Rare Plant and Vegetation Surveys of Fort Worden, Lake Anderson and Old Fort Townsend State Parks

Pacific Biodiversity Institute

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Introduction

Under contract with the Washington State Parks and Recreation Commission Fort Worden, Lake Anderson and Old Fort Townsend State Parks, located in Jefferson County, were surveyed for rare plant occurrences and mapped according to vegetation communities by Pacific Biodiversity Institute (PBI). Figure 1 illustrates the location of these parks on the Quimper Peninsula. Vegetation data was collected for all the mapped vegetation types. This report summarizes the activities and findings of the contracted work.

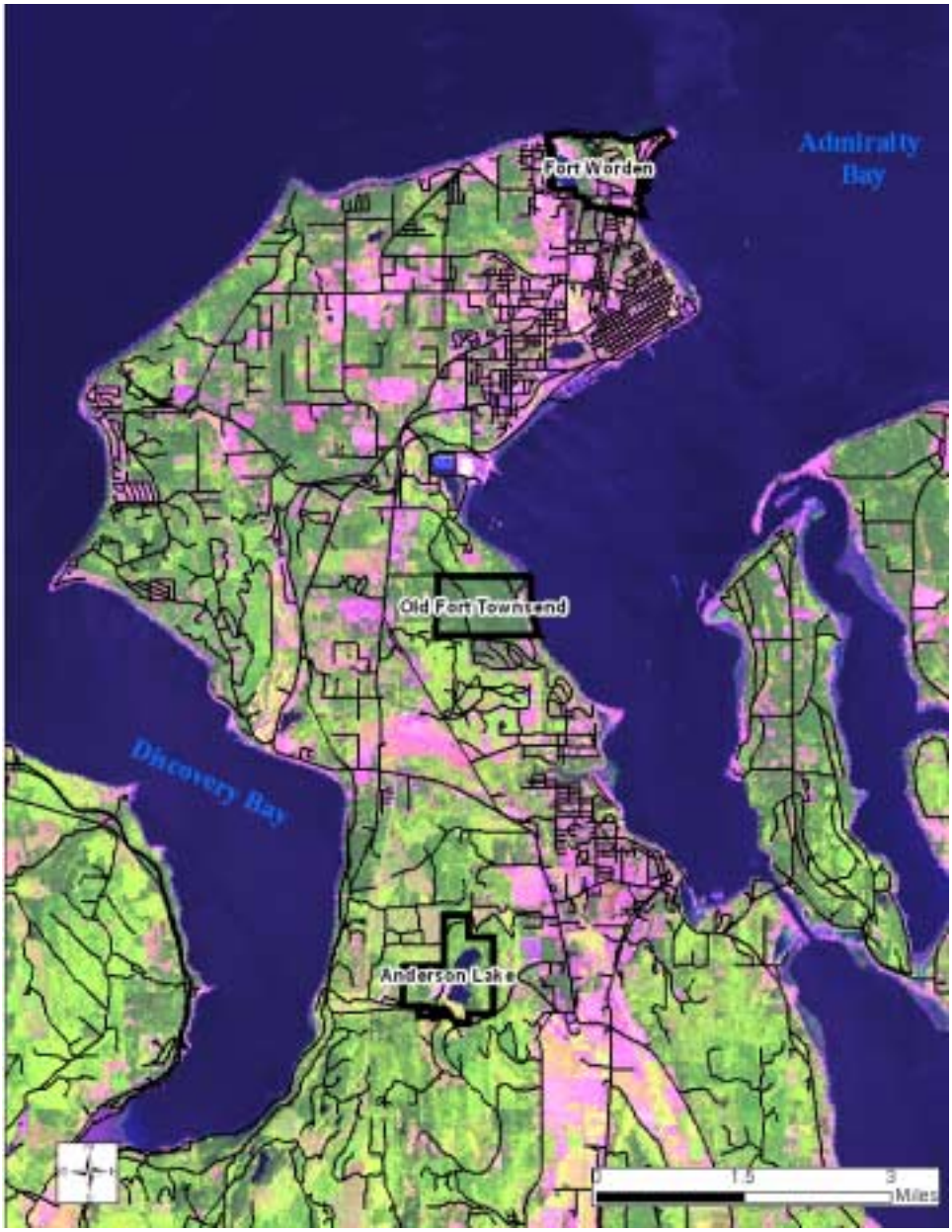

Figure 1. Overview of Fort Worden, Lake Anderson, and Old Fort Townsend State Parks.

Survey Routes

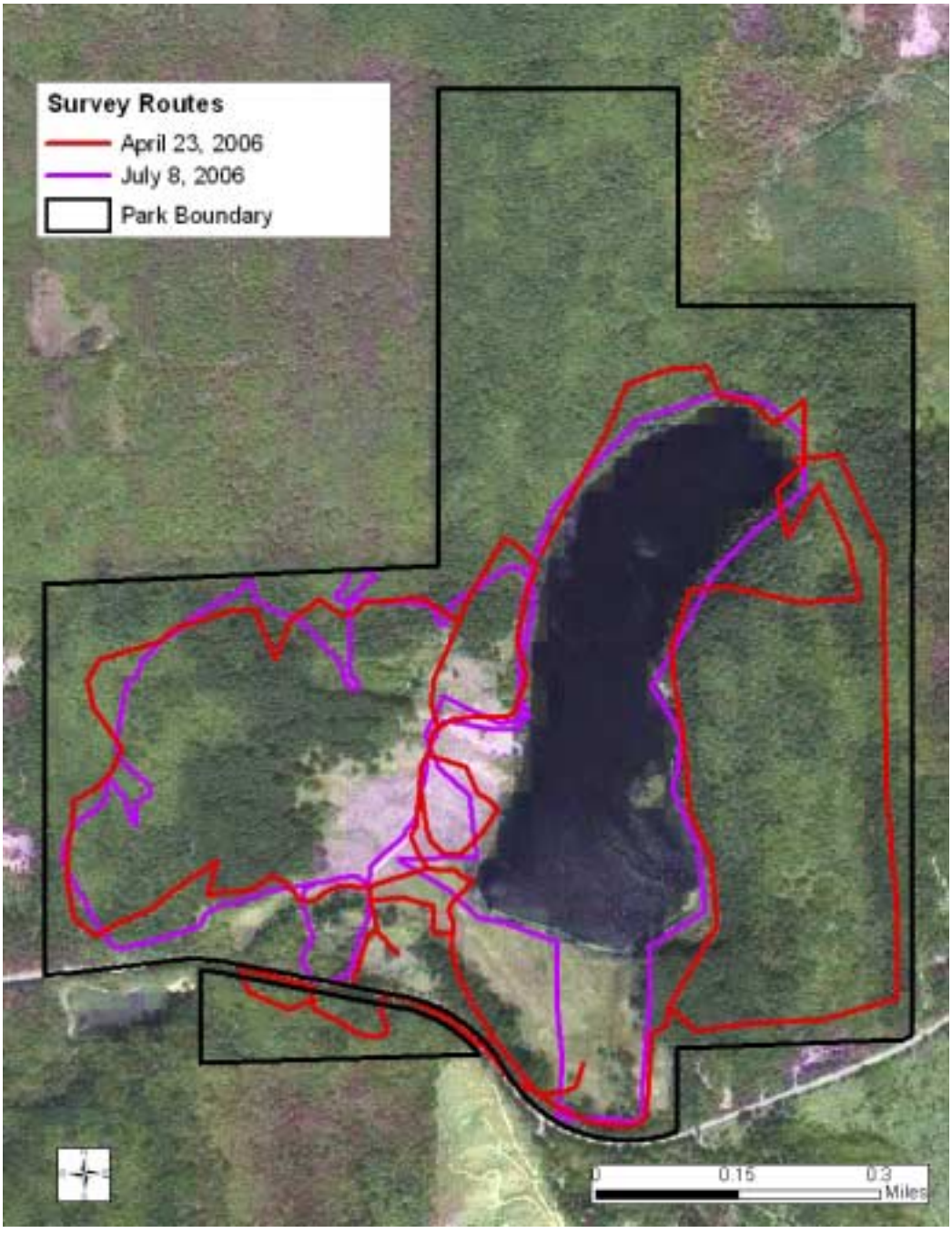

Figure 2. Survey Routes for Lake Anderson State Park.

Figure 3. Survey Routes for Fort Worden State Park.

Figure 4. Survey Routes for Old Fort Townsend State Park.

Vegetation Communities

Methods

Vegetation communities within Fort Worden, Lake Anderson and Old Fort Townsend State Parks were delineated and classified using a combination of field survey and remote sensing techniques. We relied on descriptions from the Washington State Department of Natural Resources (WADNR) late-seral forested plant associations of the Puget Lowland (Chappell, 2004), baseline inventory of rare, threatened and endangered plant species/communities along Washington's Pacific coast (Kunze and Cornelius, 1982) and freshwater wetland vegetation (Kunze, 1994) to make final vegetation community assignments. In some cases, the WADNR descriptions were not adequate in describing existing vegetation associations. In these cases, alternative vegetation communities or plant associations were created by PBI or found in alternative reference material.

Remote sensing techniques consisted of manually delineating plant associations or mosaics of plant associations in a digital environment. We reviewed orthorectified aerial photography from the 1990s and recent ASTER and LANDSAT Thematic Mapper satellite images for discernable vegetation or landform patterns. When available, we also used high resolution true color orthorectified aerial photography. Topographic maps, digital elevation models (DEMs), and light detection and ranging imagery (LIDAR) were also employed to assist the process of vegetation community delineation. The final vegetation polygons were created by hand in a GIS by ocular assessment.

Field surveys consisted of visiting sites located within the vegetation polygons created during the remote sensing process. At representative sites within a polygon, vegetation data and site descriptions were recorded in a fashion consistent with the "plant community polygon" format provided by the Washington State Parks and Recreation Commission. Further refinements and editing of the drafted vegetation polygon layers were done by hand on hardcopy maps in the field, and later edited digitally in a GIS.

Results

We mapped and surveyed 79 vegetation community polygons, comprised of 28 vegetation community types, within Fort Worden, Lake Anderson and Old Fort Townsend State Parks. Vegetation community polygons are either stand-alone plant associations or mosaics of multiple plant associations. Tables 1 - 3 list the plant associations and/or cover types found in Fort Worden, Lake Anderson and Old Fort Townsend State Parks. See Appendix B for interpretation of "Status" codes. Figures 4 through 10 illustrate the location of the vegetation community polygons. Note that Figures 6, 8 and 10 only show the primary plant associations in each polygon (PA1 in the database). A printout of the complete set of data we collected for each polygon is attached in Appendix D. The ecological condition of each polygon was evaluated according to a simple ranking system described in Appendix C.

Table 1. Vegetation Community Types Encountered in Fort Worden State Park

Abbreviation	Association Name	English Name	Reference	Status	# of Primary Polygons
ACMA-ALRU/POMU-TEGR3	*Acer macrophyllum–Alnus rubra / Polystichum munitum - Tellima grandiflora*	bigleaf maple–red alder / swordfern–fringecup	Chappell 2004	G2G3S2	0
ALRU2/RUSP c.t.	*Alnus rubra / Rubus spectabilis* community type	red alder / salmonberry community type	Kunze 1994	G4G5	2
AMAR4 Dune community	*Ammophila arenaria Dune Community*	European beachgrass community	Kunze and Cornelius 1982		1
DIST3 community	*Distichlis stricta community*	alkali saltgrass community	Kunze and Cornelius 1982	G5	0
PSME/GASH-HODI	*Pseudotsuga menziesii / Gaultheria shallon - Holodiscus discolor*	Douglas-fir / salal - oceanspray	Chappell 2004	G2G3S2	2
PSME/HODI-SYAL	*Pseudotsuga menziesii / Holodiscus discolor - Symphoricarpos albus*	Douglas-fir / oceanspray - common snowberry	Chappell 2004	G1	0
PSME/ROGY-HODI	*Pseudotsuga menziesii / Rosa gymnocarpa - Holodiscus discolor*	Douglas-fir / baldhip rose - oceanspray	Chappell 2004	G2G3S2	1
PSME/SYMPH-AMAL	*Pseudotsuga menziesii / Symphoricarpos - Amelanchier alnifolia*	Douglas-fir / snowberry - serviceberry	Chappell 2004	GNRS4	1
PSME-ABGR/GASH	*Pseudotsuga menziesii - Abies grandes / Gaultheria shallon*	Douglas-fir - grand fir / salal	Chappell 2004	GNRS1	1
PSME-ABGR/HODI/POMU	*Pseudotsuga menziesii - Abies grandis / Holodiscus discolor / Polystichum munitum*	Douglas-fir - grand fir / oceanspray / swordfern	Chappell 2004	G1?S1	2
PSME-ARME/GASH	*Pseudotsuga menziesii - Arbutus menziesii / Gaultheria shallon*	Douglas-fir - madrone / salal	Chappell 2004	G3S2	2
PSME-ARME/HODI/LOHI2	*Pseudotsuga menziesii - Arbutus menziess / Holodiscus discolor / Lonicera hispidula*	Douglas-fir - madrone / oceanspray / pink honeysuckle	Chappell 2004	G2G3S2	1

PSME-THPL-(ABGR)/GASH	*Pseudotsuga menziesii - Thuja plicata (Abies grandis) / Gaultheria shallon*	Douglas-fir - red cedar (grand fir) / salal	Chappell 2004	G2S1	4
PSME-THPL/GASH-MANE2/POMU	*Pseudotsuga menziesii - Thuja plicata / Gaultheria shallon - Mahonia nervosa / Polystichum munitum*	Douglas-fir - red cedar / salal - Cascade oregongrape / swordfern	Chappell 2004	G1S1	1
PSME-TSHE/GASH-HODI	*Pseudotsuga menziesii - Tsuga heterophylla / Gaultheria shallon - Holodiscus discolor*	Douglas-fir - western hemlock / salal / oceanspray	Chappell 2004	G2G3S2S3	1
RONU/FERU2	*Rosa nutakana / Festuca rubra*	Nootka rose / red fescue	Kunze and Cornelius 1982	G1G2Q	2
SAVI community	*Salicornia viginica Community*	pickleweed	Kunze and Cornelius 1982	G3G4	0
SCAM2 community	*Scirpus americanus Community*	American bulrush	Kunze and Cornelius 1982	G3	1
Shrubland Unclassified			Chappell 2004		2
Eroding Sandy Cliff			PBI		2
Water					4
Abandoned Field					2
Developed					3

Table 2. Vegetation Community Types Encountered at Lake Anderson State Park

Abbreviation	Association Name	English Name	Reference	Status	# of Primary Polygons
ACMA-ALRU/POMU-TEGR3	*Acer macrophyllum–Alnus rubra / Polystichum munitum - Tellima grandiflora*	bigleaf maple–red alder / swordfern–fringecup	Chappell 2004	G2G3S2	2
ALRU2/POMU	*Alnus rubra / Polystichum munitum*	red alder / swordfern	Chappell 2004	G4S4	3
ALRU2/RUSP c.t.	*Alnus rubra / Rubus spectabilis* community type	red alder / salmonberry community type	Kunze 1994	G4G5	2
DIST3 community	*Distichlis stricta community*	alkali saltgrass community	Kunze and Cornelius 1982	G5	0
PHAR3 Wetland	*Phalaris arundiancea* wetland	canary reedgrass wetland	PBI		1
PSME/ROGY-HODI	*Pseudotsuga menziesii / Rosa gymnocarpa - Holodiscus discolor*	Douglas-fir / baldhip rose - oceanspray	Chappell 2004	G2G3S2	1
PSME-ABGR/HODI/POMU	*Pseudotsuga menziesii - Abies grandis / Holodiscus discolor / Polystichum munitum*	Douglas-fir - grand fir / oceanspray / swordfern	Chappell 2004	G1?S1	1
PSME-ARME/HODI/LOHI2	*Pseudotsuga menziesii - Arbutus menziess / Holodiscus discolor / Lonicera hispidula*	Douglas-fir - madrone / oceanspray / pink honeysuckle	Chappell 2004	G2G3S2	2
PSME-THPL-(ABGR)/GASH	*Pseudotsuga menziesii - Thuja plicata (Abies grandis) / Gaultheria shallon*	Douglas-fir - red cedar (grand fir) / salal	Chappell 2004	G2S1	1
PSME-THPL/GASH-MANE2/POMU	*Pseudotsuga menziesii - Thuja plicata / Gaultheria shallon - Mahonia nervosa / Polystichum munitum*	Douglas-fir - red cedar / salal - Cascade oregongrape / swordfern	Chappell 2004	G1S1	3
PSME-THPL/RHMA3	*Pseudotsuga menziesi - Thuja plicata / Rhododendron macrophyllum*	Douglas-fir - red cedar / Pacific rhododendron	Chappell 2004	G4S4	0
THPL-ABGR/POMU	*Thuja plicata - Abies grandis / Polystichum munitum*	red cedar - grand fir / swordfern	Chappell 2004	G1S1	13
Developed					1
Water					1

Table 3. Vegetation Community Types Encountered at Old Fort Townsend State Park

Abbreviation	Association Name	English Name	Reference	Status	# of Primary Polygons
ACMA-ALRU/POMU-TEGR3	*Acer macrophyllum–Alnus rubra / Polystichum munitum - Tellima grandiflora*	bigleaf maple–red alder / swordfern–fringecup	Chappell 2004	G2G3S2	2
ALRU2/POMU	*Alnus rubra / Polystichum munitum*	red alder / swordfern	Chappell 2004	G4S4	1
ALRU2/RUSP c.t.	*Alnus rubra / Rubus spectabilis* community type	red alder / salmonberry community type	Kunze 1994	G4G5	2
PSME-THPL-(ABGR)/GASH	*Pseudotsuga menziesii - Thuja plicata (Abies grandis) / Gaultheria shallon*	Douglas-fir - red cedar (grand fir) / salal	Chappell 2004	G2S1	14
PSME-THPL/GASH-MANE2/POMU	*Pseudotsuga menziesii - Thuja plicata / Gaultheria shallon - Mahonia nervosa / Polystichum munitum*	Douglas-fir - red cedar / salal - Cascade oregongrape / swordfern	Chappell 2004	G1S1	2
PSME-THPL/RHMA3	*Pseudotsuga menziesi - Thuja plicata / Rhododendron macrophyllum*	Douglas-fir - red cedar / Pacific rhododendron	Chappell 2004	G4S4	0
THPL-ABGR/POMU	*Thuja plicata - Abies grandis / Polystichum munitum*	red cedar - grand fir / swordfern	Chappell 2004	G1S1	2
Developed					1
water					1

Figure 5. Layout of the vegetation community polygons at Fort Worden State Park.

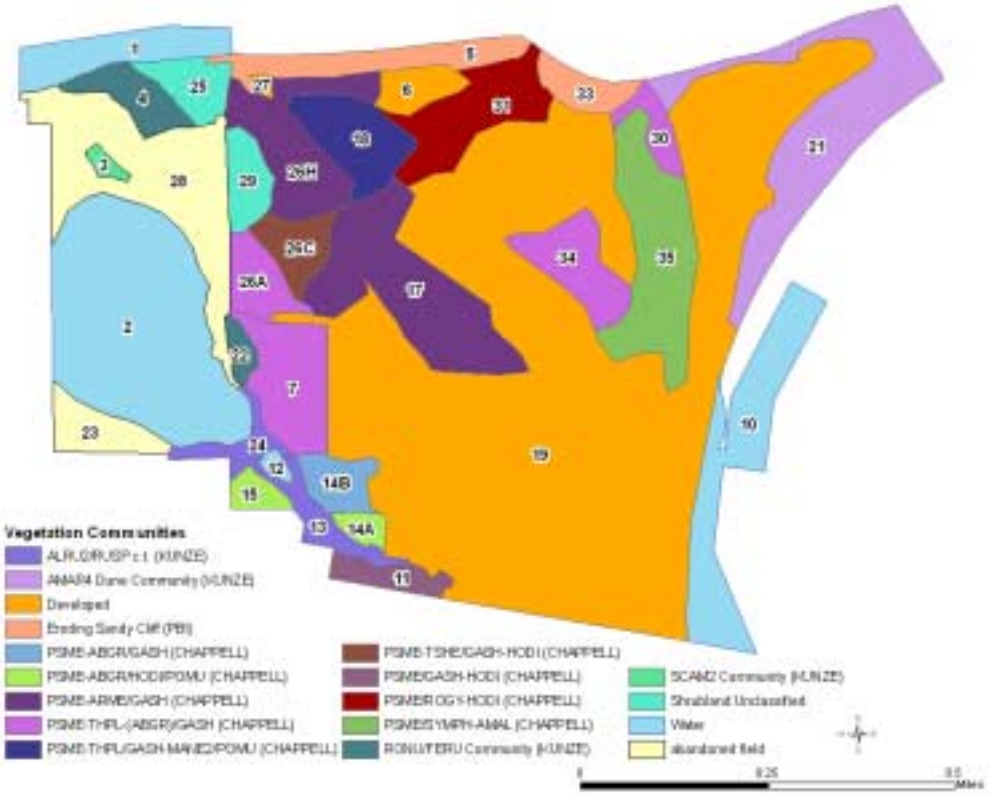

Figure 6. The primary vegetation community types at Fort Worden State park.

Figure 7. Layout of the vegetation community polygons at Anderson Lake State Park.

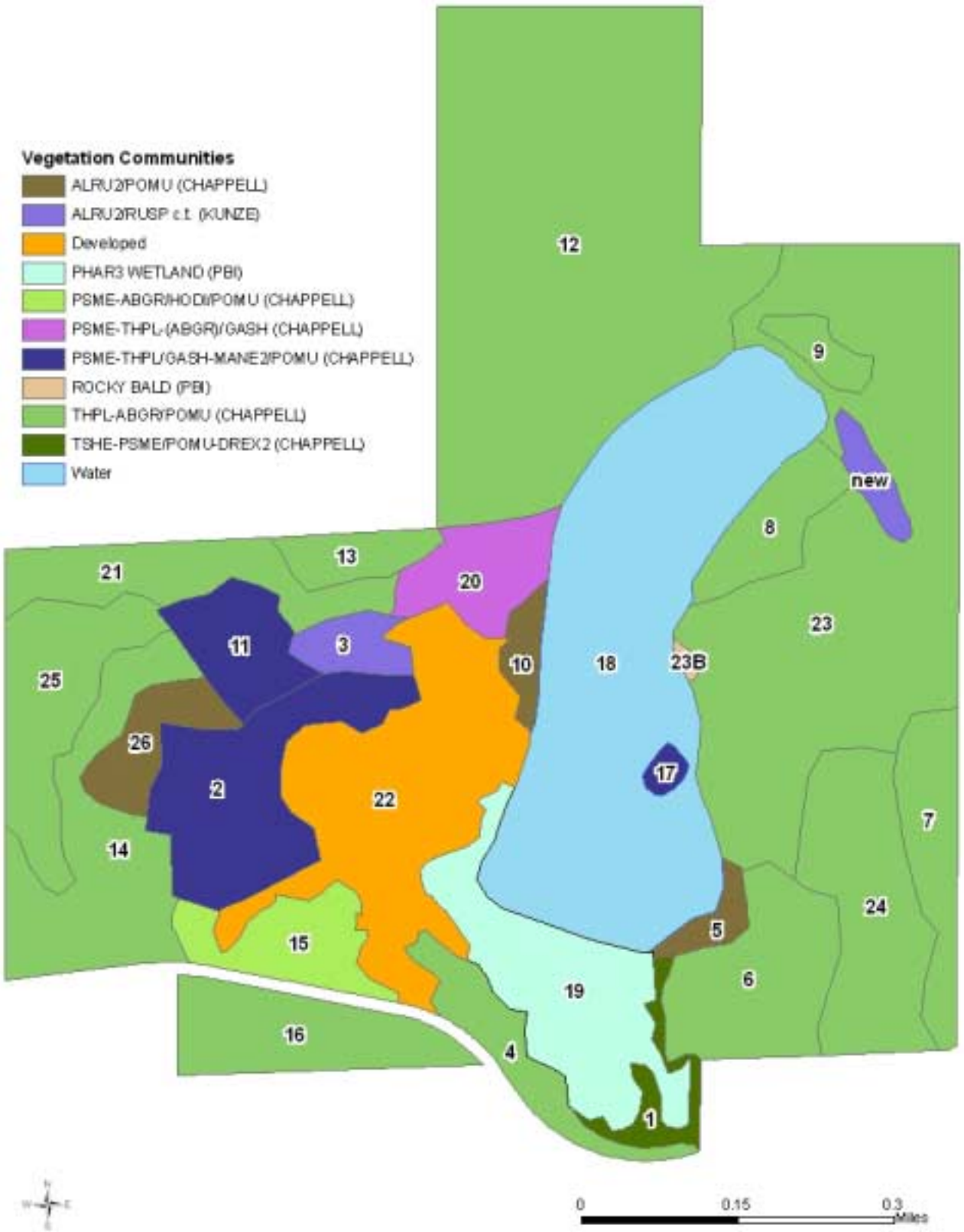

Figure 8. The primary vegetation community types at Anderson Lake State park.

Figure 9. Layout of the vegetation community polygons at Old Fort Townsend State Park.

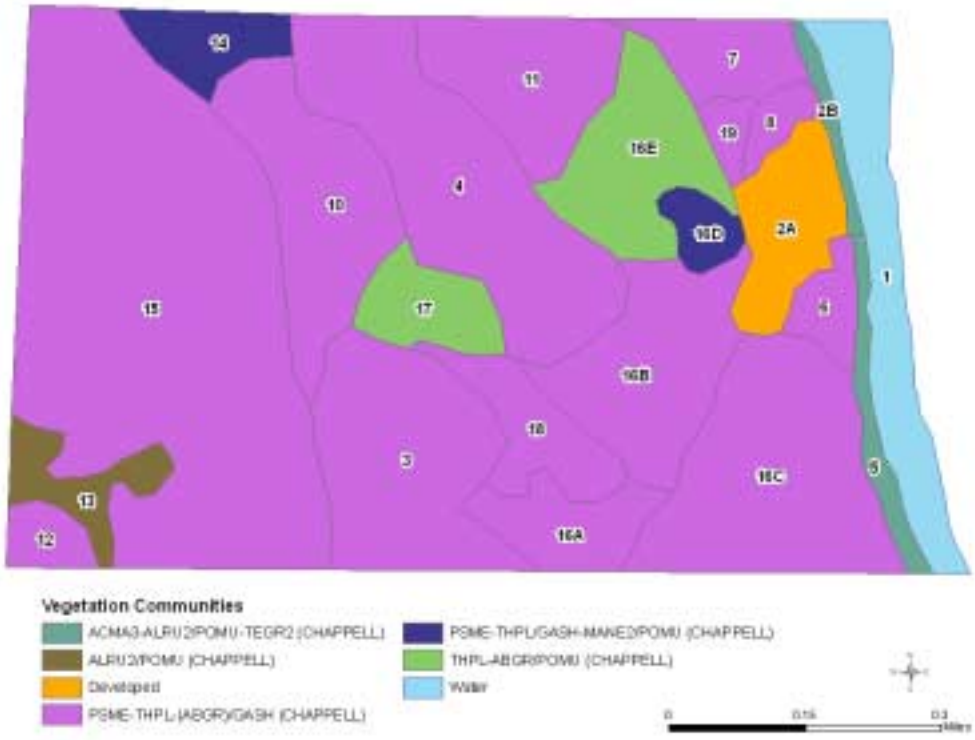

Figure 10. The primary vegetation community types at Old Fort Townsend State park.

Examples of Vegetation Community Types

Acer macrophyllum – Alnus rubra / Polystichum munitum - Tellima grandiflora forest (ACMA-ALRU/POMU-TEGR3)

This association is found primarily in the Puget Sound region, often on steep slopes, and typically not far from salt water. The steepness of the slope favors these broadleaf trees, bigleaf maple (*Acer macrophyllum*) and red alder (*Alnus rubra*) over coniferous species, in part because of soil creep and landslides down the slope. Bigleaf maple has the capacity to sprout from damaged stems after soil movement, and red alder is a nitrogen-fixing species, which gives it the ability to colonize disturbed soils where the nitrogen content of the soil is low. The frequently disturbed soil favors non-native, weedy colonizers as well, and such species are sometimes abundant in this association. In this survey this association occurs only on one steep slope in Lake Anderson State Park, where the non-native species Geranium Robert (*Geranium robertianum*) comprises an appreciable portion of the understory.

Alnus rubra / Polystichum munitum forest (ALRU2/POMU)

Because of its ability to fix nitrogen from the atmosphere, Red alder (*Alnus rubra*) is an early-seral, colonizer species of disturbed soil. Accordingly, this is an early- to mid-seral association that can regenerate after fire, windthrow, or timber harvest. Red alder is prolific after disturbance that exposes mineral soil, and it has therefore thrived on productive sites where conifer forest have been harvested and herbicides were not applied. Alder is short-lived (about 100 years). If conifers establish in the understory, then they are expected to dominate after the alder dies in the absence of further disturbance.

Alnus rubra / Rubus spectabilis community type (ALRU2/RUSP c.t.)

With red alder (*Alnus rubra*) as the lead species in the association, it is safe to assume that this is another early seral, post disturbance association. Salmonberry (*Rubus spectabilis*) easily reproduces from layering and basal sprouting from rhizomes, and readily resprouts after fire. Both species are facultative plants, capable of growing in wetland habitats or in drier upland situations.

Ammophila arenaria Dune Community (AMAR4 community)

European dunegrass (*Ammophila arenaria*) was introduced to the west coast of North America in l868 to stabilize dunes in the San Francisco area. Because of its ability to thrive under conditions of high wind and sand burial, the grass spread rapidly, both by natural means and through its steadily increasing use in sand stabilization projects. One result of the establishment and spread of *Ammophila* was the development, by about l950, of a massive foredune system along most of the dune areas of the Pacific Northwest coast. The vegetation of existing foredunes was overwhelmed and the foredunes built to a much larger size, while on the central Oregon coast, where previously there had been no foredune, one of massive proportions came into existence. In response to concerns about scenic landscape destruction and native plant extinction, there has been experimentation with various methods to control or eradicate Ammophila. None (burning, covering, mowing, salting, poisoning) has proved effective and/or practical.

Eroding Sandy Cliff

The eroding bluffs along portions of the seashore in the survey area provide a unique but temporal habitat for plant growth. Because of the frequent movement of soil, this environment strongly favors species that are adapted to disturbance. If trees are present they are most often red alder (*Alnus rubra*), a colonizer of disturbed soil. Native shrubs can include Nootka rose (*Rosa nutkana*) and Sitka willow (*Salix sitchensis*). Non-native species, which as invasives are by definition pre-adapted to disturbed soils, are common on these cliffs, with Scots broom (*Cytisis scoparius*) being particularly common.

Phalaris arundiancea wetland (PHAR3 wetland)

A highly variable species, reed canarygrass (*Phalaris arundinacea*) is a rhizomatous perennial grass that can reach three to six feet in height. While possibly native to North America, European cultivars have been widely introduced for use as hay and forage on the continent; there are no easy traits known for differentiating between the native plants and European cultivars. Reed canarygrass forms dense, highly productive single species stands that pose a major threat to many wetland ecosystems. The species grows so vigorously that it is able to inhibit and eliminate competing species. Unlike native wetland vegetation, dense stands of reed canarygrass have little value for wildlife. Few species eat the grass, and the stems grow too densely to provide adequate cover for small mammals and waterfowl. The species is considered a serious weed along irrigation banks and ditches because infestations can increase. Although reed canarygrass is planted as a forage crop in some areas, the species poses a significant threat to the state's wetlands.

Rocky Bald

Rocky balds in western Washington typically occur on sloping, dry sites. They are usually the driest sites short of literal rock outcrops in the area, an artifact of the slope, underlying bedrock and thin soil. This diminutive bald is at the edge of Lake Anderson along the east shore. A hiking trail passing through the bald and probably grazing impact from the time that there were farms in the area has lead to considerable deterioration of native vegetation and invasion by non-natives.

Pseudotsuga menziesii - Abies grandis / Gaultheria shallon forest (PSME-ABGR/GASH)
Pseudotsuga menziesii - Abies grandis / Holodiscus discolor / Polystichum munitum forest (PSME-ABGR/HODI/POMU)

PSME-ABGR alliance sites are moderately dry and appear to be relatively nutrient-rich. They are all located in dry climates at low elevations and are most concentrated in areas with the lowest mean annual precipitation in the region. Grand fir (*Abies grandis*) prefers less rainfall than western hemlock (*Tsuga heterophylla*), and is only slightly less shade tolerant, and so replaces hemlock as a late-seral conifer in drier locations.

Pseudotsuga menziesii / Gaultheria shallon - Holodiscus discolor forest (PSME/GASH-HODI)

All three of the species in this association grow in a wide variety of ecological conditions, from moist to fairly dry soils, and in full sun to deep shade. Taken together, they indicate a relatively dry site with gravelly soils that do not hold moisture well. All three species are moderately well adapted to fire, with salal (*Gaultheria shallon*) and oceanspray (*Holodiscus discolor*) readily resprouting from roots after a fire, and Douglas-fir (*Pseudotsuga menziesii*) developing a thick, fire-resistant bark with age.

Pseudotsuga menziesii / Rosa Gymnocarpa - Holodiscus discolor forest (PSME/ROGY-HODI)

This plant association occurs in Fort Worden State Park. This is an uncommon association that occurs on very dry sites with poor to medium nutrient status. These sites tend to be the driest sites that will support forest. An infestation of English ivy (*Hedera helix*) exists within the patch of this forest within the park.

Pseudotsuga menziesii / Symphoricarpos - Amelanchier alnifolia forest (PSME/SYMPH-AMAL)

All three of the species in this association have a wide ecological amplitude—they are able to grow in a relatively wide variety of conditions—and are increasers in the absence of fire. It is thought that this association has increased dramatically in Washington in the past 150 years, with the cessation of natural- and Native American-caused fires, and the subsequent invasion of grasslands by Douglas-fir (*Pseudotsuga menziesii*). It is now a common association on both the west and east sides of the Cascade crest.

Pseudotsuga menziesii - Arbutus menziesii / Gaultheria shallon forest (PSME-ARME/GASH)

Species in the genus *Arbutus* (Ericaceae) generally inhabit warm winter, dry summer (Mediterranean) climate areas in the Northern Hemisphere. Madrone is by far the most northerly broadleaf evergreen tree on the North American continent. For it to survive in the cool, wet climate of the Pacific Northwest, in only grows on sites with good soil drainage and bright sun. It is a fire-adapted species, resprouting after fires that will kill one of it's local competitors, Douglas fir (*Pseudotsuga menziesii*). Douglas-fir is likely to increase in abundance without disturbance, but does not appear to be excluding or out-competing madrone, even when madrone is overtopped, because the canopy of fir remains relatively open on these dry sites.

Pseudotsuga menziesii - Thuja plicata - (Abies grandis) / Gaultheria shallon forest (PSME-THPL-[ABGR]/GASH)

This association presents a mild anomaly in its combination of two facultative upland plants (Douglas-fir and salal) that are relatively rarely found in wetland sites, with red cedar (T*huja plicata*), which prefers at least it's deep roots in mesic soils. The association has a mean precipitation of 28" a year; on the west side of the Cascades such minimal precipitation can only be found in mountain rainshadows. Red cedar and grand fir (*Abies grandis*) are both more shade-tolerant than Douglas-fir (*Pseudotsuga menziesii*), and will slowly replace the latter species in the absence of disturbance.

Pseudotsuga menziesii - Thuja plicata / Gaultheria shallon - Mahonia nervosa / Polystichum munitum forest (PSME-THPL/GASH-MANE2/POMU)

This association is a mid-seral meeting of generalist species that do well in a variety of conditions. Dwarf Oregon-grape (*Mahonia nervosa*) is the new entry from previously discussed associations. Dwarf oregon-grape has a wide ecological amplitude, surviving as a colonizer after logging and fire, and appearing in the deep shade of a climax forest. In the absence of disturbance, red cedar (*Thuja plicata*), a shade-tolerant species, would overtake Douglas-fir (*Pseudotsuga menziesii*) as the dominant tree species.

Rosa nutakana / Festuca rubra (RONU/FERU2)

This is a relatively rare association, found only near saltwater shorelines on shallow soils over bedrock or on steep glacial bluffs. It is a dry-site association, with precipitation averaging 26" a year and soils that are incapable of retaining enough moisture to support coniferous trees. It is not unusual for the Nootka rose (*Rosa nutkana*) to form a thicket impenetrable to humans, making it a refuge for various forms of wildlife.

Scirpus americanus (SCAM2 community)

A small wetland patch between the large lagoon and the beach at Fort Worden State Park supports a homogenous cover of *Scirpus americanus*. It is not known whether this wetland patch is a remnant of human caused disturbances during development of the Fort, or whether this wetland used to naturally connect the lagoon to the beach area.

Thuja plicata - Abies grandis / Polystichum munitum forest (THPL-ABGR/POMU)

This is a common association in the survey area, being dominant in 15 polygons. Notably absent from the association is Douglas-fir (*Pseudotsuga menziesii*), which is a mid-seral species that is intolerant to shade relative to red cedar (*Thuja plicata*) and grand fir (*Abies grandis*), which have probably replace Douglas-fir in these sites over time. Grand fir prefers a drier moisture regimine than western hemlock, and indicates that either the annual precipitation is below 40" a year or the moisture-holding capacity of the soil is low.

Rare Plant Surveys

Methods

We visited Fort Worden, Lake Anderson and Old Fort Townsend State Parks multiple times during the 2006 field season to conduct rare plant surveys. We used the Washington Department of Natural Resources Natural Heritage Program's (DNR NHP) rare plant list to determine the conservation status of vascular plants encountered in the field. When a plant from the DNR NHP list was located, we used the standard DNR NHP rare plant sighting form to complete field descriptions for the observation. These forms are attached as Appendix E.

Specific dates of field surveys for each park can be found in Appendix A of this report. During the field surveys, we were equipped with reference literature, rare plant lists for the area, maps showing rare plant locations from previous surveys, and a portable plant identification lab. We looked for rare plants in habitats previously identified as being likely occurrence sites. So as not to miss a rare plant, all vascular plant species encountered during the inventory were identified on site, at base camp in the portable laboratory, or back at our office.

Survey routes were determined based on the desire to efficiently cover a large proportion of the park's area throughout the field season. We surveyed habitats of the park where we felt rare plants were more likely to occur more intensively. Survey routes for the rare plant inventory and rare plant locations were recorded either by hand, on a hardcopy topographic map, or as GPS waypoints and trackpoints, all of which were later compiled into a single GIS data layer for each park (Figures 2 - 4).

Results

Rare Plants

We located one vascular plant species within Anderson Lake State Park currently listed on the WA DNR NHP rare plant list. No listed plants were encountered in Fort Worden or Old Fort Townsend State Parks, although an unverified sighting of *Boschniakia hookeri* has been reported in Old Fort Townsend State Park. The location of the listed plants in Anderson Lake State Park and a photo of the specimens are provided in Figures 11 and 12. See Appendix E for a full printout of the DNR NHP field sighting forms. See Appendix B for definitions of Status codes.

Species	**Common Name**	**Status**
Boschniakia hookeri Walp.	Vancouver ground-cone	G5-S3-R1

Vancouver ground cone is a non-green, non-photosynthetic plant that is a root parasite on other species, primarily on salal (*Gaultheria shallon*).

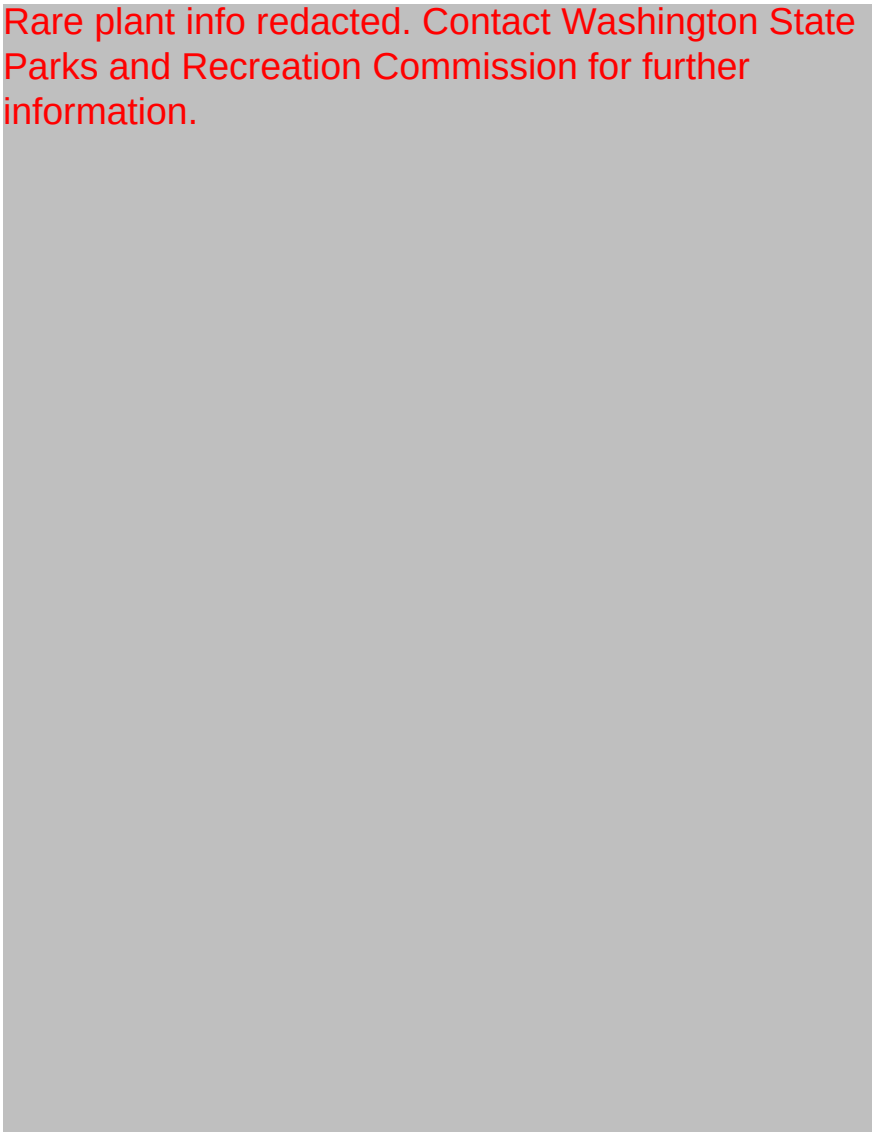

Figure 11. Location of *Boschniakia hookeri* within Anderson Lake State Park.

Figure 12. Photo of *Boschniakia hookeri* in the "button" stage of development. A penny is included for scale.

Vascular Plant Lists for Fort Worden, Mystery Bay and Old Fort Townsend State Parks

A total of 201 vascular plant species were identified during the 2006 surveys within the Fort Worden, Lake Anderson and Old Fort Townsend State Parks. Of these, 58 of the plant species are non-native, accounting for 29% of the total. Broken down by park, the totals are as follows:
Fort Warden State Park: 143 vascular plant species identified, of which 45, or 32%, are non-native.
Lake Anderson State Park: 141 vascular plant species identified, of which 35, or 25%, are non-native.
Old Fort Townsend State Park: 78 vascular plant species identified, of which 19, or 24%, are non-native.

Key to Vascular Plant Species List

"Code": Four-letter plant code as shown on the USDA PLANTS database.

"Alien?": species that are not native to the park are indicated with an "a"

"Common Name / Accepted Synonym": The species list uses Hitchcock and Cronquist, *Flora of the Pacific Northwest* as the taxonomic authority, as this is still the standard reference for our area. Updated nomenclature or general common names are shown in this column when they exist.

Vascular Plant Species of Fort Worden State Park –

#	Code	Scientific Name	Common Name/Accepted Synonym	Family	Alien
1	ABAM	Abies amabilis (Dougl. ex Loud.) Dougl.	Pacific silver fir	Pinaceae	
2	ABGR	Abies grandis (Dougl. ex D. Don) Lindl.	grand fir	Pinaceae	
3	ABLA2	Abronia latifolia Eschsch.	coastal sand verbena	Nyctaginaceae	
4	ACMA3	Acer macrophyllum Pursh	bigleaf maple	Aceraceae	
5	ACMI2	Achillea millefolium L.	yarrow	Asteraceae	
6	ADBI	Adenocaulon bicolor Hook.	pathfinder	Asteraceae	
7	AGRE2	Agropyron repens (L.) Beauv.	>>Elymus repens	Poaceae	a
8	AGDI	Agrostis diegoensis Vasey	>>Agrostis pallens	Poaceae	a
9	AGSC5	Agrostis scabra Willd.	rough bentgrass	Poaceae	
10	ALRU2	Alnus rubra Bong.	red alder	Betulaceae	
11	AMCHB	Ambrosia chamissonis (Less.) Greene	>>Ambrosia chamissonis	Asteraceae	
12	AMAL2	Amelanchier alnifolia (Nutt.) Nutt. ex M. Roemer	Saskatoon serviceberry	Rosaceae	
13	AMAR4	Ammophila arenaria (L.) Link	European beachgrass	Poaceae	a
14	ANMA	Anaphalis margaritacea (L.) Benth.	western pearly everlasting	Asteraceae	
15	ANOD	Anthoxanthum odoratum L.	sweet vernalgrass	Poaceae	a
16	ARME	Arbutus menziesii Pursh	madrone	Ericaceae	
17	ARSU4	Artemisia suksdorfii Piper	coastal wormwood	Asteraceae	
18	BEPE2	Bellis perennis L.	lawn daisy	Asteraceae	a
19	BEAQ	Berberis aquifolium Pursh	>>Mahonia aquifolium	Berberidaceae	
20	BENE2	Berberis nervosa Pursh	>>Mahonia nervosa	Berberidaceae	
21	BRCA2	Brassica campestris L.	>>Brassica rapa var. rapa	Brassicaceae	a
22	BRPA3	Bromus pacificus Shear	Pacific brome	Poaceae	
23	CAMA	Cakile maritima Scop.	European searocket	Brassicaceae	a
24	CABU	Calypso bulbosa (L.) Oakes	fairy slipper	Orchidaceae	
25	CABU2	Capsella bursa-pastoris (L.) Medik.	shepherd's purse	Brassicaceae	a
26	CAOL	Cardamine oligosperma Nutt.	little western bittercress	Brassicaceae	
27	CAMA10	Carex macrocephala Willd. ex Spreng.	largehead sedge	Cyperaceae	
28	CEAR4	Cerastium arvense L.	field chickweed	Caryophyllaceae	
29	CIAR4	Cirsium arvense (L.) Scop.	Canada thistle	Asteraceae	a
30	CIVU	Cirsium vulgare (Savi) Ten.	bull thistle	Asteraceae	a
31	CLLI2	Clematis ligusticifolia Nutt.	western white clematis	Ranunculaceae	
32	COMA2	Conium maculatum L.	poison hemlock	Apiaceae	
33	COAR4	Convolvulus arvensis L.	field bindweed	Convolvulaceae	a
34	COCO6	Corylus cornuta Marsh.	California hazelnut	Betulaceae	
35	CRTI	Crassula tillaea Lester-Garland	pygmy-weed	Crassulaceae	a
36	CYCR	Cynosurus cristatus L.	crested dogstail grass	Poaceae	a
37	CYSC4	Cytisus scoparius (L.) Link	scotchbroom	Fabaceae	a
38	DAGL	Dactylis glomerata L.	orchardgrass	Poaceae	a
39	DISP	Distichlis spicata (L.) Greene	inland saltgrass	Poaceae	
40	DRVE2	Draba verna L.	spring draba	Brassicaceae	
41	ELHI	Elymus hirsutus J. Presl	northern ryegrass	Poaceae	
42	EPAN2	Epilobium angustifolium L.	>>Chamerion angustifolium ssp. angustifolium	Onagraceae	
43	EQAR	Equisetum arvense L.	field horsetail	Equisetaceae	
44	EQTE	Equisetum telmateia Ehrh.	giant horsetail	Equisetaceae	
45	ERCI6	Erodium cicutarium (L.) L'Hér. ex Ait.	crane'sbill	Geraniaceae	a
46	FEMY2	Festuca myuros L.	>>Vulpia myuros	Poaceae	a
47	FERU2	Festuca rubra L.	red fescue	Poaceae	a
48	FESU	Festuca subulata Trin.	bearded fescue	Poaceae	
49	FRVE	Fragaria vesca L.	woodland strawberry	Rosaceae	
50	GAAP2	Galium aparine L.	stickywilly	Rubiaceae	
51	GASH	Gaultheria shallon Pursh	salal	Ericaceae	
52	GEMA4	Geum macrophyllum Willd.	largeleaf avens	Rosaceae	
53	GLHE2	Glechoma hederacea L.	ground ivy	Lamiaceae	a
54	GLLE5	Glehnia leiocarpa Mathias	>>Glehnia littoralis ssp. leiocarpa	Apiaceae	
55	GOOB2	Goodyera oblongifolia Raf.	western rattlesnake plantain	Orchidaceae	
56	GRINM	Grindelia integrifolia DC. var. macrophylla (Greene) Cr	>>Grindelia stricta var. stricta	Asteraceae	
57	HEHE	Hedera helix L.	English ivy	Araliaceae	a
58	HIAL2	Hieracium albiflorum Hook.	white hawkweed	Asteraceae	
59	HOLA	Holcus lanatus L.	common velvetgrass	Poaceae	a
60	HODI	Holodiscus discolor (Pursh) Maxim.	oceanspray	Rosaceae	
61	HOPE	Honkenya peploides (L.) Ehrh.	seaside sandplant	Caryophyllaceae	
62	HYRA3	Hypochaeris radicata L.	hairy cat's ear	Asteraceae	a

#	Code	Scientific Name	Common Name/Accepted Synonym	Family	Alien
63	ILAQ80	Ilex aquifolium L.	English holly	Aquifoliaceae	
64	JUBA	Juncus balticus Willd.	Baltic rush	Juncaceae	
65	LAMU	Lactuca muralis (L.) Fresen.	>>Mycelis muralis	Asteraceae	a
66	LAPU2	Lamium purpureum L.	purple deadnettle	Lamiaceae	a
67	LALI2	Lathyrus littoralis (Nutt.) Endl.	silky beach pea	Fabaceae	
68	LAPA4	Lathyrus palustris L.	marsh pea	Fabaceae	
69	LEMI3	Lemna minor L.	common duckweed	Lemnaceae	
70	LIBO3	Linnaea borealis L.	twinflower	Ericaceae	
71	LOCI3	Lonicera ciliosa (Pursh) Poir. ex DC.	orange honeysuckle	Caprifoliaceae	
72	LOHI2	Lonicera hispidula (Lindl.) Dougl. ex Torr. & Gray	pink honeysuckle	Caprifoliaceae	
73	LUAR	Lupinus arboreus Sims	yellow bush lupine	Fabaceae	
74	MEHI	Medicago hispida Gaertn.	>>Medicago polymorpha	Fabaceae	a
75	MESA	Medicago sativa L.	alfalfa	Fabaceae	a
76	MESM	Melica smithii (Porter ex Gray) Vasey	Smith's melicgrass	Poaceae	
77	MOUN3	Monotropa uniflora L.	Indianpipe	Monotropaceae	
78	MOPE3	Montia perfoliata (Donn ex Willd.) T.J. Howell	>>Claytonia perfoliata ssp. perfoliata	Caryophyllaceae	
79	MOSI2	Montia sibirica (L.) T.J. Howell	>>Claytonia sibirica var. sibirica	Portulacaceae	
80	MYSC	Myosotis scorpioides L.	true forget-me-not	Boraginaceae	a
81	OECE	Oemleria cerasiformis (Torr. & Gray ex Hook. & Arn.)	Indian plum	Rosaceae	
82	ORPU3	Orthocarpus pusillus Benth.	>>Triphysaria pusilla	Scrophulariaceae	
83	OSCH	Osmorhiza chilensis Hook. & Arn.	>>Osmorhiza berteroi	Apiaceae	
84	PHAR3	Phalaris arundinacea L.	reed canarygrass	Poaceae	a
85	PISI	Picea sitchensis (Bong.) Carr.	Sitka spruce	Pinaceae	
86	PLLA	Plantago lanceolata L.	narrowleaf plantain	Plantaginaceae	a
87	PLMA2	Plantago major L.	common plantain	Plantaginaceae	a
88	POAN	Poa annua L.	annual bluegrass	Poaceae	a
89	POBU	Poa bulbosa L.	bulbous bluegrass	Poaceae	a
90	POPR	Poa pratensis L.	Kentucky bluegrass	Poaceae	a
91	POAV	Polygonum aviculare L.	prostrate knotweed	Polygonaceae	
92	POPA7	Polygonum paronychia Cham. & Schlecht.	beach knotweed	Polygonaceae	
93	POGL8	Polypodium glycyrrhiza D.C. Eat.	licorice fern	Polypodiaceae	
94	POMU	Polystichum munitum (Kaulfuss) K. Presl	swordfern	Polypodiaceae	
95	POPE6	Potamogeton pectinatus L.	>>Stuckenia pectinata	Potamogetonaceae	
96	PREM	Prunus emarginata (Dougl. ex Hook.) D. Dietr.	bitter cherry	Rosaceae	
97	PSME	Pseudotsuga menziesii (Mirbel) Franco	Douglas-fir	Pinaceae	
98	PTAQ	Pteridium aquilinum (L.) Kuhn	bracken fern	Dennstaedtiaceae	
99	PYFU	Pyrus fusca Raf.	>>Malus fusca	Rosaceae	
100	RAOC	Ranunculus occidentalis Nutt.	western buttercup	Ranunculaceae	
101	RISA	Ribes sanguineum Pursh	redflower currant	Grossulariaceae	
102	ROGY	Rosa gymnocarpa Nutt.	dwarf rose	Rosaceae	
103	RONU	Rosa nutkana K. Presl	Nootka rose	Asteraceae	
104	RUDI2	Rubus discolor Weihe & Nees	>>Rubus armeniacus	Rosaceae	
105	RUPA	Rubus parviflorus Nutt.	thimbleberry	Rosaceae	
106	RUSP	Rubus spectabilis Pursh	salmonberry	Rosaceae	
107	RUUR	Rubus ursinus Cham. & Schlecht.	California blackberry	Rosaceae	
108	SALA5	Salix lasiandra Benth.	>>Salix lucida ssp. lasiandra	Salicaceae	
109	SASC	Salix scouleriana Barratt ex Hook.	Scouler's willow	Salicaceae	
110	SASI2	Salix sitchensis Sanson ex Bong.	Sitka willow	Salicaceae	
111	SARA2	Sambucus racemosa L.	red elderberry	Caprifoliaceae	
112	SACR2	Sanicula crassicaulis Poepp. ex DC.	>>Sagina maxima ssp. crassicaulis	Apiaceae	
113	SADO5	Satureja douglasii (Benth.) Briq.	>>Clinopodium douglasii	Lamiaceae	
114	SCAM2	Scirpus americanus Pers.	>>Schoenoplectus americanus	Equisetaceae	
115	SCMA	Scirpus maritimus L.	>>Schoenoplectus maritimus	Cyperaceae	
116	SEAC	Sedum acre L.	goldmoss stonecrop	Crassulaceae	a
117	SEVU	Senecio vulgaris L.	old-man-in-the-Spring	Asteraceae	a
118	SMRA*	Smilacina racemosa (L) Desf.	>>Maianthemum racemosum ssp. amplexicaule	Liliaceae	
119	SOAS	Sonchus asper (L.) Hill	spiny sowthistle	Asteraceae	a
120	SOAU	Sorbus aucuparia L.	European mountain ash	Rosaceae	a

#	Code	Scientific Name	Common Name/Accepted Synonym	Family	Alien
118	SMRA*	Smilacina racemosa (L) Desf.	>>Maianthemum racemosum ssp. amplexica	Liliaceae	
119	SOAS	Sonchus asper (L.) Hill	spiny sowthistle	Asteraceae	a
120	SOAU	Sorbus aucuparia L.	European mountain ash	Rosaceae	a
121	SPRU	Spergularia rubra (L.) J.& K. Presl	red sandspurry	Caryophyllaceae	
122	SPPO	Spirodela polyrrhiza (L.) Schleid.	common duckmeat	Lemnaceae	a
123	STCR2	Stellaria crispa Cham. & Schlecht.	curled starwort	Caryophyllaceae	
124	STSI2	Stellaria simcoei (T.J. Howell) C.L. Hitchc.	>>Stellaria calycantha	Caryophyllaceae	
125	SYAL	Symphoricarpos albus (L.) Blake	common snowberry	Caprifoliaceae	
126	TAOF	Taraxacum officinale G.H. Weber ex Wiggers	dandelion	Asteraceae	a
127	TABR2	Taxus brevifolia Nutt.	Pacific yew	Taxaceae	
128	TEGR2	Tellima grandiflora (Pursh) Dougl. ex Lindl.	bigflower tellima	Saxifragaceae	
129	THPL	Thuja plicata Donn ex D. Don	western red cedar	Cupressaceae	
130	TRLA6	Trientalis latifolia Hook.	>>Trientalis borealis ssp. latifolia	Primulaceae	
131	TRAR4	Trifolium arvense L.	rabbitfoot clover	Fabaceae	a
132	TRPR2	Trifolium pratense L.	red clover	Fabaceae	a
133	TRRE3	Trifolium repens L.	white clover	Fabaceae	a
134	TROV2	Trillium ovatum Pursh	Pacific trillium	Liliaceae	
135	TSHE	Tsuga heterophylla (Raf.) Sarg.	western hemlock	Pinaceae	
136	TYLA	Typha latifolia L.	broadleaf cattail	Typhaceae	
137	URDI	Urtica dioica L.	nettle	Urticaceae	
138	VAOV	Vaccinium ovalifolium Sm.	California huckleberry	Ericaceae	
139	VECH	Veronica chamaedrys L.	germander speedwell	Scrophulariaceae	a
140	VIAM	Vicia americana Muhl. ex Willd.	American vetch	Fabaceae	
141	VIGI	Vicia gigantea Hook.	>>Vicia nigricans ssp. gigantea	Fabaceae	
142	VIHI	Vicia hirsuta (L.) S.F. Gray	tiny vetch	Fabaceae	a
143	VISA	Vicia sativa L.	garden vetch	Fabaceae	a

Non-native Vascular Plant Species of Fort Worden State Park

#	Code	Scientific Name	Common Name/Accepted Synonym	Family	Alien
1	AGRE2	Agropyron repens (L.) Beauv.	>>Elymus repens	Poaceae	a
2	AGDI	Agrostis diegoensis Vasey	>>Agrostis pallens	Poaceae	a
3	AMAR4	Ammophila arenaria (L.) Link	European beachgrass	Poaceae	a
4	ANOD	Anthoxanthum odoratum L.	sweet vernalgrass	Poaceae	a
5	BEPE2	Bellis perennis L.	lawn daisy	Asteraceae	a
6	BRCA2	Brassica campestris L.	>>Brassica rapa var. rapa	Brassicaceae	a
7	CAMA	Cakile maritima Scop.	European searocket	Brassicaceae	a
8	CABU2	Capsella bursa-pastoris (L.) Medik.	shepherd's purse	Brassicaceae	a
9	CIAR4	Cirsium arvense (L.) Scop.	Canada thistle	Asteraceae	a
10	CIVU	Cirsium vulgare (Savi) Ten.	bull thistle	Asteraceae	a
11	COAR4	Convolvulus arvensis L.	field bindweed	Convolvulaceae	a
12	CRTI	Crassula tillaea Lester-Garland	pygmy-weed	Crassulaceae	a
13	CYCR	Cynosurus cristatus L.	crested dogstail grass	Poaceae	a
14	CYSC4	Cytisus scoparius (L.) Link	scotchbroom	Fabaceae	a
15	DAGL	Dactylis glomerata L.	orchardgrass	Poaceae	a
16	ERCI6	Erodium cicutarium (L.) L'Hér. ex Ait.	crane'sbill	Geraniaceae	a
17	FEMY2	Festuca myuros L.	>>Vulpia myuros	Poaceae	a
18	FERU2	Festuca rubra L.	red fescue	Poaceae	a
19	GLHE2	Glechoma hederacea L.	ground ivy	Lamiaceae	a
20	HEHE	Hedera helix L.	English ivy	Araliaceae	a
21	HOLA	Holcus lanatus L.	common velvetgrass	Poaceae	a
22	HYRA3	Hypochaeris radicata L.	hairy cat's ear	Asteraceae	a
23	LAMU	Lactuca muralis (L.) Fresen.	>>Mycelis muralis	Asteraceae	a
24	LAPU2	Lamium purpureum L.	purple deadnettle	Lamiaceae	a
25	MEHI	Medicago hispida Gaertn.	>>Medicago polymorpha	Fabaceae	a
26	MESA	Medicago sativa L.	alfalfa	Fabaceae	a
27	MYSC	Myosotis scorpioides L.	true forget-me-not	Boraginaceae	a
28	PHAR3	Phalaris arundinacea L.	reed canarygrass	Poaceae	a
29	PLLA	Plantago lanceolata L.	narrowleaf plantain	Plantaginaceae	a
30	PLMA2	Plantago major L.	common plantain	Plantaginaceae	a
31	POAN	Poa annua L.	annual bluegrass	Poaceae	a
32	POBU	Poa bulbosa L.	bulbous bluegrass	Poaceae	a
33	POPR	Poa pratensis L.	Kentucky bluegrass	Poaceae	a
34	SEAC	Sedum acre L.	goldmoss stonecrop	Crassulaceae	a
35	SEVU	Senecio vulgaris L.	old-man-in-the-Spring	Asteraceae	a
36	SOAS	Sonchus asper (L.) Hill	spiny sowthistle	Asteraceae	a
37	SOAU	Sorbus aucuparia L.	European mountain ash	Rosaceae	a
38	SPPO	Spirodela polyrrhiza (L.) Schleid.	common duckmeat	Lemnaceae	a
39	TAOF	Taraxacum officinale G.H. Weber ex Wiggers	dandelion	Asteraceae	a
40	TRAR4	Trifolium arvense L.	rabbitfoot clover	Fabaceae	a
41	TRPR2	Trifolium pratense L.	red clover	Fabaceae	a
42	TRRE3	Trifolium repens L.	white clover	Fabaceae	a
43	VECH	Veronica chamaedrys L.	germander speedwell	Scrophulariaceae	a
44	VIHI	Vicia hirsuta (L.) S.F. Gray	tiny vetch	Fabaceae	a
45	VISA	Vicia sativa L.	garden vetch	Fabaceae	a

Vascular Plant Species of Lake Anderson State Park

#	Code	Scientific Name	Common Name/Accepted Synonym	Family	Alien
1	ABGR	Abies grandis (Dougl. ex D. Don) Lindl.	grand fir	Pinaceae	
2	ACMA3	Acer macrophyllum Pursh	bigleaf maple	Aceraceae	
3	ACMI2	Achillea millefolium L.	yarrow	Asteraceae	
4	ADBI	Adenocaulon bicolor Hook.	pathfinder	Asteraceae	
5	AGTE	Agrostis tenuis Sibthorp	>>Agrostis capillaris	Poaceae	
6	ALOC	Alchemilla occidentalis Nutt.	>>Aphanes arvensis	Rosaceae	
7	ALRU2	Alnus rubra Bong.	red alder	Betulaceae	
8	AMAL2	Amelanchier alnifolia (Nutt.) Nutt.	Saskatoon serviceberry	Rosaceae	
9	ANMA	Anaphalis margaritacea (L.) Benth.	western pearly everlasting	Asteraceae	
10	ARGL	Arabis glabra (L.) Bernh.	tower rockcress	Brassicaceae	
11	ARME	Arbutus menziesii Pursh	madrone	Ericaceae	
12	ARMI2	Arctium minus Bernh.	lesser burdock	Asteraceae	a
13	ARMA18	Arenaria macrophylla Hook.	>>Moehringia macrophylla	Caryophyllaceae	
14	AREL3	Arrhenatherum elatius (L.) Beauv.	tall oatgrass	Poaceae	a
15	ATFI	Athyrium filix-femina (L.) Roth	common ladyfern	Dryopteridaceae	
16	BEPE2	Bellis perennis L.	lawn daisy	Asteraceae	a
17	BEAQ	Berberis aquifolium Pursh	>>Mahonia aquifolium	Berberidaceae	
18	BENE2	Berberis nervosa Pursh	>>Mahonia nervosa	Berberidaceae	
19	BOHO	Boschniakia hookeri Walp.	Vancouver groundcone	Orobanchaceae	
20	BRCO3	Brodiaea coronaria (Salisb.) Engl.	crown brodiaea	Liliaceae	
21	CABU	Calypso bulbosa (L.) Oakes	fairy slipper	Orchidaceae	
22	CABU2	Capsella bursa-pastoris (L.) Medik.	shepherd's purse	Brassicaceae	a
23	CABR6	Cardamine breweri S. Wats.	Brewer's bittercress	Brassicaceae	
24	CAOL	Cardamine oligosperma Nutt.	little western bittercress	Brassicaceae	
25	CADE9	Carex deweyana Schwein.	Dewey sedge	Cyperaceae	
26	CAOB3	Carex obnupta Bailey	slough sedge	Cyperaceae	
27	CEAR4	Cerastium arvense L.	field chickweed	Caryophyllaceae	
28	CIAL	Circaea alpina L.	small enchanter's nightshade	Onagraceae	
29	CIAR4	Cirsium arvense (L.) Scop.	Canada thistle	Asteraceae	a
30	CRTI	Crassula tillaea Lester-Garland	pygmy-weed	Crassulaceae	a
31	CYSC4	Cytisus scoparius (L.) Link	scotchbroom	Fabaceae	a
32	DAGL	Dactylis glomerata L.	orchardgrass	Poaceae	a
33	DAPU3	Daucus pusillus Michx.	American wild carrot	Apiaceae	a
34	DRVE2	Draba verna L.	spring draba	Brassicaceae	
35	DRAUS2	Dryopteris austriaca (Jacq.) Woynar	>>Dryopteris carthusiana	Dryopteridaceae	
36	ELCA7	Elodea canadensis Michx.	Canadian waterweed	Hydrocharitaceae	
37	EPAN2	Epilobium angustifolium L.	>>Chamerion angustifolium	Onagraceae	
38	EQAR	Equisetum arvense L.	field horsetail	Equisetaceae	
39	ERCI6	Erodium cicutarium (L.) L'Hér. ex Ait.	crane'sbill	Geraniaceae	a
40	FEAR3	Festuca arundinacea Schreb.	>>Schedonorus phoenix	Poaceae	a
41	FRVI	Fragaria virginiana Duchesne	Virginia strawberry	Rosaceae	
42	GAAP2	Galium aparine L.	stickywilly	Rubiaceae	
43	GASH	Gaultheria shallon Pursh	salal	Ericaceae	
44	GERO	Geranium robertianum L.	Robert geranium	Geraniaceae	a
45	GEMA4	Geum macrophyllum Willd.	largeleaf avens	Rosaceae	
46	GLHE2	Glechoma hederacea L.	ground ivy	Lamiaceae	a
47	GOOB2	Goodyera oblongifolia Raf.	western rattlesnake plantain	Orchidaceae	
48	HEHE	Hedera helix L.	English ivy	Araliaceae	a
49	HEMI7	Heuchera micrantha Dougl. ex Lindl.	crevice alumroot	Saxifragaceae	
50	HIAL2	Hieracium albiflorum Hook.	white hawkweed	Asteraceae	
51	HODI	Holodiscus discolor (Pursh) Maxim.	oceanspray	Rosaceae	
52	HYPE	Hypericum perforatum L.	common St. Johnswort	Clusiaceae	a

53	HYRA3	Hypochaeris radicata L.	hairy cat's ear	Asteraceae	a
54	ILAQ80	Ilex aquifolium L.	English holly	Aquifoliaceae	a
55	JUEF	Juncus effusus L.	common rush	Juncaceae	
56	LAMU	Lactuca muralis (L.) Fresen.	>>Mycelis muralis	Asteraceae	a
57	LAPU2	Lamium purpureum L.	purple deadnettle	Lamiaceae	a
58	LACO3	Lapsana communis L.	common nipplewort	Asteraceae	a
59	LEMI3	Lemna minor L.	common duckweed	Lemnaceae	
60	LIBO3	Linnaea borealis L.	twinflower	Ericaceae	
61	LOCI3	Lonicera ciliosa (Pursh) Poir. ex DC.	orange honeysuckle	Caprifoliaceae	
62	LUCA*	Luzula campestris (L.) DC.	field woodrush	Juncaceae	
63	LYUN	Lycopus uniflorus Michx.	northern bugleweed	Lamiaceae	
64	LYAM3	Lysichiton americanus Hultén & St. John	American skunkcabbage	Araceae	
65	MADI	Maianthemum dilatatum (Wood) A. Nels.	false lily of the valley	Liliaceae	
66	MOPE3	Montia perfoliata T.J. Howell	>>Claytonia perfoliata ssp. perfoliata	Caryophyllaceae	
67	MOSI2	Montia sibirica (L.) T.J. Howell	>>Claytonia sibirica var. sibirica	Portulacaceae	
68	MYLA	Myosotis laxa Lehm.	bay forget-me-not	Boraginaceae	
69	MYSC	Myosotis scorpioides L.	true forget-me-not	Boraginaceae	a
70	NEPA	Nemophila parviflora Dougl. ex Benth.	smallflower nemophila	Hydrophyllaceae	
71	NUPO2	Nuphar polysepala Engelm.	>>Nuphar lutea ssp. polysepala	Nymphaeaceae	
72	OECE	Oemleria cerasiformis Landon	Indian plum	Rosaceae	
73	OESA	Oenanthe sarmentosa K. Presl ex DC.	water parsely	Apiaceae	
74	ORVU	Origanum vulgare L.	oregano	Lamiaceae	a
75	ORPU3	Orthocarpus pusillus Benth.	>>Triphysaria pusilla	Scrophulariaceae	
76	OSCH	Osmorhiza chilensis Hook. & Arn.	>>Osmorhiza berteroi	Apiaceae	
77	PHAR3	Phalaris arundinacea L.	reed canarygrass	Poaceae	a
78	PISI	Picea sitchensis (Bong.) Carr.	Sitka spruce	Pinaceae	
79	PITR	Pityrogramma triangularis (Kaulfuss) Maxon	>>Pentagramma triangularis	Pteridaceae	
80	PLLA	Plantago lanceolata L.	narrowleaf plantain	Plantaginaceae	a
81	PLMA2	Plantago major L.	common plantain	Plantaginaceae	a
82	POAN	Poa annua L.	annual bluegrass	Poaceae	a
83	POPA2	Poa palustris L.	fowl bluegrass	Poaceae	
84	POPR	Poa pratensis L.	Kentucky bluegrass	Poaceae	a
85	POAV	Polygonum aviculare L.	prostrate knotweed	Polygonaceae	
86	POGL8	Polypodium glycyrrhiza D.C. Eat.	licorice fern	Polypodiaceae	
87	POMU	Polystichum munitum (Kaulfuss) K. Presl	swordfern	Polypodiaceae	
88	POPA14	Potentilla palustris (L.) Scop.	>>Comarum palustre	Rosaceae	
89	PRVU	Prunella vulgaris L.	common selfheal	Lamiaceae	
90	PRAV	Prunus avium (L.) L.	sweet cherry	Rosaceae	a
91	PREM	Prunus emarginata D. Dietr.	bitter cherry	Rosaceae	
92	PSME	Pseudotsuga menziesii (Mirbel) Franco	Douglas-fir	Pinaceae	
93	PTAQ	Pteridium aquilinum (L.) Kuhn	bracken fern	Dennstaedtiaceae	
94	PYFU	Pyrus fusca Raf.	>>Malus fusca	Rosaceae	
95	RAAC3	Ranunculus acris L.	tall buttercup	Ranunculaceae	
96	RARE3	Ranunculus repens L.	creeping buttercup	Ranunculaceae	a
97	RAUN	Ranunculus uncinatus D. Don ex G. Don	woodland buttercup	Ranunculaceae	
98	RHPU	Rhamnus purshiana DC.	>>Frangula purshiana	Rhamnaceae	
99	RHMA3	Rhododendron macrophyllum D. Don	Pacific rhododendron	Ericaceae	
100	RIDI	Ribes divaricatum Dougl.	spreading gooseberry	Grossulariaceae	
101	RILA	Ribes lacustre (Pers.) Poir.	prickly currant	Grossulariaceae	
102	RISA	Ribes sanguineum Pursh	redflower currant	Grossulariaceae	
103	ROGY	Rosa gymnocarpa Nutt.	dwarf rose	Rosaceae	
104	RONU	Rosa nutkana K. Presl	Nootka rose	Asteraceae	
105	RUDI2	Rubus discolor Weihe & Nees	>>Rubus armeniacus	Rosaceae	a
106	RUPA	Rubus parviflorus Nutt.	thimbleberry	Rosaceae	

107	RUSP	Rubus spectabilis Pursh	salmonberry	Rosaceae	
108	RUUR	Rubus ursinus Cham. & Schlecht.	California blackberry	Rosaceae	
109	RUAC3	Rumex acetosella L.	common sheep sorrel	Polygonaceae	
110	RUCR	Rumex crispus L.	curly dock	Polygonaceae	a
111	SALA5	Salix lasiandra Benth.	>>Salix lucida ssp. lasiandra	Salicaceae	
112	SASI2	Salix sitchensis Sanson ex Bong.	Sitka willow	Salicaceae	
113	SARA2	Sambucus racemosa L.	red elderberry	Caprifoliaceae	
114	SACR2	Sanicula crassicaulis Poepp. ex DC.	>>Sagina maxima ssp. crassicaulis	Apiaceae	
115	SADO5	Satureja douglasii (Benth.) Briq.	>>Clinopodium douglasii	Lamiaceae	
116	SCAM2	Scirpus americanus Pers.	>>Schoenoplectus americanus	Equisetaceae	
117	SMRA*	Smilacina racemosa (L) Desf.	>>Maianthemum racemosum	Liliaceae	
118	SPEU	Sparganium eurycarpum Engelm. ex Gray	broadfruit bur-reed	Sparganiaceae	
119	SPDO	Spiraea douglasii Hook.	rose spirea	Rosaceae	
120	SPPO	Spirodela polyrrhiza (L.) Schleid.	common duckmeat	Lemnaceae	
121	STCO14	Stachys cooleyae Heller	>>Stachys chamissonis var. cooleyae	Lamiaceae	
122	STCA	Stellaria calycantha (Ledeb.) Bong.	northern starwort	Caryophyllaceae	
123	STCR2	Stellaria crispa Cham. & Schlecht.	curled starwort	Caryophyllaceae	
124	STME2	Stellaria media (L.) Vill.	common chickweed	Caryophyllaceae	a
125	STSI2	Stellaria simcoei (T.J. Howell) C.L. Hitchc.	>>Stellaria calycantha	Caryophyllaceae	
126	STAM2	Streptopus amplexifolius (L.) DC.	claspleaf twistedstalk	Liliaceae	
127	SYAL	Symphoricarpos albus (L.) Blake	common snowberry	Caprifoliaceae	
128	TAOF	Taraxacum officinale G.H. Weber	dandelion	Asteraceae	a
129	TEGR2	Tellima grandiflora (Pursh) Dougl. ex Lindl.	bigflower tellima	Saxifragaceae	
130	THPL	Thuja plicata Donn ex D. Don	western red cedar	Cupressaceae	
131	TITR	Tiarella trifoliata L.	threeleaf foamflower	Saxifragaceae	
132	TRLA6	Trientalis latifolia Hook.	>>Trientalis borealis ssp. latifolia	Primulaceae	
133	TRPR2	Trifolium pratense L.	red clover	Fabaceae	a
134	TRRE3	Trifolium repens L.	white clover	Fabaceae	a
135	TROV2	Trillium ovatum Pursh	Pacific trillium	Liliaceae	
136	TSHE	Tsuga heterophylla (Raf.) Sarg.	western hemlock	Pinaceae	
137	TYLA	Typha latifolia L.	broadleaf cattail	Typhaceae	
138	URDI	Urtica dioica L.	nettle	Urticaceae	
139	VAOV	Vaccinium ovalifolium Sm.	California huckleberry	Ericaceae	
140	VAPA	Vaccinium parvifolium Sm.	red huckleberry	Ericaceae	
141	VISA	Vicia sativa L.	garden vetch	Fabaceae	

Non-native Vascular Plant Species of Lake Anderson State Park

#	Code	Scientific Name	Common Name/Accepted Synonym	Family	Alien
1	ARMI2	Arctium minus Bernh.	lesser burdock	Asteraceae	a
2	AREL3	Arrhenatherum elatius (L.) Beauv.	tall oatgrass	Poaceae	a
3	BEPE2	Bellis perennis L.	lawn daisy	Asteraceae	a
4	CABU2	Capsella bursa-pastoris (L.) Medik.	shepherd's purse	Brassicaceae	a
5	CIAR4	Cirsium arvense (L.) Scop.	Canada thistle	Asteraceae	a
6	CRTI	Crassula tillaea Lester-Garland	pygmy-weed	Crassulaceae	a
7	CYSC4	Cytisus scoparius (L.) Link	scotchbroom	Fabaceae	a
8	DAGL	Dactylis glomerata L.	orchardgrass	Poaceae	a
9	DAPU3	Daucus pusillus Michx.	American wild carrot	Apiaceae	a
10	ERCI6	Erodium cicutarium (L.) L'Hér. ex Ait.	crane'sbill	Geraniaceae	a
11	FEAR3	Festuca arundinacea Schreb.	>>Schedonorus phoenix	Poaceae	a
12	GERO	Geranium robertianum L.	Robert geranium	Geraniaceae	a
13	GLHE2	Glechoma hederacea L.	ground ivy	Lamiaceae	a
14	HEHE	Hedera helix L.	English ivy	Araliaceae	a
15	HYPE	Hypericum perforatum L.	common St. Johnswort	Clusiaceae	a
16	HYRA3	Hypochaeris radicata L.	hairy cat's ear	Asteraceae	a
17	ILAQ80	Ilex aquifolium L.	English holly	Aquifoliaceae	a
18	LAMU	Lactuca muralis (L.) Fresen.	>>Mycelis muralis	Asteraceae	a
19	LAPU2	Lamium purpureum L.	purple deadnettle	Lamiaceae	a
20	LACO3	Lapsana communis L.	common nipplewort	Asteraceae	a
21	MYSC	Myosotis scorpioides L.	true forget-me-not	Boraginaceae	a
22	ORVU	Origanum vulgare L.	oregano	Lamiaceae	a
23	PHAR3	Phalaris arundinacea L.	reed canarygrass	Poaceae	a
24	PLLA	Plantago lanceolata L.	narrowleaf plantain	Plantaginaceae	a
25	PLMA2	Plantago major L.	common plantain	Plantaginaceae	a
26	POAN	Poa annua L.	annual bluegrass	Poaceae	a
27	POPR	Poa pratensis L.	Kentucky bluegrass	Poaceae	a
28	PRAV	Prunus avium (L.) L.	sweet cherry	Rosaceae	a
29	RARE3	Ranunculus repens L.	creeping buttercup	Ranunculaceae	a
30	RUDI2	Rubus discolor Weihe & Nees	>>Rubus armeniacus	Rosaceae	a
31	RUCR	Rumex crispus L.	curly dock	Polygonaceae	a
32	STME2	Stellaria media (L.) Vill.	common chickweed	Caryophyllaceae	a
33	TAOF	Taraxacum officinale G.H. Weber	dandelion	Asteraceae	a
34	TRPR2	Trifolium pratense L.	red clover	Fabaceae	a
35	TRRE3	Trifolium repens L.	white clover	Fabaceae	a

Vascular Plant Species of Old Fort Townsend State Park

#	Code	Scientific Name	Common Name/Accepted Synonym	Family	Alien
1	ABGR	Abies grandis (Dougl. ex D. Don) Lindl.	grand fir	Pinaceae	
2	ACMA3	Acer macrophyllum Pursh	bigleaf maple	Aceraceae	
3	ACMI2	Achillea millefolium L.	yarrow	Asteraceae	
4	ADBI	Adenocaulon bicolor Hook.	pathfinder	Asteraceae	
5	ALRU2	Alnus rubra Bong.	red alder	Betulaceae	
6	AMAL2	Amelanchier alnifolia (Nutt.) Nutt. C46	Saskatoon serviceberry	Rosaceae	
7	ANOD	Anthoxanthum odoratum L.	sweet vernalgrass	Poaceae	a
8	ARME	Arbutus menziesii Pursh	madrone	Ericaceae	
9	BEPE2	Bellis perennis L.	lawn daisy	Asteraceae	a
10	BEAQ	Berberis aquifolium Pursh	>>Mahonia aquifolium	Berberidaceae	
11	BENE2	Berberis nervosa Pursh	>>Mahonia nervosa	Berberidaceae	
12	BLSP	Blechnum spicant (L.) Sm.	deer fern	Blechnaceae	
13	BRPA3	Bromus pacificus Shear	Pacific brome	Poaceae	
14	CABU	Calypso bulbosa (L.) Oakes	fairy slipper	Orchidaceae	
15	CAOL	Cardamine oligosperma Nutt.	little western bittercress	Brassicaceae	
16	CYSC4	Cytisus scoparius (L.) Link	scotchbroom	Fabaceae	a
17	DAGL	Dactylis glomerata L.	orchardgrass	Poaceae	a
18	ELHI	Elymus hirsutus J. Presl	northern ryegrass	Poaceae	
19	ERCI6	Erodium cicutarium (L.) L'Hér. ex Ait.	crane'sbill	Geraniaceae	a
20	FRVE	Fragaria vesca L.	woodland strawberry	Rosaceae	
21	GAAP2	Galium aparine L.	stickywilly	Rubiaceae	
22	GASH	Gaultheria shallon Pursh	salal	Ericaceae	
23	GERI	Geranium richardsonii Fisch. & Trautv.	Robert geranium	Geraniaceae	a
24	GEMA4	Geum macrophyllum Willd.	largeleaf avens	Rosaceae	
25	HEHE	Hedera helix L.	English ivy	Araliaceae	a
26	HODI	Holodiscus discolor (Pursh) Maxim.	oceanspray	Rosaceae	
27	HYRA3	Hypochaeris radicata L.	hairy cat's ear	Asteraceae	a
28	ILAQ80	Ilex aquifolium L.	English holly	Aquifoliaceae	
29	LAMU	Lactuca muralis (L.) Fresen.	>>Mycelis muralis	Asteraceae	a
30	LIBO3	Linnaea borealis L.	twinflower	Ericaceae	
31	LOCI3	Lonicera ciliosa (Pursh) Poir. ex DC.	orange honeysuckle	Caprifoliaceae	
32	LOHI2	Lonicera hispidula (Lindl.) Dougl.	pink honeysuckle	Caprifoliaceae	
33	MAGR3	Madia gracilis (Sm.) Keck & J. Clausen	grassy tarweed	Asteraceae	
34	MOUN3	Monotropa uniflora L.	Indianpipe	Monotropaceae	
35	MOPE3	Montia perfoliata (Donn ex Willd.) T.J. Howell	>>Claytonia perfoliata ssp. perfoliata	Caryophyllaceae	
36	MOSI2	Montia sibirica (L.) T.J. Howell	>>Claytonia sibirica var. sibirica	Portulacaceae	
37	OECE	Oemleria cerasiformis Landon	Indian plum	Rosaceae	
38	ORPU3	Orthocarpus pusillus Benth.	>>Triphysaria pusilla	Scrophulariaceae	
39	OSCH	Osmorhiza chilensis Hook. & Arn.	>>Osmorhiza berteroi	Apiaceae	
40	PLLA	Plantago lanceolata L.	narrowleaf plantain	Plantaginaceae	a
41	PLMA2	Plantago major L.	common plantain	Plantaginaceae	a
42	POAN	Poa annua L.	annual bluegrass	Poaceae	a
43	POBU	Poa bulbosa L.	bulbous bluegrass	Poaceae	a
44	POPR	Poa pratensis L.	Kentucky bluegrass	Poaceae	a
45	POMU	Polystichum munitum (Kaulfuss) K. Presl	swordfern	Polypodiaceae	
46	PREM	Prunus emarginata (Dougl. ex Hook.) D. Dietr.	bitter cherry	Rosaceae	
47	PSME	Pseudotsuga menziesii (Mirbel) Franco	Douglas-fir	Pinaceae	
48	PTAQ	Pteridium aquilinum (L.) Kuhn	bracken fern	Dennstaedtiaceae	
49	PYAP	Pyrola aphylla Sm.	>>Pyrola picta	Pyrolaceae	
50	PYFU	Pyrus fusca Raf.	>>Malus fusca	Rosaceae	

51	RHMA3	Rhododendron macrophyllum D. Don C91	Pacific rhododendron	Ericaceae	
52	RISA	Ribes sanguineum Pursh	redflower currant	Grossulariaceae	
53	ROGY	Rosa gymnocarpa Nutt.	dwarf rose	Rosaceae	
54	RONU	Rosa nutkana K. Presl	Nootka rose	Asteraceae	
55	RUDI2	Rubus discolor Weihe & Nees	>>Rubus armeniacus	Rosaceae	
56	RUPA	Rubus parviflorus Nutt.	thimbleberry	Rosaceae	
57	RUUR	Rubus ursinus Cham. & Schlecht.	California blackberry	Rosaceae	
58	SASI2	Salix sitchensis Sanson ex Bong.	Sitka willow	Salicaceae	
59	SARA2	Sambucus racemosa L.	red elderberry	Caprifoliaceae	
60	SACR2	Sanicula crassicaulis Poepp. ex DC.	>>Sagina maxima ssp. crassicaulis	Apiaceae	
61	SMRA*	Smilacina racemosa (L) Desf.	>>Maianthemum racemosum	Liliaceae	
62	SOAU	Sorbus aucuparia L.	European mountain ash	Rosaceae	a
63	STSI2	Stellaria simcoei (T.J. Howell) C.L. Hitchc.	>>Stellaria calycantha	Caryophyllaceae	
64	SYAL	Symphoricarpos albus (L.) Blake	common snowberry	Caprifoliaceae	
65	TAOF	Taraxacum officinale G.H. Weber ex Wiggers	dandelion	Asteraceae	a
66	TEGR2	Tellima grandiflora (Pursh) Dougl. ex Lindl.	bigflower tellima	Saxifragaceae	
67	THPL	Thuja plicata Donn ex D. Don	western red cedar	Cupressaceae	
68	TITR	Tiarella trifoliata L.	threeleaf foamflower	Saxifragaceae	
69	TRLA6	Trientalis latifolia Hook.	>>Trientalis borealis ssp. latifolia	Primulaceae	
70	TRPR2	Trifolium pratense L.	red clover	Fabaceae	a
71	TRRE3	Trifolium repens L.	white clover	Fabaceae	a
72	TROV2	Trillium ovatum Pursh	Pacific trillium	Liliaceae	
73	TSHE	Tsuga heterophylla (Raf.) Sarg.	western hemlock	Pinaceae	
74	URDI	Urtica dioica L.	nettle	Urticaceae	
75	VAOV	Vaccinium ovalifolium Sm.	California huckleberry	Ericaceae	
76	VAPA	Vaccinium parvifolium Sm.	red huckleberry	Ericaceae	
77	VECH	Veronica chamaedrys L.	germander speedwell	Scrophulariaceae	a
78	VISA	Vicia sativa L.	garden vetch	Fabaceae	a

Non-native Vascular Plant Species of Old Fort Townsend State Park

#	Code	Scientific Name	Common Name/Accepted Synonym	Family	Alien
7	ANOD	Anthoxanthum odoratum L.	sweet vernalgrass	Poaceae	a
1	BEPE2	Bellis perennis L.	lawn daisy	Asteraceae	a
2	CYSC4	Cytisus scoparius (L.) Link	scotchbroom	Fabaceae	a
3	DAGL	Dactylis glomerata L.	orchardgrass	Poaceae	a
4	ERCI6	Erodium cicutarium (L.) L'Hér. ex Ait.	crane'sbill	Geraniaceae	a
5	GERI	Geranium richardsonii Fisch. & Trautv.	Robert geranium	Geraniaceae	a
6	HEHE	Hedera helix L.	English ivy	Araliaceae	a
7	HYRA3	Hypochaeris radicata L.	hairy cat's ear	Asteraceae	a
8	LAMU	Lactuca muralis (L.) Fresen.	>>Mycelis muralis	Asteraceae	a
9	PLLA	Plantago lanceolata L.	narrowleaf plantain	Plantaginaceae	a
10	PLMA2	Plantago major L.	common plantain	Plantaginaceae	a
11	POAN	Poa annua L.	annual bluegrass	Poaceae	a
12	POBU	Poa bulbosa L.	bulbous bluegrass	Poaceae	a
13	POPR	Poa pratensis L.	Kentucky bluegrass	Poaceae	a
14	SOAU	Sorbus aucuparia L.	European mountain ash	Rosaceae	a
15	TAOF	Taraxacum officinale G.H. Weber ex Wiggers	dandelion	Asteraceae	a
16	TRPR2	Trifolium pratense L.	red clover	Fabaceae	a
17	TRRE3	Trifolium repens L.	white clover	Fabaceae	a
18	VECH	Veronica chamaedrys L.	germander speedwell	Scrophulariaceae	a
19	VISA	Vicia sativa L.	garden vetch	Fabaceae	a

Ecological Condition of Fort Worden, Lake Anderson and Old Fort Townsend State Parks

The previous history of military use in Fort Worden and Old Fort Townsend took a toll on the ecological health of the plant and animal communities within the parks. Both parks have large developed areas consisting of buildings and roads, and Fort Worden has an extensive network of abandoned concrete bunkers and artillery emplacements. Both parks lost virtually all of their virgin, old growth forest, the forested areas now consisting of second- and third-growth trees.

Lake Anderson, while not as heavily impacted by development as the other two parks, appears to have been a farm prior to becoming a park, as there are extensive open fields near the lake, and the forested area has all been logged and is now second growth. Lake Anderson was experiencing a bloom of a toxic cyanobacteria at the time of this survey and was closed to public use of the lake. Such blooms are a eutrophic condition caused by an excess of nutrients accumulating in bodies of water.

58 of the 201 vascular plant species identified, 29% of the total, were non-natives, the majority of them imported from Europe or Asia. Many of these non-native species co-evolved with the evolution of human civilization over the past 10,000 years in Eurasia, and are specifically adapted to human-caused soil and habitat disturbance. They are early-seral species, and can readily displace native species where natural ecological processes such as periodic fire are interrupted by human intervention.

In spite of the considerable human impacts on these parks over the past 150 years, they still contain an abundance of native plant species, and a natural beauty that is greatly valued by visitors. If the more sensitive wetland areas of the parks are protected from human disturbance, and natural ecological successional processes are allowed to unfold where possible, non-native species will decrease over time (due to their dependence on disturbance), and plant and wildlife communities will return to an ecological dynamic that more closely resembles pre-settlement conditions.

GIS Products Produced

Associated with this report are polygon layers created by PBI depicting the vegetation community types mapped in Fort Worden, Lake Anderson and Old Fort Townsend State Parks. The datasets have been converted into ESRI shapefile format and provided to the Washington State Parks and Recreation Commission. Shapefiles depicting rare plant locations have been provided as well. The spatial datasets are complete with metadata meeting FGDC standards. Refer to the associated metadata for descriptions and attribute definitions for each spatial dataset.

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Appendix A – Field Survey Schedule

April 21 – 23, 2006

Field Crew: Hans Smith, Dana Visalli, Peter Morrison, Scott Heller, Phyllis Murra

May 3, 2006

Field Crew: Dana Visalli, Phyllis Murra

July 7 and 8, 2006

Field Crew: Dana Visalli, Scott Heller

Appendix B – Description of Rare Element Status Codes

Global Rank (GRank)

Global Rank characterizes the relative rarity or endangerment of the element world-wide. Two codes (e.g. G1G2) represent an intermediate rank.

G1 = Critically imperiled globally (5 or fewer occurrences).
G2 = Imperiled globally (6 to 20 occurrences).
G3 = Either very rare and local throughout its range or found locally in a restricted range (21 to 100 occurrences).
G4 = Apparently secure globally.
G5 = Demonstrably secure globally.
GH = Of historical occurrence throughout its range.
GU = Possibly in peril range-wide but status uncertain.
GX = Believed to be extinct throughout former range.
GNR = Not yet ranked.
Tn = Rarity of an infraspecific taxon. Numbers and codes similar to those for Gn ranks above.
Q = Questionable.

State Rank (SRank)

State Rank characterizes the relative rarity or endangerment within the state of Washington. Two codes (e.g. S1S2) represents an intermediate rank.

S1 = Critically imperiled (5 or fewer occurrences).
S2 = Imperiled (6 to 20 occurrences), very vulnerable to extirpation.
S3 = Rare or uncommon (21 to 100 occurrences).
S4 = Apparently secure, with many occurrences.
S5 = Demonstrably secure in state.
SA = Accidental in state.
SE = An exotic established in state.
SH = Historical occurrences only but still expected to occur.
SN = Regularly occurring, usually migratory, nonbreeding animals.
SU = Unrankable; need more information.
SX = Apparently extirpated from the state.
SP = Likely to occur or to have occurred but without documentation.
SZ = Not of conservation concern (not SE or SA).
SNR = Not yet ranked.
"B" and "N" qualifiers are used to indicate breeding and nonbreeding status, respectively, of migrant species whose nonbreeding status (rank) may be quite different from their breeding status in the state (e.g. S1B,S4N for a very rare breeder that is a common winter resident).

State Status (StStat)

State Status of plant species is determined by the Washington Natural Heritage Program. Factors considered include abundance, occurrence patterns, vulnerability, threats, existing protection, and taxonomic distinctness. Values include:

E = Endangered. In danger of becoming extinct or extirpated from Washington.
T = Threatened. Likely to become Endangered in Washington.
S = Sensitive. Vulnerable or declining and could become Endangered or Threatened in the state.
X = Possibly extinct or Extirpated from Washington.
P1 = Priority 1. Rare nonvascular plant but with insufficient information to assign another rank.
P2 = Priority 2. Nonvascular plant of concern but with insufficient information to assign another rank.
R1 = Review group 1. Of potential concern but needs more field work to assign another rank.
R2 = Review group 2. Of potential concern but with unresolved taxonomic questions.
W = Watch. More abundant and/or less threatened than previously thought.

Federal Status

Federal Status under the U.S. Endangered Species Act (USESA) as published in the Federal Register:

LE = Listed Endangered. In danger of extinction.
LT = Listed Threatened. Likely to become endangered.
PE = Proposed Endangered.
PT = Proposed Threatened.
C = Candidate species. Sufficient information exists to support listing as Endangered or Threatened.
SC = Species of Concern. An unofficial status, the species appears to be in jeopardy, but insufficient information to support listing.
NL = Not Listed. Used when two portions of a taxon have different federal status.

Appendix C – Ecological Condition Ranking System

Ecological Condition Ranks

When assessing conservation priorities and management decisions, it can be useful to rank natural communities into levels of ecological condition. For example, an unfragmented area with high native species diversity, absence of non-native species and little soil erosion often has greater conservation value than another area in the same habitat type that is fragmented, infested with weeds or has erosion problems. Likewise, areas with a lower ecological condition rank may be targets for restoration activities.

The flowing ecological condition ranks were applied to vegetation polygons that were surveyed in this project:

Condition Rank 1. This condition class represents areas that have been altered to the point where the ecological condition often deviates dramatically from baseline conditions found in areas where stressors are much less prevalent. Areas characterized by Condition Class 1 often have high amounts of bare ground and/or non-native plant cover. The structure is often significantly altered from baseline conditions. Often one or more of the structural layers (trees, shrubs, herbs, grasses, mosses & lichens, biotic crust) may be significantly altered or even missing from the community. The composition of native vegetation is skewed toward species that can survive despite regular disturbance. Species diversity of native plants is usually low and native grass species are usually absent or in very low abundance (for a given community type). Evidence of accelerated erosion and soil compaction may be present. Hydrologic alteration may also be present. Significant direct evidence of various stress factors is usually abundant. Rare plant and animal species generally do not occur in this condition class.

Condition Rank 2. This condition class represents areas that show a fairly broad range of stress ranging from high to moderately low impact from a variety of stressors. Areas characterized by Condition Class 2 usually have moderate levels of non-native plant cover. The structure of the natural community present in Condition Class 2 areas is often relatively intact when compared to baseline conditions. Usually all structural layers are present, but form and stature may be altered from baseline conditions. Soil surface conditions are often intermediate between those in Condition Class 1 and Condition Class 3. Species diversity of native plants is often moderate for that community. Non-native species are usually present, but not as common or abundant as in Condition Class 1. Native grass species are often present, but usually in low abundance for that community type. Diversity of native grass species is relatively low when compared to baseline conditions. Evidence of accelerated erosion and soil compaction may be present in isolated areas, but is not dramatic or widespread. Hydrologic alteration is absent. Direct signs of stressors may be present, but not widespread or abundant. Rare plant and animal species may be found in this condition class, but are not common. Rare species that are found in this condition class are relatively tolerant of the stressors that are present.

Condition Rank 3. This condition class represents areas that show the least stress in the project area and are the closest to representing baseline conditions. Areas characterized by Condition Class 3 have little evidence of non-native plant invasion. The composition and structure of native vegetation in this condition class correspond to the natural ranges of variation

characteristic to this habitat type. Old-growth conditions may exist. Species diversity of native plants is often high relative to the community under consideration. Native grass species are usually present and often fairly abundant for the community type. Species diversity of native grass species is also often high. Soil compaction, accelerated erosion and hydrologic alteration are absent. Direct signs of stressors are usually absent. Certain rare species may only exist within this condition class and rare species are generally more common than in the lower condition classes.

Appendix D – Vegetation Survey Data

Legend:

Site = name of locality of map project

Polygon = number you put on map

Name/Date = your name / day-month-year completed polygon survey

Photo roll/number = number of roll (on canister) and number of shot

Survey intensity
1 = walked or could see most of polygon (high confidence in survey data)
2 = walked or could see part of polygon interior (moderate confidence)
3 = walked perimeter or could see part of polygon interior (low confidence)
4 = photo interpretation or other remote survey

VEGETATION COVER
This is canopy cover, i.e. the space between leaves/branches is included in "cover". Each Life form category canopy cover must be 0-100%. Therefore, the sum of all life forms (layers) can exceed 100%. List most abundant species in each life form category; when trees are cored, note DBH, species, length of core, number of rings counted.

TOTAL VEGETATION COVER includes all vascular plants, mosses, lichens and foliose lichens (crustose lichens excluded they are considered rock); this never exceeds 100%.

SOIL SURFACE estimate to nearest **%** the following, the sum of the categories adds to 100%
Rock outcrop = exposed bedrock including detached boulders over 1m across
Gravel/cobble = large fragments between sand and boulder
Bareground = exposed mineral soil
Mosses/lichens = nonvascular plant cover on soil
Litter = includes logs, branches, and basal area of plants
Describe in comments if there is wide variation in any category; note % standing water if it is persistent or characteristic of site.

LAND USE - put 0 (zero) if not applicable to site.

Logging
1 = unlogged, no evidence of past logging or occasional cut stumps not part of systematic harvest of trees, no or very little impact on stand composition
2 = selectively logged: frequent cut stumps but origin of dominant or co-dominant cohort appears to be natural disturbance
3 = heavy logging disturbance with natural regeneration: many cut stumps that predate the dominant or co-dominant cohort with no tree planting
4 = tree plantation: dominant cohort appears to be planted after clearcutting

Stand Age
1 = very young 0-40 yr
2 = young 40-90 yr
3 = mature 90-200 yr
4 = old-growth 200+ yr
5 = young with scattered old trees (2-10 old trees per acre)
6 = mature with scattered old trees

Agriculture
1 = active annual cropping
2 = active perennial herbaceous cropping
3 = active woody plant cultivation
4 = fallow, plowed no crops this yr
5 = Federal CRP
6 = other

Livestock
1 = active heavy grazing (most forage used to ground soil compaction or churning)
2 = active moderate grazing (25-75% forage used)
3 = active light grazing (lots of last years litter left)
4 = no current, heavy past grazing
5 = no current, light past grazing
6 = no obvious sign of grazing

Development
1 = actively used facilities
2 = roads
3 = established trails
4 = abandoned facilities
5 = none obvious
6 = multiple types (detail in comments)

Wildlife
1 = heavy ungulate use
2 = moderate ungulate use
3 = light to no ungulate use
4 = burrowing animals
5 = active beaver
6 = active porcupine
7 = other, list animal

Recreation Use Severity
1 = heavy use, abundant soil and vegetation displacement off trail/road
2 = moderate use, frequent soil and vegetation displacement off trail/road
3 = light use, little sign of activity off trail/road

Recreation Use Primary Type
1 = wheeled
2 = hoofed
3 = pedestrian
4 = combination of above
5 = other

Hydrology
1 = unaltered
2 = altered; dams, dikes, ditches, culverts, etc
3 = not assessed

Plant Association (PA) = list all PAs encountered in polygon survey, in comments list source of name if not on provided key.

Condition Rank of PA in key or estimate

% of Polygon = your estimate

Pattern = how PA is distributed in polygon
1 = matrix (most of polygon)
2 = large patches
3 = small patches
4 = clumped, clustered, contiguous
5 = scattered, more or less evenly repeating
6 = linear
7 = other

Exotic = primary species observed; secondary species observed.

Plot Number = number of any plots established for EO (element occurrence), or other more detail sheets within polygon.

Vegetation Polygon Data – Fort Worden State Park

Polygon Number	**1**
Survey Intensity	2
Observer	HS
Date	11/1/2006
Specific Location	
Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	0
Logging	
Stand Age	
Agriculture	
Livestock	
Development	
Wildlife	
Recreation Severity	
Recreation Type	
Hydrology	

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. Water	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**10**
Survey Intensity	2
Observer	HS
Date	11/1/2006
Specific Location	
Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	0
Logging	
Stand Age	
Agriculture	
Livestock	
Development	
Wildlife	
Recreation Severity	
Recreation Type	
Hydrology	

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

		Percent	Pattern	Rank
1.	Water	100	Matrix	2
2.		0		0
3.		0		0

Notes:

Polygon Number	**11**
Survey Intensity	1
Observer	Phyllis, HS
Date	4/21/2006
Specific Location	S of major developed area.
Total Vegetation	5
Trees Total	4
Dominant Trees	PSME
emergent	2
maincanopy	4
subcanopy	2
Shrubs Total	5
Dominant Shrubs	SYAL, RONU, GASH
> 1.5' tall	5
< 1.5' tall	1
Graminoids Total	2
Dominant Graminoids	
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	CAPE3, POMU, PTAQ
Forbs Perennial	0
Forbs Annual	1
Ferns Total	1
Ferns Evergreen	1
Ferns Deciduous	1
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	5
Litter	95
Logging	2
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
CYSC4
Secondary Exotic
ILAQ80
Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME/GASH-HODI (CHAPPELL)	50	Large	2
2. PSME/HODI-SYAL (CHAPPELL)	50	Large	2
3.	0		0

Notes: Orchard grass-forest edge small patch.

Polygon Number	**12**
Survey Intensity	2
Observer	DV
Date	4/21/2006
Specific Location	SW
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, ALRU2
emergent	2
maincanopy	5
subcanopy	4
Shrubs Total	4
Dominant Shrubs	SASI2
> 1.5' tall	4
< 1.5' tall	2
Graminoids Total	2
Dominant Graminoids	CAOB3
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	0
Water	75
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	2
Litter	23
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	7
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
RUDI2 (10%)
Secondary Exotic
PHAR3
Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. Water	75	Matrix	2
2. Salix sp. c.t. (KUNZE)	25	Large	3
3.	0		0

Notes: Wildife is waterfowl.

Polygon Number	**13**
Survey Intensity	1
Observer	Phyllis
Date	4/21/2006
Specific Location	SW edge of park
Total Vegetation	5
Trees Total	4
Dominant Trees	ALRU2, PSME
emergent	2
maincanopy	3
subcanopy	1
Shrubs Total	4
Dominant Shrubs	SALA5
> 1.5' tall	4
< 1.5' tall	0
Graminoids Total	4
Dominant Graminoids	CAOB3
Graminoids Perennial	4
Graminoids Annual	0
Forbs Total	3
Dominant Forbs	
Forbs Perennial	3
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	3
Moss Lichen	5
Litter	92
Logging	2
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Primary Exotic
RUDI2
Secondary Exotic
SOSE?
Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. ALRU2/RUSP c.t. (KUNZE)	60	Matrix	2
2. Salix sp. c.t. (KUNZE)	40	Large	2
3.	0		0

Notes:

Polygon Number	**14A**
Survey Intensity	1
Observer	Phyllis
Date	4/21/2006
Specific Location	SW edge of park
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, ABGR
emergent	2
maincanopy	5
subcanopy	3
Shrubs Total	5
Dominant Shrubs	SYAL, MANE2, HODI
> 1.5' tall	5
< 1.5' tall	0
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	3
Litter	97
Logging	2
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
RUDI2
Secondary Exotic
ILAQ80
Noxious Exotic

Plant Associations

		Percent	Pattern	Rank
1.	PSME-ABGR/HODI/POMU (CHAPPELL)	100	Matrix	2
2.		0		0
3.		0		0

Notes: Large amounts of RUDI2 on southern part of the east edge.

Polygon Number	**14B**
Survey Intensity	1
Observer	HS
Date	4/21/2006
Specific Location	SW corner of park. N of 14a
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, ABGR, THPL
emergent	2
maincanopy	5
subcanopy	3
Shrubs Total	5
Dominant Shrubs	SYAL, GASH, LOCI3
> 1.5' tall	5
< 1.5' tall	3
Graminoids Total	3
Dominant Graminoids	DAGL
Graminoids Perennial	3
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	POMU
Forbs Perennial	2
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	1
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	2
Moss Lichen	2
Litter	96
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	6
Wildlife	3
Recreation Severity	2
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
DAGL
Secondary Exotic
ILAQ80
Noxious Exotic

Plant Associations

		Percent	Pattern	Rank
1.	PSME-ABGR/GASH (CHAPPELL)	100	Matrix	2
2.		0		0
3.		0		0

Notes: Picnic area and trails (rustic) in forest.

Polygon Number	**15**
Survey Intensity	1
Observer	Phyllis
Date	4/21/2006
Specific Location	Sw corner of park.
Total Vegetation	6
Trees Total	4
Dominant Trees	PSME
emergent	2
maincanopy	4
subcanopy	1
Shrubs Total	6
Dominant Shrubs	SYAL, HODI
> 1.5' tall	6
< 1.5' tall	0
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	0
Ferns Total	1
Ferns Evergreen	1
Ferns Deciduous	0
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	5
Litter	95
Logging	2
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	3
Recreation Severity	2
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic	
HEHE	
Secondary Exotic	
RUDI2	
Noxious Exotic	

Plant Associations

	Percent	Pattern	Rank
1. PSME-ABGR/HODI/POMU (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes: Margin facing wetland has spruce.

Polygon Number	**17**
Survey Intensity	1
Observer	HS
Date	4/21/2006
Specific Location	Center of park, below bunkers of artillery hill.
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, ARME
emergent	2
maincanopy	6
subcanopy	2
Shrubs Total	6
Dominant Shrubs	GASH, SYAL, LOCI3
> 1.5' tall	5
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	2
Litter	98
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	2
Wildlife	3
Recreation Severity	2
Recreation Type	4
Hydrology	1

Exotic Species

Primary Exotic
CYSC4
Secondary Exotic
DAGL
Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-ARME/GASH (CHAPPELL)	80	Matrix	2
2. PSME-THPL-(ABGR)/GASH (CHAPPELL)	20	Small	2
3.	0		0

Notes: Rec type: 1 and 3.

Polygon Number	**18**
Survey Intensity	1
Observer	Phyllis
Date	4/21/2006
Specific Location	South of cliff overlooking beach.
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, THPL
emergent	2
maincanopy	5
subcanopy	2
Shrubs Total	5
Dominant Shrubs	SYAL, GASH
> 1.5' tall	5
< 1.5' tall	1
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	3
Litter	97
Logging	2
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	2
Recreation Severity	2
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
HEHE
Secondary Exotic

Noxious Exotic

Plant Associations

		Percent	Pattern	Rank
1.	PSME-THPL/GASH-MANE2/POMU	100	Matrix	2
2.		0		0
3.		0		0

Notes: More woody debris. 15" dbh trees that have fallen. One 25" dbh THPL with fire scar, a few other >20" dbh PSME.

Polygon Number	**19**
Survey Intensity	1
Observer	HS
Date	11/1/2006
Specific Location	
Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	0
Logging	
Stand Age	
Agriculture	
Livestock	
Development	
Wildlife	
Recreation Severity	
Recreation Type	
Hydrology	

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. Developed	100	Matrix	1
2.	0		0
3.	0		0

Notes:

Polygon Number	**2**
Survey Intensity	2
Observer	DV
Date	4/21/2006
Specific Location	The salt marsh - lake edge, esp NW shore.
Total Vegetation	6
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	2
Dominant Shrubs	RONU, RUUR
> 1.5' tall	2
< 1.5' tall	2
Graminoids Total	6
Dominant Graminoids	DISP
Graminoids Perennial	6
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	0
Stand Age	0
Agriculture	0
Livestock	0
Development	0
Wildlife	0
Recreation Severity	0
Recreation Type	0
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. Water	75	Matrix	2
2. DISP Community (KUNZE)	25	Large	2
3.	0		0

Notes:

Polygon Number	**21**
Survey Intensity	2
Observer	DV
Date	7/7/2006
Specific Location	
Total Vegetation	4
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	1
Dominant Shrubs	
> 1.5' tall	1
< 1.5' tall	0
Graminoids Total	3
Dominant Graminoids	Arenaria sp., CAMA10
Graminoids Perennial	3
Graminoids Annual	1
Forbs Total	3
Dominant Forbs	ACMI2
Forbs Perennial	3
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	2
Exotics Perennial	0
Exotics Annual	2
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	50
Moss Lichen	0
Litter	50
Logging	0
Stand Age	0
Agriculture	0
Livestock	0
Development	2
Wildlife	7
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
BRTE (2%)
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. AMAR4 Dune Community (KUNZE)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**22**
Survey Intensity	2
Observer	DV
Date	4/21/2006
Specific Location	SE
Total Vegetation	6
Trees Total	1
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	1
Shrubs Total	6
Dominant Shrubs	RONU
> 1.5' tall	6
< 1.5' tall	0
Graminoids Total	3
Dominant Graminoids	
Graminoids Perennial	3
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	0
Stand Age	0
Agriculture	0
Livestock	0
Development	0
Wildlife	7
Recreation Severity	0
Recreation Type	0
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. RONU/FERU Community (KUNZE)	100	Matrix	3
2.	0		0
3.	0		0

Notes: ALMOST 100% RONU W/ SYAL ON EDGE, wildlife is songbirds

Polygon Number	**23**
Survey Intensity	1
Observer	SH
Date	7/7/2006
Specific Location	SW Near lake.
Total Vegetation	6
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	6
Dominant Graminoids	AREL3, Juncus sp., DISP
Graminoids Perennial	6
Graminoids Annual	0
Forbs Total	4
Dominant Forbs	SAVI, RAAC3
Forbs Perennial	4
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	6
Exotics Perennial	6
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	0
Stand Age	0
Agriculture	0
Livestock	0
Development	0
Wildlife	7
Recreation Severity	0
Recreation Type	0
Hydrology	1

Exotic Species

Primary Exotic
AREL3
Secondary Exotic
RAAC3
Noxious Exotic

Plant Associations

		Percent	Pattern	Rank
1.	abandoned field	80	Matrix	1
2.	SAVI Community (KUNZE)	20	linear	2
3.		0		0

Notes: SAVI COMMUNITY IS PRESENT ONLY ALONG WATER MARGIN, APPROX 1-3M IN WIDTH FORMING A LINEAR PATTERN. Wildlife is birds

Polygon Number	**24**
Survey Intensity	1
Observer	DV
Date	4/21/2006
Specific Location	SW Corner
Total Vegetation	6
Trees Total	1
Dominant Trees	ALRU2
emergent	0
maincanopy	0
subcanopy	1
Shrubs Total	4
Dominant Shrubs	RUDI2
> 1.5' tall	4
< 1.5' tall	0
Graminoids Total	5
Dominant Graminoids	PHAR3
Graminoids Perennial	5
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	URDI
Forbs Perennial	2
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	5
Exotics Perennial	5
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	1
Moss Lichen	1
Litter	98
Logging	0
Stand Age	0
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Primary Exotic
RUDI2 (20%)
Secondary Exotic
PHAR3 (30%)
Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. ALRU2/RUSP c.t. (KUNZE)	100	Matrix	1
2.	0		0
3.	0		0

Notes:

Polygon Number	**25**
Survey Intensity	2
Observer	DV
Date	4/21/2006
Specific Location	NW
Total Vegetation	6
Trees Total	5
Dominant Trees	PREM
emergent	0
maincanopy	5
subcanopy	1
Shrubs Total	4
Dominant Shrubs	SYAL
> 1.5' tall	4
< 1.5' tall	1
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	3
Stand Age	1
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. Shrubland Unclassified	100	Matrix	1
2.	0		0
3.	0		0

Notes: PREM OVERSTORY, SYAL UNDERSTORY

Polygon Number	**26A**
Survey Intensity	1
Observer	Phyllis
Date	4/21/2006
Specific Location	SW corner of polygon 26
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, ABGR
emergent	1
maincanopy	5
subcanopy	1
Shrubs Total	5
Dominant Shrubs	GASH, HODI, SYAL
> 1.5' tall	5
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	0
Ferns Total	1
Ferns Evergreen	1
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	2
Litter	98
Logging	2
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	2
Recreation Severity	2
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic
DAGL
Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**26C**
Survey Intensity	1
Observer	HS
Date	5/3/2006
Specific Location	Between lagoon and artillery hill.
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, TSHE, THPL, ARME
emergent	3
maincanopy	5
subcanopy	3
Shrubs Total	5
Dominant Shrubs	GASH, HODI
> 1.5' tall	5
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	1
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	1
Moss Lichen	1
Litter	98
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic	
HEHE	
Secondary Exotic	
ILAQ80	
Noxious Exotic	

Plant Associations

	Percent	Pattern	Rank
1. PSME-TSHE/GASH-HODI (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**26H**
Survey Intensity	1
Observer	HS
Date	4/21/2006
Specific Location	Between lagoon and artillery hill.
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, ARME, THPL
emergent	3
maincanopy	5
subcanopy	2
Shrubs Total	5
Dominant Shrubs	GASH, HODI
> 1.5' tall	5
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	1
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	1
Moss Lichen	1
Litter	98
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic	
HEHE	
Secondary Exotic	
ILAQ80	
Noxious Exotic	

Plant Associations

	Percent	Pattern	Rank
1. PSME-ARME/GASH (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**27**
Survey Intensity	1
Observer	HS
Date	11/1/2006
Specific Location	
Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	0
Logging	
Stand Age	
Agriculture	
Livestock	
Development	
Wildlife	
Recreation Severity	
Recreation Type	
Hydrology	

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. Developed	100	Matrix	1
2.	0		0
3.	0		0

Notes:

Polygon Number	**28**
Survey Intensity	1
Observer	DV
Date	4/21/2006
Specific Location	Along edge of marsh/lake.
Total Vegetation	6
Trees Total	1
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	1
Shrubs Total	3
Dominant Shrubs	RONU
> 1.5' tall	3
< 1.5' tall	0
Graminoids Total	6
Dominant Graminoids	
Graminoids Perennial	6
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	5
Exotics Perennial	5
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	0
Stand Age	0
Agriculture	0
Livestock	4
Development	3
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Primary Exotic
Exotic grasses
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. abandoned field	95	Matrix	1
2. Shrubland Unclassified	5	Small	1
3.	0		0

Notes: 80% EXOTIC GRASS, RONU ISLANDS

Polygon Number	**29**
Survey Intensity	1
Observer	DV
Date	4/21/2006
Specific Location	
Total Vegetation	6
Trees Total	2
Dominant Trees	PSME, ARME
emergent	0
maincanopy	2
subcanopy	2
Shrubs Total	4
Dominant Shrubs	CYSC4, SARA2, RUDI2
> 1.5' tall	4
< 1.5' tall	1
Graminoids Total	5
Dominant Graminoids	DAGL
Graminoids Perennial	5
Graminoids Annual	2
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	6
Exotics Perennial	6
Exotics Annual	1
Water	
Rock Outcrop	0
Gravel	5
Bare Ground	10
Moss Lichen	0
Litter	85
Logging	3
Stand Age	1
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Primary Exotic
CYSC4 (10%)
Secondary Exotic
RUDI2 (10%)
Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. Shrubland Unclassified	100	Matrix	1
2.	0		0
3.	0		0

Notes: TRAIL WAS A ROAD. DIKE PARALLELS ROAD.

Polygon Number	**3**
Survey Intensity	1
Observer	DV
Date	4/21/2006
Specific Location	
Total Vegetation	5
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	5
Dominant Graminoids	SCAM2
Graminoids Perennial	5
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	40
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	60
Logging	0
Stand Age	0
Agriculture	0
Livestock	0
Development	0
Wildlife	7
Recreation Severity	0
Recreation Type	0
Hydrology	3

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. SCAM2 Community (KUNZE)	100	Matrix	1
2.	0		0
3.	0		0

Notes: Wild life is waterfowl

Polygon Number	**30**
Survey Intensity	2
Observer	DV
Date	4/21/2006
Specific Location	Overlooks lighthouse.
Total Vegetation	6
Trees Total	4
Dominant Trees	PSME
emergent	0
maincanopy	4
subcanopy	0
Shrubs Total	4
Dominant Shrubs	GASH, LOCI3
> 1.5' tall	4
< 1.5' tall	4
Graminoids Total	2
Dominant Graminoids	
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	2
Moss Lichen	2
Litter	96
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	3
Recreation Severity	0
Recreation Type	0
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**31**
Survey Intensity	2
Observer	DV
Date	4/21/2006
Specific Location	
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME
emergent	1
maincanopy	5
subcanopy	1
Shrubs Total	5
Dominant Shrubs	HODI
> 1.5' tall	5
< 1.5' tall	3
Graminoids Total	2
Dominant Graminoids	
Graminoids Perennial	2
Graminoids Annual	1
Forbs Total	2
Dominant Forbs	SACR2
Forbs Perennial	2
Forbs Annual	1
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	2
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	5
Moss Lichen	5
Litter	90
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic	
HEHE	
Secondary Exotic	
ILAQ80	
Noxious Exotic	

Plant Associations

	Percent	Pattern	Rank
1. PSME/ROGY-HODI (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**33**
Survey Intensity	2
Observer	DV
Date	4/22/2006
Specific Location	
Total Vegetation	4
Trees Total	3
Dominant Trees	ALRU2
emergent	0
maincanopy	3
subcanopy	2
Shrubs Total	3
Dominant Shrubs	SASI2, HODI, RUDI2
> 1.5' tall	3
< 1.5' tall	0
Graminoids Total	3
Dominant Graminoids	DAGL
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	URDI, POMU
Forbs Perennial	2
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	0
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	40
Moss Lichen	0
Litter	60
Logging	0
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	3
Recreation Severity	0
Recreation Type	0
Hydrology	1

Exotic Species

Primary Exotic
RUDI2
Secondary Exotic
DAGL
Noxious Exotic
RUDI2

Plant Associations

	Percent	Pattern	Rank
1. Eroding Sandy Cliff (PBI)	60	Matrix	2
2. ACMA3-ALRU2/POMU-TEGR2	40	Large	2
3.	0		0

Notes:

Polygon Number	**34**
Survey Intensity	1
Observer	SH
Date	7/7/2006
Specific Location	Center area
Total Vegetation	5
Trees Total	5
Dominant Trees	PSME, ABGR, THPL, ARME
emergent	1
maincanopy	5
subcanopy	2
Shrubs Total	5
Dominant Shrubs	HEHE, GASH, HODI, RONU, LOHI2, SARA2
> 1.5' tall	5
< 1.5' tall	2
Graminoids Total	2
Dominant Graminoids	
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	POMU, PTAQ
Forbs Perennial	2
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	2
ExoticsTotal	5
Exotics Perennial	5
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	15
Moss Lichen	1
Litter	84
Logging	2
Stand Age	3
Agriculture	0
Livestock	0
Development	6
Wildlife	7
Recreation Severity	2
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
HEHE
Secondary Exotic
CYSC4
Noxious Exotic
RUDI2

Plant Associations

		Percent	Pattern	Rank
1.	PSME-THPL-(ABGR)/GASH (CHAPPELL)	90	Matrix	1
2.	PSME-ARME/HODI/LOHI2 (CHAPPELL)	10	Small	1
3.		0		0

Notes: MAJOR HEHE INFESTATION--GASH TRYING TO COMPETE, HIGH # OF NON-NATIVES. ABANDONED FACILITIES, ROADS, AND TRAILS. Wildlife is birds.

Polygon Number	**35**
Survey Intensity	2
Observer	DV
Date	4/21/2006
Specific Location	
Total Vegetation	6
Trees Total	4
Dominant Trees	PSME
emergent	0
maincanopy	4
subcanopy	1
Shrubs Total	5
Dominant Shrubs	SYAL, GASH
> 1.5' tall	5
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	0
Ferns Total	1
Ferns Evergreen	1
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	2
Litter	98
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	3
Recreation Severity	0
Recreation Type	0
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME/SYMPH-AMAL (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**4**
Survey Intensity	2
Observer	DV
Date	4/21/2006
Specific Location	NW
Total Vegetation	6
Trees Total	1
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	1
Shrubs Total	6
Dominant Shrubs	RONU
> 1.5' tall	6
< 1.5' tall	0
Graminoids Total	3
Dominant Graminoids	
Graminoids Perennial	3
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	0
Stand Age	0
Agriculture	0
Livestock	0
Development	0
Wildlife	7
Recreation Severity	0
Recreation Type	0
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. RONU/FERU Community (KUNZE)	100	Matrix	3
2.	0		0
3.	0		0

Notes: ALMOST 100% RONU W/ SYAL ON EDGE. Wildlife is songbirds

Polygon Number	**5**
Survey Intensity	1
Observer	DV
Date	4/21/2006
Specific Location	Cliff at water's edge.
Total Vegetation	4
Trees Total	2
Dominant Trees	PSME
emergent	0
maincanopy	2
subcanopy	0
Shrubs Total	4
Dominant Shrubs	CYSC4, RUPA
> 1.5' tall	4
< 1.5' tall	0
Graminoids Total	4
Dominant Graminoids	DAGL
Graminoids Perennial	4
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	ARSU4
Forbs Perennial	2
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	4
Exotics Perennial	4
Exotics Annual	0
Water	
Rock Outcrop	15
Gravel	20
Bare Ground	10
Moss Lichen	0
Litter	55
Logging	0
Stand Age	0
Agriculture	0
Livestock	0
Development	0
Wildlife	0
Recreation Severity	0
Recreation Type	0
Hydrology	1

Exotic Species

Primary Exotic
CYSC4 (30%)
Secondary Exotic
DAGL (15%)
Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. Eroding Sandy Cliff (PBI)	60	Matrix	2
2. Shrubland Unclassified	40	Large	2
3.	0		0

Notes:

Polygon Number	**6**
Survey Intensity	1
Observer	HS
Date	11/1/2006
Specific Location	
Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	0
Logging	
Stand Age	
Agriculture	
Livestock	
Development	
Wildlife	
Recreation Severity	
Recreation Type	
Hydrology	

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. Developed	100	Matrix	1
2.	0		0
3.	0		0

Notes:

Polygon Number	**7**
Survey Intensity	1
Observer	Phyllis
Date	4/21/2006
Specific Location	Lower west edge of park. East of the lagoon.
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, ABGR
emergent	2
maincanopy	5
subcanopy	2
Shrubs Total	5
Dominant Shrubs	HODI, SYAL, GASH
> 1.5' tall	5
< 1.5' tall	1
Graminoids Total	3
Dominant Graminoids	Exotic grasses
Graminoids Perennial	3
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	0
Ferns Total	1
Ferns Evergreen	1
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	1
Bare Ground	1
Moss Lichen	3
Litter	95
Logging	2
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	2
Recreation Severity	2
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic	
HEHE	
Secondary Exotic	
DAGL	
Noxious Exotic	

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes: THERE ARE OBVIOUS AREAS WHERE VEGETATION HAS BEEN REMOVED AND WEEDY SPECIES HAVE TAKEN OVER. PLANKS IN TREES SHOW EVIDENCE OF

Vegetation Polygon Data – Old Fort Townsend State Park

Polygon Number	**1**
Survey Intensity	1
Observer	SH
Date	4/21/2006
Specific Location	Beach
Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	0
Logging	
Stand Age	
Agriculture	
Livestock	
Development	
Wildlife	
Recreation Severity	
Recreation Type	
Hydrology	

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

		Percent	Pattern	Rank
1.	Water	100	Matrix	2
2.		0		0
3.		0		0

Notes: No vegetation in polygon.

Polygon Number	**10**
Survey Intensity	2
Observer	DV
Date	7/7/2006
Specific Location	
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, THPL
emergent	1
maincanopy	5
subcanopy	2
Shrubs Total	1
Dominant Shrubs	GASH, MANE2
> 1.5' tall	1
< 1.5' tall	1
Graminoids Total	1
Dominant Graminoids	Stipa sp.
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	TRLA6, POMU
Forbs Perennial	1
Forbs Annual	0
Ferns Total	1
Ferns Evergreen	1
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**11**
Survey Intensity	1
Observer	SH, Peter
Date	4/21/2006
Specific Location	NE corner of park
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL, TSHE
emergent	2
maincanopy	6
subcanopy	3
Shrubs Total	5
Dominant Shrubs	GASH, VAOV2, MANE2, RHMA3
> 1.5' tall	4
< 1.5' tall	3
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	CABU
Forbs Perennial	1
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	5
Litter	95
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	98	Matrix	2
2. PSME-THPL/RHMA3 (CHAPPELL)	2	Small	2
3.	0		0

Notes:

Polygon Number	**12**
Survey Intensity	1
Observer	SH
Date	7/8/2006
Specific Location	
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL, TSHE
emergent	2
maincanopy	6
subcanopy	2
Shrubs Total	6
Dominant Shrubs	GASH, VAOV2, RHMA3, ROGY
> 1.5' tall	6
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TRLA6, GAAP2, PTAQ, POMU
Forbs Perennial	2
Forbs Annual	0
Ferns Total	3
Ferns Evergreen	2
Ferns Deciduous	2
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	2
Litter	98
Logging	2
Stand Age	3
Agriculture	0
Livestock	0
Development	0
Wildlife	0
Recreation Severity	0
Recreation Type	0
Hydrology	1

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**13**
Survey Intensity	1
Observer	SH
Date	7/8/2006
Specific Location	SW
Total Vegetation	6
Trees Total	5
Dominant Trees	ALRU2, PSME
emergent	0
maincanopy	5
subcanopy	0
Shrubs Total	3
Dominant Shrubs	GASH, SARA2, MANE2
> 1.5' tall	3
< 1.5' tall	1
Graminoids Total	2
Dominant Graminoids	
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	TRLA6, POMU, PTAQ
Forbs Perennial	1
Forbs Annual	0
Ferns Total	6
Ferns Evergreen	6
Ferns Deciduous	2
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	5
Litter	95
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	7
Recreation Severity	0
Recreation Type	0
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. ALRU2/POMU (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**14**
Survey Intensity	1
Observer	SH
Date	7/7/2006
Specific Location	NW Near road.
Total Vegetation	5
Trees Total	5
Dominant Trees	PSME, THPL
emergent	0
maincanopy	5
subcanopy	0
Shrubs Total	3
Dominant Shrubs	GASH, RHMA3
> 1.5' tall	3
< 1.5' tall	1
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	3
Dominant Forbs	TRLA6, POMU
Forbs Perennial	3
Forbs Annual	0
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	8
Litter	92
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	7
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL/GASH-MANE2/POMU	100	Matrix	1
2.	0		0
3.	0		0

Notes: VERY LITTLE SHRUB LAYER, LOTS OF LITTER. WINDTHROW A REASON WHY. Wildlife is birds

Polygon Number	**15**
Survey Intensity	1
Observer	SH
Date	7/7/2006
Specific Location	W
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL
emergent	2
maincanopy	6
subcanopy	3
Shrubs Total	6
Dominant Shrubs	GASH, MANE2, RHMA3, VAOV2, HODI
> 1.5' tall	6
< 1.5' tall	1
Graminoids Total	2
Dominant Graminoids	
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	GAAP2, ADBI, GERO, COMA25, POMU, PTAQ
Forbs Perennial	2
Forbs Annual	0
Ferns Total	4
Ferns Evergreen	4
Ferns Deciduous	2
ExoticsTotal	2
Exotics Perennial	0
Exotics Annual	2
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	5
Moss Lichen	3
Litter	92
Logging	3
Stand Age	3
Agriculture	0
Livestock	0
Development	3
Wildlife	7
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
GERO
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	85	Matrix	3
2. THPL-ABGR/POMU (CHAPPELL)	10	Small	3
3. PSME-THPL/RHMA3 (CHAPPELL)	5	Small	3

Notes: Wildlife is birds

Polygon Number	**16A**
Survey Intensity	1
Observer	SH
Date	4/21/2006
Specific Location	S, SE center of park. Near Kala point housing area.
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL
emergent	2
maincanopy	6
subcanopy	2
Shrubs Total	4
Dominant Shrubs	GASH, VAOV2, RHMA3, MANE2
> 1.5' tall	4
< 1.5' tall	4
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	3
Litter	97
Logging	3
Stand Age	3
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	4
Hydrology	1

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic

Noxious Exotic

Plant Associations

		Percent	Pattern	Rank
1.	PSME-THPL-(ABGR)/GASH (CHAPPELL)	80	Matrix	2
2.	PSME-THPL/GASH-MANE2/POMU	20	Small	2
3.		0		0

Notes: Both biking and hiking rec.

Polygon Number	**16B**
Survey Intensity	1
Observer	SH
Date	4/21/2006
Specific Location	
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL
emergent	2
maincanopy	6
subcanopy	3
Shrubs Total	5
Dominant Shrubs	GASH, VAOV2, RHMA3, MANE2
> 1.5' tall	5
< 1.5' tall	4
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	CABU
Forbs Perennial	1
Forbs Annual	0
Ferns Total	4
Ferns Evergreen	4
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	2
Litter	98
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	4
Hydrology	1

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	80	Matrix	2
2. PSME-THPL/GASH-MANE2/POMU	20	Small	2
3.	0		0

Notes: Both biking and hiking rec.

Polygon Number	**16C**
Survey Intensity	1
Observer	Peter, SH
Date	4/20/2006
Specific Location	
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL, TSHE
emergent	1
maincanopy	6
subcanopy	3
Shrubs Total	3
Dominant Shrubs	GASH, VAOV2, RHMA3, MANE2
> 1.5' tall	3
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	1
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	2
Litter	98
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic
HYRA3
Noxious Exotic

Plant Associations

		Percent	Pattern	Rank
1.	PSME-THPL-(ABGR)/GASH (CHAPPELL)	90	Matrix	2
2.	PSME-THPL/GASH-MANE2/POMU	10	Small	2
3.		0		0

Notes:

Polygon Number	**16D**
Survey Intensity	1
Observer	SH, Peter
Date	4/21/2006
Specific Location	Campground
Total Vegetation	5
Trees Total	5
Dominant Trees	PSME, THPL, TSHE, ACMA3, ARME, TABR2
emergent	3
maincanopy	5
subcanopy	3
Shrubs Total	4
Dominant Shrubs	GASH, MANE2, VAOV2, HODI, RUPA, RHMA3, VAPA
> 1.5' tall	3
< 1.5' tall	3
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TRLA6, SMRA
Forbs Perennial	2
Forbs Annual	1
Ferns Total	3
Ferns Evergreen	2
Ferns Deciduous	3
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	15
Bare Ground	0
Moss Lichen	4
Litter	81
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	6
Wildlife	0
Recreation Severity	3
Recreation Type	4
Hydrology	1

Exotic Species

Primary Exotic
GERO
Secondary Exotic
ILAQ80
Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL/GASH-MANE2/POMU	100	Matrix	1
2.	0		0
3.	0		0

Notes: Polygon is in the campground. Gravel estimate includes pavement from campground circle. Roads, trails, campsites, bathrooms; with road and foot access. Many young cedar

Polygon Number	**16E**
Survey Intensity	1
Observer	SH, Peter
Date	4/21/2006
Specific Location	Near main entrance to park. (Parallels the road).
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL
emergent	3
maincanopy	5
subcanopy	4
Shrubs Total	3
Dominant Shrubs	GASH, MANE2, VAOV2
> 1.5' tall	3
< 1.5' tall	3
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	CABU
Forbs Perennial	1
Forbs Annual	0
Ferns Total	4
Ferns Evergreen	4
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	1
Litter	99
Logging	3
Stand Age	3
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	75	Matrix	2
2. PSME-THPL-(ABGR)/GASH (CHAPPELL)	25	Large	2
3.	0		0

Notes: Polygon near main entrance to park.

Polygon Number	**17**
Survey Intensity	2
Observer	DV
Date	7/7/2006
Specific Location	
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, THPL
emergent	2
maincanopy	5
subcanopy	2
Shrubs Total	2
Dominant Shrubs	VAOV2
> 1.5' tall	2
< 1.5' tall	0
Graminoids Total	1
Dominant Graminoids	Melica sp.
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TRLA6, LAMU, POMU
Forbs Perennial	2
Forbs Annual	1
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	0
Exotics Annual	1
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	3
Stand Age	3
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
LAMU
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**18**
Survey Intensity	2
Observer	DV
Date	7/7/2006
Specific Location	
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, THPL
emergent	2
maincanopy	5
subcanopy	2
Shrubs Total	3
Dominant Shrubs	VAPA
> 1.5' tall	3
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TRLA6, POMU
Forbs Perennial	2
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**19**
Survey Intensity	2
Observer	DV
Date	7/8/2006
Specific Location	
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, THPL
emergent	1
maincanopy	5
subcanopy	2
Shrubs Total	3
Dominant Shrubs	GASH, MANE2
> 1.5' tall	3
< 1.5' tall	1
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TRLA6, POMU
Forbs Perennial	2
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**2A**
Survey Intensity	1
Observer	HS
Date	11/1/2006
Specific Location	
Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	0
Logging	
Stand Age	
Agriculture	
Livestock	
Development	
Wildlife	
Recreation Severity	
Recreation Type	
Hydrology	

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. Developed	100	Matrix	1
2.	0		0
3.	0		0

Notes:

Polygon Number	**2B**
Survey Intensity	1
Observer	SH, Peter
Date	4/21/2006
Specific Location	Along beach, cliff area.
Total Vegetation	5
Trees Total	5
Dominant Trees	ALRU2, PSME, ARME, SASC
emergent	2
maincanopy	5
subcanopy	2
Shrubs Total	3
Dominant Shrubs	RUPA, HODI, LOHI2, RISA
> 1.5' tall	3
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TEGR2
Forbs Perennial	2
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	2
Bare Ground	5
Moss Lichen	0
Litter	93
Logging	1
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. ACMA3-ALRU2/POMU-TEGR2	50	linear	2
2. PSME-ARME/HODI/LOHI2 (CHAPPELL)	50	linear	2
3.	0		0

Notes:

Polygon Number	**3**
Survey Intensity	2
Observer	DV
Date	7/7/2006
Specific Location	
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, THPL
emergent	1
maincanopy	5
subcanopy	2
Shrubs Total	3
Dominant Shrubs	GASH, MANE2
> 1.5' tall	3
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	Stipa sp.
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	TRLA6, POMU
Forbs Perennial	1
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**4**
Survey Intensity	2
Observer	DV
Date	7/8/2006
Specific Location	
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, THPL
emergent	1
maincanopy	5
subcanopy	2
Shrubs Total	3
Dominant Shrubs	GASH, MANE2, VAOV2
> 1.5' tall	3
< 1.5' tall	1
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TRLA6, POMU
Forbs Perennial	2
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**5**
Survey Intensity	1
Observer	SH
Date	4/21/2006
Specific Location	SE portion of park. Cliffs, bluffs down to the water.
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, ALRU2, ARME
emergent	1
maincanopy	6
subcanopy	2
Shrubs Total	4
Dominant Shrubs	HODI, RUPA, LOHI2, RISA
> 1.5' tall	4
< 1.5' tall	3
Graminoids Total	2
Dominant Graminoids	
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	3
Dominant Forbs	TEGR2, Equisetum sp.
Forbs Perennial	3
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	1
Bare Ground	4
Moss Lichen	0
Litter	95
Logging	1
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

		Percent	Pattern	Rank
1.	ACMA3-ALRU2/POMU-TEGR2	50	Large	2
2.	PSME-ARME/HODI/LOHI2 (CHAPPELL)	50	Large	2
3.		0		0

Notes: Steep cliff to beach. Polygon splits between upper and lower half.

Polygon Number	**6**
Survey Intensity	1
Observer	Peter, HS, DV,
Date	4/20/2006
Specific Location	N central portion of park. South of picnic area.
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, THPL, ABGR
emergent	3
maincanopy	5
subcanopy	4
Shrubs Total	6
Dominant Shrubs	SYAL, HODI
> 1.5' tall	5
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	1
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	1
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	2
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	1
Moss Lichen	4
Litter	95
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic
BEPE2
Noxious Exotic
BEPE2

Plant Associations

		Percent	Pattern	Rank
1.	PSME-THPL-(ABGR)/GASH (CHAPPELL)	90	Matrix	2
2.	PSME-THPL/GASH-MANE2/POMU	10	Small	2
3.		0		0

Notes: Prunus sp. (Orchard cherry) in plot. Polygon contained an old trader post and old hospital. The area was heavily inhabitated in the past.

Polygon Number	**7**
Survey Intensity	1
Observer	HS
Date	4/20/2006
Specific Location	
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL
emergent	3
maincanopy	5
subcanopy	3
Shrubs Total	5
Dominant Shrubs	GASH
> 1.5' tall	5
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	1
Ferns Evergreen	1
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	3
Litter	97
Logging	0
Stand Age	3
Agriculture	0
Livestock	0
Development	0
Wildlife	7
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic	
RUDI2	
Secondary Exotic	
ILAQ80	
Noxious Exotic	

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	95	Matrix	0
2. PSME-THPL/GASH-MANE2/POMU	5	Small	0
3.	0		0

Notes: Wildlife; deer--Pileated woodpecker

Polygon Number	**8**
Survey Intensity	1
Observer	SH, Peter
Date	4/21/2006
Specific Location	
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL
emergent	2
maincanopy	5
subcanopy	3
Shrubs Total	4
Dominant Shrubs	GASH, MANE2, LIBO3
> 1.5' tall	3
< 1.5' tall	3
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	1
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	1
Litter	99
Logging	3
Stand Age	5
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	70	Matrix	2
2. THPL-ABGR/POMU (CHAPPELL)	20	Small	2
3. PSME-THPL/GASH-MANE2/POMU	10	Small	2

Notes:

Vegetation Polygon Data – Anderson Lake State Park

Polygon Number	**1**
Survey Intensity	2
Observer	DV
Date	7/8/2006
Specific Location	
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, THPL, PISI
emergent	2
maincanopy	4
subcanopy	2
Shrubs Total	4
Dominant Shrubs	OECE, HODI, RUSP, MANE2
> 1.5' tall	4
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TITR, POMU
Forbs Perennial	2
Forbs Annual	1
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	2
Stand Age	3
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. TSHE-PSME/POMU-DREX2 (CHAPPELL)	100	Matrix	3
2.	0		0
3.	0		0

Notes:

Polygon Number	**10**
Survey Intensity	2
Observer	DV
Date	7/8/2006
Specific Location	
Total Vegetation	6
Trees Total	4
Dominant Trees	ABAM, ALRU2
emergent	1
maincanopy	4
subcanopy	2
Shrubs Total	4
Dominant Shrubs	OECE
> 1.5' tall	4
< 1.5' tall	1
Graminoids Total	2
Dominant Graminoids	
Graminoids Perennial	2
Graminoids Annual	1
Forbs Total	3
Dominant Forbs	RARE3, POMU, DREX2
Forbs Perennial	3
Forbs Annual	2
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	2
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	1
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	3
Moss Lichen	0
Litter	97
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
RUDI2
Secondary Exotic
RARE3
Noxious Exotic
ILAQ80

Plant Associations

	Percent	Pattern	Rank
1. ALRU2/POMU (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**11**
Survey Intensity	1
Observer	SH
Date	4/23/2006
Specific Location	W of Lake, Western portion of park.
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL, TSHE
emergent	2
maincanopy	6
subcanopy	2
Shrubs Total	4
Dominant Shrubs	GASH, HODI, MANE2
> 1.5' tall	4
< 1.5' tall	3
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	1
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	1
Moss Lichen	2
Litter	97
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL/GASH-MANE2/POMU	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**12**
Survey Intensity	2
Observer	Phyllis
Date	4/23/2006
Specific Location	
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL, TSHE
emergent	2
maincanopy	5
subcanopy	2
Shrubs Total	2
Dominant Shrubs	GASH, RHMA3
> 1.5' tall	2
< 1.5' tall	1
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	4
Ferns Evergreen	4
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	2
Litter	98
Logging	2
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	2
Recreation Severity	3
Recreation Type	4
Hydrology	2

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	80	Matrix	2
2. PSME-THPL/RHMA3 (CHAPPELL)	20	Large	2
3.	0		0

Notes: Rec users include foot and hooved. A culvert present.

Polygon Number	**13**
Survey Intensity	1
Observer	SH
Date	7/8/2006
Specific Location	N portion of - W of lake section.
Total Vegetation	6
Trees Total	6
Dominant Trees	THPL, ALRU2
emergent	2
maincanopy	6
subcanopy	2
Shrubs Total	6
Dominant Shrubs	RUSP, SARA2
> 1.5' tall	6
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	3
Dominant Forbs	URDI, POMU
Forbs Perennial	3
Forbs Annual	0
Ferns Total	6
Ferns Evergreen	6
Ferns Deciduous	2
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	5
Litter	95
Logging	2
Stand Age	3
Agriculture	0
Livestock	0
Development	0
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	60	Matrix	2
2. ALRU2/POMU (CHAPPELL)	40	Small	2
3.	0		0

Notes: ALRU2/POMU PATCHES WITH RUSP.

Polygon Number	**14**
Survey Intensity	1
Observer	SH
Date	4/23/2006
Specific Location	Western boundary of polygon.
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL, ALRU2
emergent	1
maincanopy	6
subcanopy	2
Shrubs Total	3
Dominant Shrubs	GASH, MANE2, RUSP
> 1.5' tall	3
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	4
Ferns Evergreen	4
Ferns Deciduous	1
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	2
Moss Lichen	3
Litter	95
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	75	Matrix	2
2. ALRU2/POMU (CHAPPELL)	25	Small	2
3.	0		0

Notes: Soggy site. Alder patch in polygon

Polygon Number	**15**
Survey Intensity	1
Observer	SH
Date	7/8/2006
Specific Location	Near road.
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, ALRU2, ACMA3, ABGR
emergent	1
maincanopy	5
subcanopy	1
Shrubs Total	5
Dominant Shrubs	OECE, RUSP, HODI, SPDO, SYAL
> 1.5' tall	5
< 1.5' tall	1
Graminoids Total	3
Dominant Graminoids	
Graminoids Perennial	3
Graminoids Annual	0
Forbs Total	4
Dominant Forbs	Equisetum sp., POMU, PTAQ
Forbs Perennial	4
Forbs Annual	0
Ferns Total	4
Ferns Evergreen	4
Ferns Deciduous	2
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	3
Litter	97
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
RARE3
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-ABGR/HODI/POMU (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**16**
Survey Intensity	1
Observer	SH
Date	4/23/2006
Specific Location	South of US20. South of lake (other side of road).
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, THPL, TSHE, ABGR
emergent	1
maincanopy	5
subcanopy	2
Shrubs Total	4
Dominant Shrubs	GASH, MANE2, SARA2
> 1.5' tall	4
< 1.5' tall	2
Graminoids Total	2
Dominant Graminoids	
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	URDI, MADI
Forbs Perennial	2
Forbs Annual	0
Ferns Total	5
Ferns Evergreen	5
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	3
Litter	97
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**17**
Survey Intensity	2
Observer	DV
Date	7/8/2006
Specific Location	
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, THPL
emergent	2
maincanopy	4
subcanopy	2
Shrubs Total	3
Dominant Shrubs	GASH
> 1.5' tall	3
< 1.5' tall	1
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	POMU, PTAQ
Forbs Perennial	2
Forbs Annual	0
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	2
ExoticsTotal	1
Exotics Perennial	0
Exotics Annual	1
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	2
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
LAMU
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL/GASH-MANE2/POMU	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**18**
Survey Intensity	2
Observer	HS
Date	11/1/2006
Specific Location	
Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	0
Logging	
Stand Age	
Agriculture	
Livestock	
Development	
Wildlife	
Recreation Severity	
Recreation Type	
Hydrology	

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. Water	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**19**
Survey Intensity	1
Observer	HS
Date	4/23/2006
Specific Location	S of Anderson Lake wetland
Total Vegetation	6
Trees Total	1
Dominant Trees	PISI, ALRU2
emergent	1
maincanopy	0
subcanopy	0
Shrubs Total	3
Dominant Shrubs	RONU, SASI2, SPDO
> 1.5' tall	3
< 1.5' tall	0
Graminoids Total	6
Dominant Graminoids	PHAR3, JUEF
Graminoids Perennial	6
Graminoids Annual	0
Forbs Total	3
Dominant Forbs	POPA14, Ranunculus sp.
Forbs Perennial	3
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	5
Exotics Perennial	5
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	0
Stand Age	0
Agriculture	0
Livestock	4
Development	0
Wildlife	7
Recreation Severity	0
Recreation Type	0
Hydrology	1

Exotic Species

Primary Exotic
DAGL
Secondary Exotic
Prunus sp.
Noxious Exotic
PHAR3

Plant Associations

	Percent	Pattern	Rank
1. PHAR3 WETLAND (PBI)	90	Matrix	1
2. Salix sp. c.t. (KUNZE)	10	linear	2
3.	0		0

Notes: Old fence in plot. Wildlife; birds and a tree frog.

Polygon Number	**2**
Survey Intensity	1
Observer	SH
Date	4/23/2006
Specific Location	SW section of park.
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL
emergent	1
maincanopy	6
subcanopy	2
Shrubs Total	6
Dominant Shrubs	HODI, MANE2, GASH
> 1.5' tall	5
< 1.5' tall	3
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	CABU
Forbs Perennial	1
Forbs Annual	0
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	1
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	1
Moss Lichen	1
Litter	98
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL/GASH-MANE2/POMU	100	Matrix	2
2.	0		0
3.	0		0

Notes: Polygon is mostly an even-aged PSME stand, young (40-90 yrs). Some THPL in understory.

Polygon Number	**20**
Survey Intensity	1
Observer	SH
Date	7/8/2006
Specific Location	W of lake, Center of park.
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, THPL, ABGR
emergent	2
maincanopy	5
subcanopy	2
Shrubs Total	6
Dominant Shrubs	GASH, RHMA3, ROGY, MANE2
> 1.5' tall	6
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TROV2, TRLA6, POMU, PTAQ
Forbs Perennial	2
Forbs Annual	0
Ferns Total	4
Ferns Evergreen	4
Ferns Deciduous	2
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	2
Moss Lichen	2
Litter	96
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	7
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. PSME-THPL-(ABGR)/GASH (CHAPPELL)	90	Matrix	1
2. PSME-THPL/GASH-MANE2/POMU	10	Matrix	1
3.	0		0

Notes: YOUNG PSME STAND. Wildlife is birds

Polygon Number	**21**
Survey Intensity	1
Observer	SH
Date	7/8/2006
Specific Location	NW
Total Vegetation	6
Trees Total	6
Dominant Trees	THPL, ALRU2, PSME
emergent	1
maincanopy	6
subcanopy	2
Shrubs Total	4
Dominant Shrubs	RUSP, MANE2, SARA2
> 1.5' tall	4
< 1.5' tall	1
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TRLA6, GAAP2, POMU, PTAQ
Forbs Perennial	2
Forbs Annual	0
Ferns Total	6
Ferns Evergreen	6
Ferns Deciduous	2
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	2
Moss Lichen	5
Litter	93
Logging	3
Stand Age	3
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	60	Matrix	2
2. PSME-THPL/GASH-MANE2/POMU	20	Small	2
3. ALRU2/POMU (CHAPPELL)	20	Small	2

Notes: POMU ALMOST EXCLUSIVE UNDERSTORY.

Polygon Number	**22**
Survey Intensity	1
Observer	HS
Date	11/1/2006
Specific Location	
Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	0
Logging	
Stand Age	
Agriculture	
Livestock	
Development	
Wildlife	
Recreation Severity	
Recreation Type	
Hydrology	

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. Developed	100	Matrix	1
2.	0		0
3.	0		0

Notes:

Polygon Number	**23**
Survey Intensity	2
Observer	Phyllis
Date	4/23/2006
Specific Location	East side of lake, east of little island…but not on knolls.
Total Vegetation	6
Trees Total	6
Dominant Trees	PSME, THPL, TSHE, ABGR
emergent	2
maincanopy	5
subcanopy	1
Shrubs Total	3
Dominant Shrubs	VAPA, OECE, MANE2, RUSP
> 1.5' tall	3
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	CIAL
Forbs Perennial	1
Forbs Annual	0
Ferns Total	5
Ferns Evergreen	5
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	3
Litter	97
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	3
Recreation Severity	3
Recreation Type	4
Hydrology	1

Exotic Species

Primary Exotic	
ILAQ80	
Secondary Exotic	
HEHE	
Noxious Exotic	

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	65	Matrix	2
2. ALRU2/POMU (CHAPPELL)	35	Large	2
3.	0		0

Notes: Rec users are both foot and hoofed.

Polygon Number	**23B**
Survey Intensity	1
Observer	DV
Date	7/8/2006
Specific Location	
Total Vegetation	4
Trees Total	1
Dominant Trees	PSME
emergent	0
maincanopy	1
subcanopy	0
Shrubs Total	2
Dominant Shrubs	HODI, Rosa sp., MAAQ2
> 1.5' tall	2
< 1.5' tall	1
Graminoids Total	4
Dominant Graminoids	DAGL
Graminoids Perennial	4
Graminoids Annual	2
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	1
Ferns Total	1
Ferns Evergreen	0
Ferns Deciduous	1
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	2
Water	
Rock Outcrop	15
Gravel	0
Bare Ground	25
Moss Lichen	0
Litter	60
Logging	0
Stand Age	0
Agriculture	0
Livestock	4
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
DAGL
Secondary Exotic
BRCO4
Noxious Exotic
BRTE

Plant Associations

	Percent	Pattern	Rank
1. ROCKY BALD (PBI)	100	Matrix	1
2.	0		0
3.	0		0

Notes: ROCKY BALD

Polygon Number	**24**
Survey Intensity	2
Observer	Phyllis
Date	4/23/2006
Specific Location	SE area of park
Total Vegetation	5
Trees Total	5
Dominant Trees	THPL, ACMA3, ALRU2
emergent	2
maincanopy	5
subcanopy	2
Shrubs Total	3
Dominant Shrubs	VAPA, RUSP
> 1.5' tall	3
< 1.5' tall	0
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	5
Ferns Evergreen	5
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	3
Litter	97
Logging	2
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes: Very little tree cover other than ACMA3, THPL, and ALRU2.

Polygon Number	**25**
Survey Intensity	1
Observer	SH
Date	7/8/2006
Specific Location	Far W
Total Vegetation	6
Trees Total	6
Dominant Trees	THPL, ALRU2
emergent	2
maincanopy	6
subcanopy	2
Shrubs Total	4
Dominant Shrubs	RUSP, HODI, MANE2
> 1.5' tall	4
< 1.5' tall	1
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	MADI, TRLA6, POMU
Forbs Perennial	2
Forbs Annual	0
Ferns Total	6
Ferns Evergreen	6
Ferns Deciduous	2
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	3
Moss Lichen	6
Litter	91
Logging	3
Stand Age	3
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	90	Matrix	2
2. ALRU2/POMU (CHAPPELL)	10	Small	2
3.	0		0

Notes:

Polygon Number	**26**
Survey Intensity	1
Observer	SH
Date	7/8/2006
Specific Location	
Total Vegetation	6
Trees Total	6
Dominant Trees	ALRU2, THPL
emergent	1
maincanopy	6
subcanopy	2
Shrubs Total	4
Dominant Shrubs	RUSP, SARA2, GASH, MANE2
> 1.5' tall	4
< 1.5' tall	1
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TRLA6, POMU
Forbs Perennial	2
Forbs Annual	0
Ferns Total	6
Ferns Evergreen	6
Ferns Deciduous	2
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	8
Litter	92
Logging	3
Stand Age	3
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
ILAQ80
Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. ALRU2/POMU (CHAPPELL)	60	Matrix	1
2. THPL-ABGR/POMU (CHAPPELL)	40	Small	2
3.	0		0

Notes:

Polygon Number	**3**
Survey Intensity	1
Observer	SH
Date	7/8/2006
Specific Location	
Total Vegetation	6
Trees Total	6
Dominant Trees	ALRU2, THPL
emergent	0
maincanopy	6
subcanopy	2
Shrubs Total	6
Dominant Shrubs	RUSP, SARA2, SYAL
> 1.5' tall	6
< 1.5' tall	1
Graminoids Total	3
Dominant Graminoids	
Graminoids Perennial	3
Graminoids Annual	0
Forbs Total	4
Dominant Forbs	URDI, Equisetum sp., POMU
Forbs Perennial	4
Forbs Annual	0
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	1
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	3
Litter	97
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. ALRU2/RUSP c.t. (KUNZE)	100	Matrix	1
2.			
3.	0		0

Notes:

Polygon Number	**4**
Survey Intensity	1
Observer	SH
Date	4/23/2006
Specific Location	South of lake
Total Vegetation	6
Trees Total	5
Dominant Trees	PSME, THPL
emergent	1
maincanopy	5
subcanopy	2
Shrubs Total	5
Dominant Shrubs	OECE, MANE2, SYAL, HODI
> 1.5' tall	5
< 1.5' tall	3
Graminoids Total	2
Dominant Graminoids	
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	0
Ferns Total	4
Ferns Evergreen	4
Ferns Deciduous	1
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	2
Moss Lichen	1
Litter	97
Logging	3
Stand Age	3
Agriculture	0
Livestock	0
Development	3
Wildlife	0
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic
Prunus sp.
Secondary Exotic
Malus sp.
Noxious Exotic
ILAQ80

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes: Malus and Prunus sp. (domesticated) are in polygon.

Polygon Number	**5**
Survey Intensity	2
Observer	DV
Date	7/8/2006
Specific Location	
Total Vegetation	6
Trees Total	4
Dominant Trees	ALRU2, ACMA3
emergent	0
maincanopy	4
subcanopy	2
Shrubs Total	4
Dominant Shrubs	OECE, COST4
> 1.5' tall	4
< 1.5' tall	0
Graminoids Total	2
Dominant Graminoids	
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	MIDI4, POMU
Forbs Perennial	2
Forbs Annual	0
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	0
Litter	100
Logging	2
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. ALRU2/POMU (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**6**
Survey Intensity	2
Observer	DV
Date	4/23/2006
Specific Location	
Total Vegetation	5
Trees Total	5
Dominant Trees	PSME, THPL
emergent	1
maincanopy	5
subcanopy	2
Shrubs Total	3
Dominant Shrubs	
> 1.5' tall	3
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	3
Dominant Forbs	
Forbs Perennial	3
Forbs Annual	1
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	2
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	2
Litter	98
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**7**
Survey Intensity	2
Observer	DV
Date	4/23/2006
Specific Location	
Total Vegetation	5
Trees Total	5
Dominant Trees	THPL, PSME
emergent	1
maincanopy	5
subcanopy	3
Shrubs Total	3
Dominant Shrubs	VAPA
> 1.5' tall	3
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	
Forbs Perennial	2
Forbs Annual	1
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	2
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	2
Moss Lichen	2
Litter	96
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	100	Matrix	2
2.	0		0
3.	0		0

Notes:

Polygon Number	**8**
Survey Intensity	1
Observer	DV
Date	4/23/2006
Specific Location	
Total Vegetation	5
Trees Total	5
Dominant Trees	PSME, THPL
emergent	2
maincanopy	5
subcanopy	2
Shrubs Total	3
Dominant Shrubs	MANE2
> 1.5' tall	2
< 1.5' tall	2
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TRLA6
Forbs Perennial	2
Forbs Annual	0
Ferns Total	3
Ferns Evergreen	3
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	5
Gravel	5
Bare Ground	5
Moss Lichen	5
Litter	80
Logging	3
Stand Age	2
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	100	Matrix	3
2.	0		0
3.	0		0

Notes:

Polygon Number	**9**
Survey Intensity	2
Observer	DV
Date	4/23/2006
Specific Location	
Total Vegetation	5
Trees Total	4
Dominant Trees	THPL, ACMA3
emergent	2
maincanopy	4
subcanopy	2
Shrubs Total	2
Dominant Shrubs	
> 1.5' tall	2
< 1.5' tall	2
Graminoids Total	1
Dominant Graminoids	
Graminoids Perennial	1
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	
Forbs Perennial	1
Forbs Annual	0
Ferns Total	4
Ferns Evergreen	4
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	2
Litter	98
Logging	3
Stand Age	3
Agriculture	0
Livestock	0
Development	3
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. THPL-ABGR/POMU (CHAPPELL)	100	Matrix	3
2.	0		0
3.	0		0

Notes:

Polygon Number	**new**
Survey Intensity	1
Observer	DV
Date	4/23/2006
Specific Location	Within P23 just E of P8 (see map for specific site)
Total Vegetation	5
Trees Total	2
Dominant Trees	ALRU2
emergent	0
maincanopy	2
subcanopy	0
Shrubs Total	4
Dominant Shrubs	RUSP
> 1.5' tall	4
< 1.5' tall	2
Graminoids Total	2
Dominant Graminoids	
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	3
Dominant Forbs	LYAM3, OESA, POMU, ATFI
Forbs Perennial	3
Forbs Annual	0
Ferns Total	2
Ferns Evergreen	2
Ferns Deciduous	2
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	
Rock Outcrop	0
Gravel	0
Bare Ground	0
Moss Lichen	10
Litter	90
Logging	3
Stand Age	3
Agriculture	0
Livestock	0
Development	0
Wildlife	3
Recreation Severity	0
Recreation Type	0
Hydrology	1

Exotic Species

Primary Exotic

Secondary Exotic

Noxious Exotic

Plant Associations

	Percent	Pattern	Rank
1. ALRU2/RUSP c.t. (KUNZE)	100	Matrix	3
2.	0		0
3.	0		0

Notes:

Appendix E – Washington Natural Heritage Program Rare Plant Sighting Form:

Taxon Name: *Boschniakia hookeri*
EO #:
Are you confident of the identification? ✹es ✯o Explain:

Survey Site Name: Lake Anderson State Park
Surveyor's Name/Phone/Email: Dana Visalli 509 997-9011 dana@methow.com
Survey Date: July 8, 2006
County: Jefferson
Quad Name:
Quad Code:
Township: 29N Range: 1W Section(s): 9 SE1/4 of NE1/4:

Directions to site: Park in the parking area of Lake Anderson State Park. Take the trail leading north along the west side of the lake. These Boschniakia specimens were on the right (east) side of the trail at the edge of a salal patch (which is very common in the area). They were mere buttons on the sighting date, probably mature on about July 20-30.

Mapping (see instructions): Attach a copy of the USGS 7.5 minute quad with the location and extent of the rare plant population clearly drawn. Do not reduce or enlarge the photocopy or printout of the map. If your map is a different scale (not recommen-ded) please write the scale on the map.

Please answer the following:
1. I used GPS to map the population: No (skip to #2) Yes (complete #1 & #3)
Coordinates are in electronic file on diskette (preferred) ❑ Coordinates written below or attached. Description of what coordinates represent:

GPS accuracy: Uncorrected Corrected to <5m
GPS datum: NAD 83 Zone 10
GPS coordinates:
2. I used a topographic map to map the population:
Yes (complete #2) ✯o (provide detailed directions & description above, and skip to #3)
I am confident I have accurately located and mapped the population at map scale:
Yes (skip to #3) ✯o, but I am confident the population is within the general area indicated on the map as follows:
On the same map, use a highlighter to identify the outer boundary of the area where the population could be, given the uncertainties about your exact location.
3. I used the following features on the map to identify my location (stream, shoreline, bridge, road, cliff, etc. Trail and lake shore
To the best of my knowledge, I mapped the entire extent of this population
✹es ✯o ✇nknown If no or unknown, explain: It's possible many BOHO individuals were hidden in the surrounding salal stand.
Is a revisit needed? ✯o ✹es - if yes, why?:
Ownership (if known): Washington State Parks

Population Size (# of individuals or ramets) or estimate: Two individual plants

Population (EO) Data (include population vigor, microhabitat, phenology, etc.): Two very small plants in the 'button' stage, just emerging from the ground.

Plant Association: PSME-THPL-(ABGR)/GASH (Chappell)

Associated Species (include % cover by layer and by individual species for dominants in each layer):
Lichen/moss layer:

Herb layer:

Shrub layer(s): GASH 60%

Tree layer: PSME 60% THPL 5%

General Description (include description of landscape, surrounding plant communities, land forms, land use, etc.): Site is along the trail that runs along the west shore of the lake, within 30 feet of the shoreline

Minimum elevation (ft.): Not recorded.
Size (acres): 3 square feet Aspect: flat Slope flat
Photo taken? ✹es ✯o

Management Comments (exotics, roads, shape/size, position in landscape, hydrology, adjacent land use, cumulative effects, etc.): These specimens are adjacent to the trail, which is why we found them; there is amply GASH (salal) in the area.

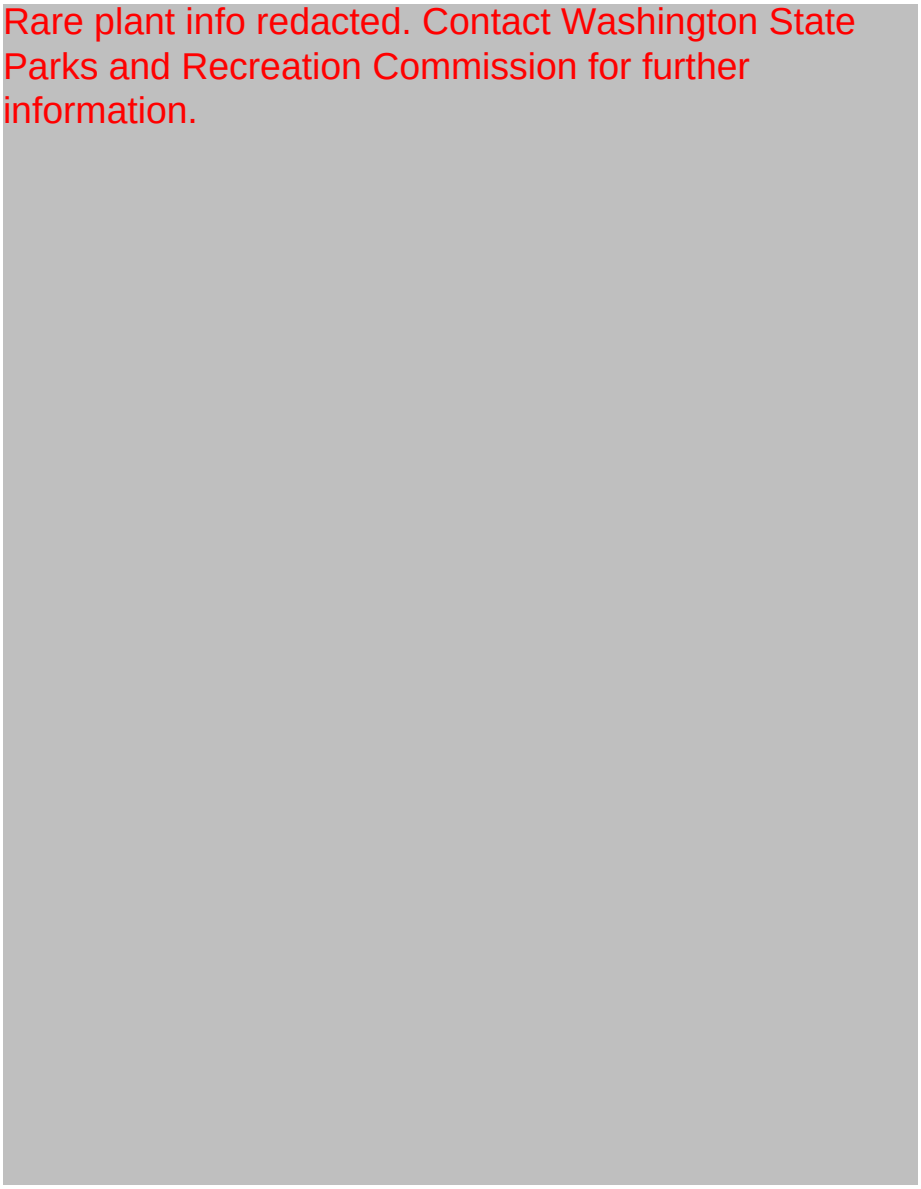
Protection Comments (legal actions/steps/strategies needed to secure protection for the site):

Additional Comments (discrepancies, general observations, etc.):

Please mail completed form with map:
WASHINGTON NATURAL HERITAGE PROGRAM
DEPARTMENT OF NATURAL RESOURCES
PO BOX 47014, OLYMPIA WA 98504-7014

Boschniakia hookeri Site

Lake Anderson State Park
July 8, 2006 by Phyllis Murra & Dana Visalli
UTM NAD 83 Zone 10



Boschniakia hookeri location marked with a red circle