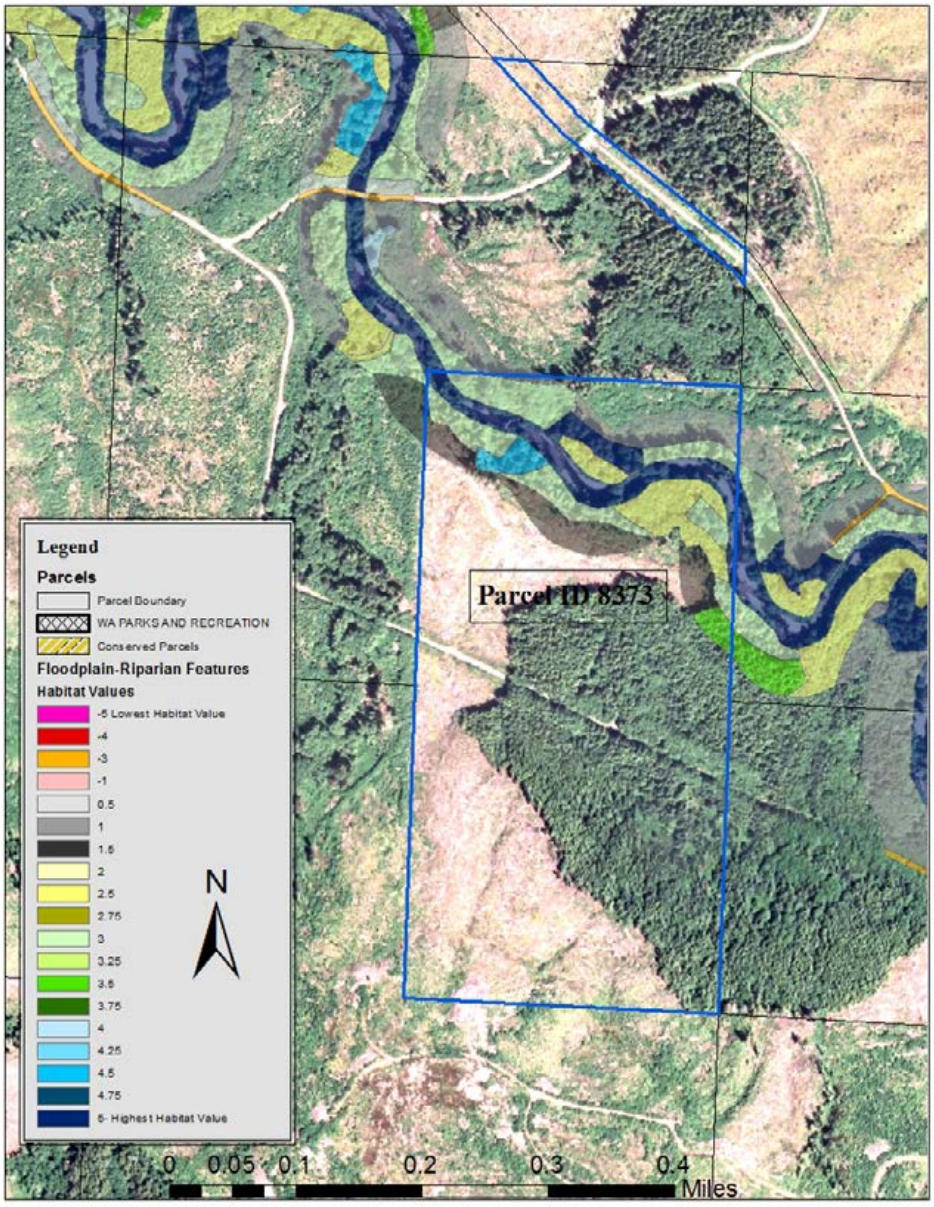
Parcel Priority	Priority 35
Parcel ID	3648
Parcel Size	34.1 acres
Watershed	Clallam River
Stream Segment(S)	Clallam River Segment 2 & 3, Pearson Creek Segment 1
Salmonid Species Present	Coho, chum, steelhead, and cutthroat; infrequent Chinook
Habitat Types	Spawning, rearing, migration, and off-channel habitat
Legal Description	Township 32N Range 12W Section 21
Percent of Parcel Classified as Habitat	100%
Weighted Habitat Value	FP-BIS Value =4.2; Feature value=2.2
This parcel contains habitat that includes high fish use, moderate high fish species diversity, and high habitat diversity. It also includes a very highly active floodplain/floodway. Pearson and Sadelik creeks provide off-channel wetland habitat used by juvenile salmonids.	



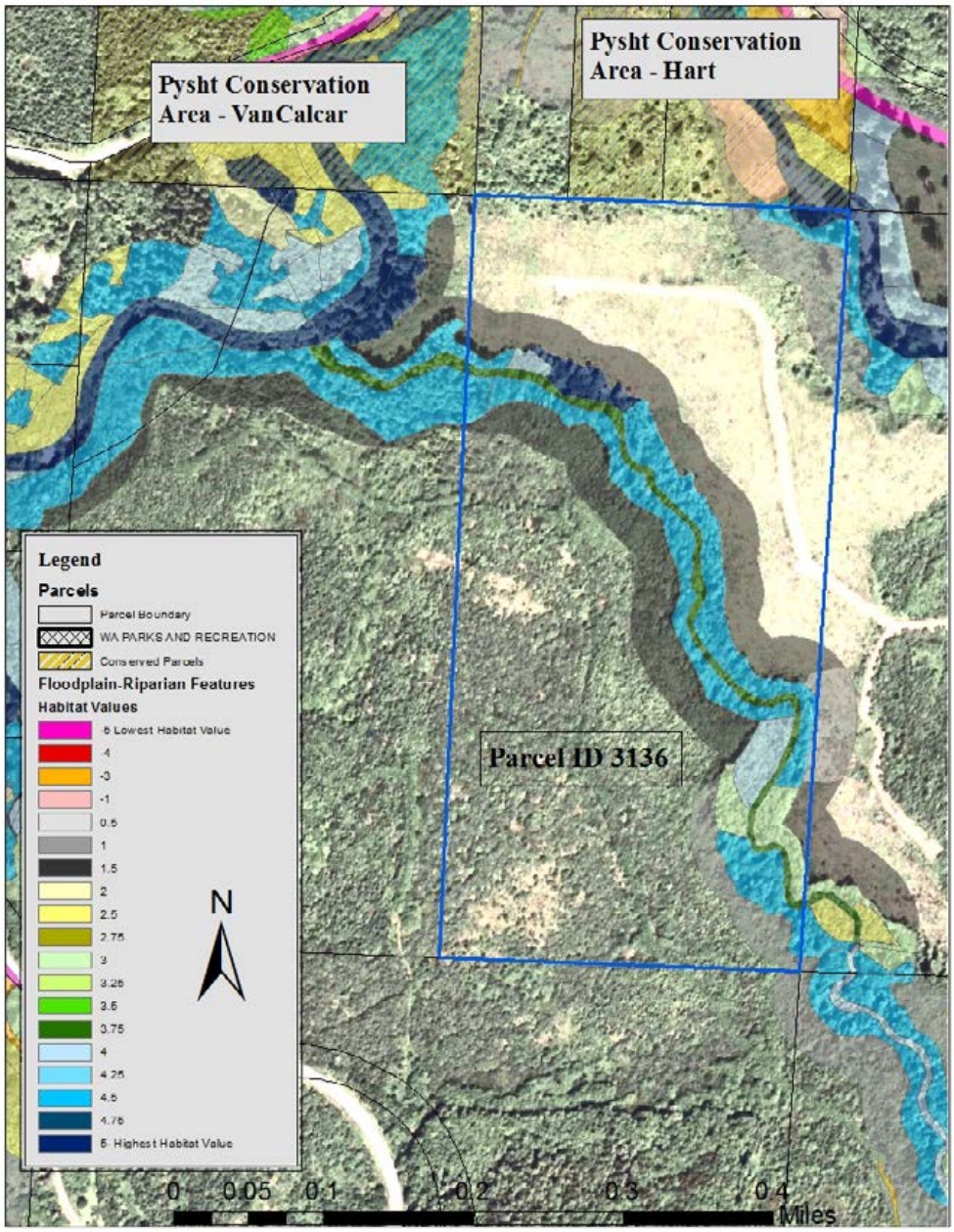
Parcel Priority	Priority 36
Parcel ID	9019
Parcel Size	72.9 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 4
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 32N Range 13W Section 32
Percent of Parcel Classified as Habitat	21%
Weighted Habitat Value	FP-BIS Value =4; Feature value= 3.8
This parcel includes high fish use and high fish species diversity. The parcel includes large river mainstem habitat and mature riparian forest.	



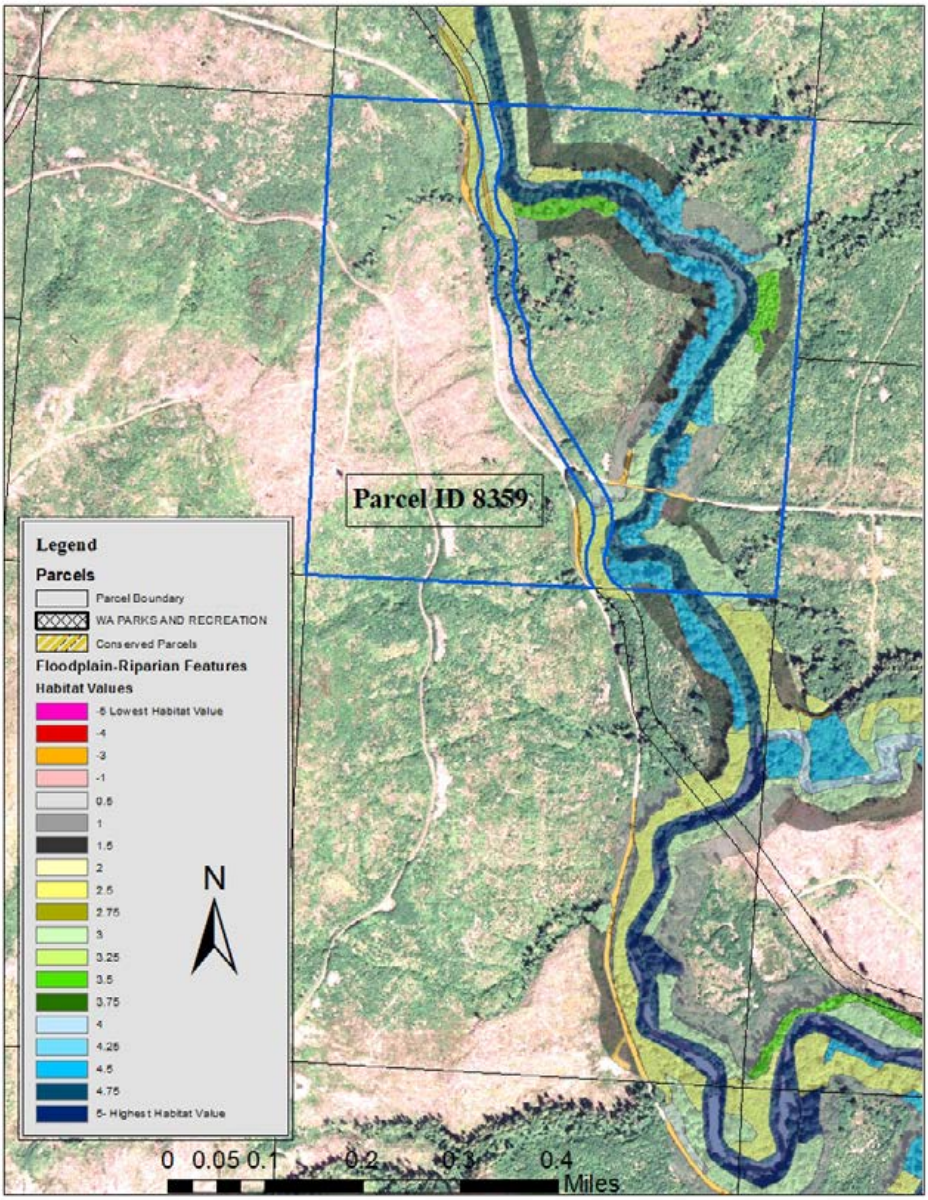
Parcel Priority	Priority 37
Parcel ID	3091
Parcel Size	75 acres
Watershed	Pysht River
Stream Segment(S)	Green Creek Segment 1
Salmonid Species Present	Coho, chum, steelhead, and cutthroat, potential Chinook
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 31N Range 12W Section 14
Percent of Parcel Classified as Habitat	22%
Weighted Habitat Value	FP-BIS Value =4; Feature value= 2.9
This parcel includes high fish use and moderate fish species diversity. The parcel includes tributary spawning, rearing, and migration habitat used primarily by coho and chum salmon, and steelhead trout. Includes some mature riparian forest. Parcel is adjacent to a conserved parcel.	



Parcel Priority	Priority 38
Parcel ID	8373
Parcel Size	82.1 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 9
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 31N Range 13W Section 32
Percent of Parcel Classified as Habitat	21%
Weighted Habitat Value	FP-BIS Value =5; Feature value= 3.0
This parcel includes high fish use and high fish species diversity. The parcel includes Hoko River mainstem spawning habitat for Chinook salmon, as well as steelhead.	



Parcel Priority	Priority 39
Parcel ID	3136
Parcel Size	80.1 acres
Watershed	Pysht River
Stream Segment(S)	Needham Creek Segment 1, Pysht River Segment 3
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 31N Range 12W Section 23
Percent of Parcel Classified as Habitat	35%
Weighted Habitat Value	FP-BIS Value = 3.9; Feature value= 2.7
This parcel includes primarily tributary spawning and rearing habitat in Needham Creek. A portion of the parcel also includes mainstem Pysht River aquatic and riparian habitat.	



Parcel Priority	Priority 40
Parcel ID	8359
Parcel Size	146.5 acres
Watershed	Hoko River
Stream Segment(S)	Hoko River Segment 8
Salmonid Species Present	Chinook, coho, chum, steelhead, and cutthroat
Habitat Types	Spawning, rearing, and migration
Legal Description	Township 31N Range 13W Section 30
Percent of Parcel Classified as Habitat	29%
Weighted Habitat Value	FP-BIS Value =4.75; Feature value= 2.9
This parcel includes high fish use and high fish species diversity. The parcel includes Hoko River mainstem spawning habitat for Chinook salmon, as well as steelhead.	