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Natural Resource Stewardship and Science



# Vascular Plant Inventory for Lewis and Clark National Historical Park

Public Version

Natural Resource Technical Report NPS/LEWI/NRTR-2012/603.N



**ON THE COVER** Headland at Cape Disappointment Photograph by: Lindsey Koepke Wise

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This report is available from the Lewis and Clark National Historical Park website (<u>http://www.nps.gov/lewi/naturescience/plants.htm</u>), the North Coast and Cascades Network Inventory and Monitoring website (<u>http://science.nature.nps.gov/im/units/nccn/reportpubs.cfm</u>), and the Natural Resource Publications Management website (<u>http://www.nature.nps.gov/publications/nrpm</u>).

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## Abstract

A study to review the status and distribution of vascular plants at Lewis and Clark National Historical Park was initiated in 2009 and completed in 2010 by the Oregon Natural Heritage Information Center at Oregon State University. This study built on previous inventories conducted under the National Park Service's Inventory and Monitoring Program which was initiated in 1992 to collect baseline data on the number and status of biological resources within the parks (National Park Service 2001). The North Coast and Cascades Network of national parks conducted vascular plant inventories in seven Pacific Northwest parks from 1999 to 2003 (Rochefort et al. 2009). At that time, inventories focused on the lands included within Fort Clatsop National Memorial (FOCL), documenting 246 vascular plant species. In 2004 the Fort Clatsop National Memorial was expanded to become Lewis and Clark National Historical Park (LEWI), encompassing several units of state and federal parkland in Oregon and Washington. As this expansion occurred after completion of the initial vascular plant inventory of FOCL, vascular plant species present in the new park units had yet to be documented.

Field surveys were completed between February 2009 and September 2010. Species new to the park were documented with specimen vouchers, GPS locations, and field notes. Point locations and population estimates were made for rare species and for non-native, invasive species of concern. Locations of rare communities were noted. Existing vouchers in the LEWI herbarium were verified and re-labeled with up-to-date nomenclature, mis-identifications were annotated, and species were keyed to variety or subspecies where applicable.

Upon completion of field work and data mining research, an additional 180 species were documented as occurring within the legislative boundary of the park, bringing the total number of vascular species to 467. In addition, the locations of six rare community types, 10 rare species, and 18 non-native species of concern were mapped in park units. These mapped species are discussed in detail and management strategies are presented. An annotated checklist of the vascular plants of the park documents each species recorded for the park and describes their range, nativity, population size within the park, and associated habitats.

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Kathleen Sayce of ShoreBank Pacific provided advice on finding certain species and was a valuable resource for the species and communities at Cape Disappointment. Richard Halse at Oregon State University identified and verified troublesome specimens. David Giblin at the University of Washington provided advice on herbarium specimen preparation and annotation. Gay Hunter at Olympic National Park provided herbarium annotation advice and forms. Noel Bacheller of the Oregon Parks and Recreation Department provided information on Fort Stevens and Sunset Beach resource management.

Evan Roberts of Long Beach Area State Parks kindly provided a canoe for access to O'Neil Lake at Cape Disappointment State Park. The Oregon Military Department provided plant lists and inventory reports for species found at Camp Rilea compiled by Scott Sundberg while working at the OSU Herbarium. The Nature Conservancy's volunteers helped with internet research on plant characteristics. Christina Schull and Melissa Reich with the Oregon Biodiversity Information Center assisted in field work and specimen preparation. Erin Doyle with the Oregon Biodiversity Information Center assisted with research on habitat use, range, and phenology for the appendices. John Christy and Eric Nielsen at the Oregon Biodiversity Information Center contributed ecology and wetland expertise, project design and review, and aided in field work.

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# **1** Introduction

The National Park Service's primary mission is to conserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment of present and future generations. Fort Clatsop National Memorial (FOCL) was established in1958 in Astoria, Oregon to commemorate the site of Fort Clatsop. The fort was built in 1805 by Meriwether Lewis and William Clark and their company during their expedition to the Pacific Ocean to house them over the winter before their return trip to Missouri. When established, FOCL consisted mainly of inland lowland forest and riparian wetlands adjacent to the Lewis and Clark River around the site of the Fort replica and visitor center.

In 1992, the National Park Service's (NPS) Inventory and Monitoring Program identified a list of candidate elements and processes for initial inventory in all natural resource parks. The National Parks Omnibus Management Act of 1998 recognized the need for good scientific information to manage parks. The act mandated a "program of inventory and monitoring of National Park System resources to establish baseline information and to provide information on the long-term trends in the condition of National Park System resources" for the purpose of informing park management through greater scientific knowledge (NPS 1998). Baseline species and ecological data from each park would allow the service to track changes over time and provide benchmarks for species and habitat conservation in an ecological setting.

In 1999, the National Park Service initiated the Species Inventory Program focusing on vertebrates and vascular plants. This program was created to provide park resource managers with comprehensive, scientifically-based information about the nature and status of biological resources within park boundaries. The North Coast and Cascades Network (NCCN) of parks developed a plan in 1999 to inventory and document vertebrate and vascular plant species in the network (Rochefort et al. 2009). The goals of this program were to compile lists of vascular plants and vertebrates list for each network park and to verify the occurrence of at least 90% of the species on each park list through written records or voucher specimens. Development of species lists and verification of occurrence was accomplished by summarizing existing park information, data mining (i.e., searching museum records and other reliable outside datasets), and finally conducting field surveys to document species presence through specimen collection. All data was then entered into the NPS NPSpecies database. Data entry followed a two step process of data entry and then certification. The NCCN Inventory program was conducted from 1999 to 2003 and at that time, FOCL had a list of 246 vascular plant species that were verified at the 90% level (Rochefort et al. 2009), precluding the need for additional inventory.

The Lewis and Clark National Historical Park Designation Act of 2004 authorized FOCL to expand to become Lewis and Clark National Historical Park (LEWI). This expansion added several units to the park, including lands in Washington State and along the Oregon coast. Several thousand acres were added along with several habitat types, and the park determined that a vascular plant inventory was needed on the new parklands. In 2008, the Pacific West Region provided funding for the park to conduct a plant inventory of the newly added lands. LEWI partnered with the Oregon Natural Heritage Information Center at Oregon State University to complete the inventories, drawing on the heritage program's previous work with NPS and vascular plant inventories. During the completion of the project, the Oregon Natural Heritage Information Center was transferred to Portland State University, where it became the Oregon

Biodiversity Information Center (ORBIC), and it will be referred to as ORBIC throughout this report.

### 1.1 Background and justification

The expansion of Lewis and Clark National Historical Park in 2004 necessitated a new inventory of additional park lands to meet the goals laid out in the NCCN Inventory Program. In addition, a new inventory allowed for rare and non-native, invasive species locations to be mapped, rare plant communities to be identified and discussed, and for the park's existing herbarium collections to be reviewed.

### 1.2 Objectives

The objectives of this project were to complete a vascular plant inventory of the new lands, including collection and processing of voucher herbarium specimens. Specific goals of the inventory were to:

- 1. Document and map locations of special status plants including federal or state listed threatened, endangered, species of concern or special status plant species.
- 2. Document and identify important locations of plant communities of special interest or concern.
- 3. Document and map locations of non-native species of concern.
- 4. Collect and process voucher specimens for any species encountered that were not previously represented in the LEWI herbarium.
- 5. Develop an annotated checklist and technical report documenting current and previous floristic work at LEWI.

### 1.3 Study area

### 1.3.1 History and setting

In May 1804, the Corps of Discovery led by Meriwether Lewis and William Clark by order of President Thomas Jefferson began their journey from Missouri to cross the American continent; creating maps, collecting specimens, and making contact with native peoples as they went. A year and a half later, their journey west would end at the mouth of the Columbia River and the Pacific Ocean. Before heading back east, they built Fort Clatsop on the Netul River, now called the Lewis and Clark River, and stayed for three months while they wrote reports, annotated maps, and processed their collections and waited for the winter to pass. They left in March of 1806 to return home. It was in appreciation of the achievements and importance of the Lewis and Clark Expedition that the Fort Clatsop site became a National Memorial in 1958.

Since the National Memorial designation was made in 1958, the park has continued to expand. In 1979 the 0.2 acre Salt Works parcel was purchased in Seaside and added to the park. The Fort Clatsop unit was expanded to about 1200 acres in 2002 under the Fort Clatsop Boundary Expansion Act. The major expansion came in 2004 with the passage of the Lewis and Clark National Historical Park Designation Act, which added units in Washington and additional sites in Oregon. With the 2004 Act the park area now stands at 3,358 acres.

Lewis and Clark National Historical Park is located on the Pacific coast in Clatsop County, Oregon and Pacific County, Washington (Figure 1). There are five main Park Service units: Cape Disappointment, Middle Village/Station Camp, Dismal Nitch, Sunset Beach/Yeon, and Fort Clatsop. There is also a sixth small Park Service property, the Salt Works, which is a treed city lot with an interpretive panel and reproduction of a salt cairn similar to that described in the Lewis and Clark journals as having been used by expedition members. The lot is inland from the beach due to the fact that several hundred feet of shoreline have accreted over the last 200+ years. There are also three associated State Park units: Fort Columbia, Fort Stevens, and Ecola. In addition to their historical significance, the Lewis and Clark NHP lands preserve coastal habitats that support rare plant species and provide important resources for wildlife.

Three units are located in Washington State. The largest is Cape Disappointment State Park, located on the peninsula at the extreme south-western tip of Washington. It includes headlands, forests, wetlands, dunes and several miles of beach line. While this unit continues to be managed by Washington State Parks, it is within the legislative boundaries of LEWI as defined in the 2004 LEWI designation act. The other two Washington units are located upstream along the Columbia River. They are Middle Village/Station Camp, a site of both pre- and post-contact significance located west of the Astoria Bridge, and Clark's Dismal Nitch, a smaller unit located just east of the Astoria Bridge. Both these sites are largely composed of forests on the bluffs overlooking the Columbia River.

The original national memorial site, Fort Clatsop, is located on the Lewis and Clark River southeast of the city of Astoria, Oregon. Aside from the wetlands and riparian habitats along the river, this 1,200 acre unit is a mostly forested area which now includes the Fort to Sea trail east of Highway 101, connecting the fort to the ocean. The Fort to Sea trail terminates at Sunset Beach State Recreation Area, which is owned by Oregon State Parks but is within the legislative boundaries of LEWI, and is cooperatively managed between the two agencies. Directly south of Sunset Beach is the recently acquired Yeon property. Collectively, these two properties comprise the Sunset Beach/Yeon unit.

In addition to the six units that fall within the legislative boundaries of LEWI, there are three state parks that have special cooperative relationships with LEWI and have been included in this study, though they were given less intensive investigation as the focus was on the units within the legislative boundary. They are: Fort Columbia State Park, including 626 acres of forests and the historic fort located on the Columbia River immediately northwest of the Station Camp unit in Washington; Ecola State Park located north of Cannon Beach, Oregon, which includes nine miles of coastline and the most pristine forests of any of the units; and Fort Stevens State Park located on the peninsula at the extreme north-western tip of Oregon. Fort Stevens is the largest unit at over 3,000 acres and includes the largest area of salt marsh and sand dunes within any of the units associated with LEWI.





Figure 1. Locations and names of Lewis and Clark National Historical Park and State Park units.

#### 1.3.2 Geology and Climate

The mountains of the Pacific Coast Range run north-south from Alaska to California. They were formed from a volcanic island chain that collided with the North American continent about 50 million years ago. The subduction of the Juan de Fuca plate under the North American Plate in the Pacific Northwest causes uplift along the coast, creating marine terraces (Roering 2008). Marine sediments that have since collected around the mountains form the lands west of the range, where the Lewis and Clark units are located. The climate along these coasts is cool and wet, with average rainfall ranging around 70-100 inches per year. Winters and summers are mild with an average high of 67° F and low of 35° F. Storms frequently cause landscape-level changes at the coast, contributing to erosion of beaches and wind throw of trees in forested areas. Recently, storms in 1999 and 2007 have caused blow downs and beach erosion in Park units. Beaches behind the North Jetty at Cape Disappointment have been eroding since the 1950s (Washington DOE 2008). In the summer of 2010 the Littoral Drift Project was completed by the Army Corps of Engineers to restore eroded areas along the North Jetty and Benson Beach using dredged material from the mouth of the Columbia. If successful, the dredging and dumping could occur at Cape Disappointment annually (Great Lakes Dredge and Dock Company 2010; Lower Columbia River Solutions Group 2011). These processes have led to large areas of Cape Disappointment and Fort Stevens being created within the last 100 years (Figures 2 and 3).

#### 1.3.3 Vegetation

In the early 1800s surveyors hired by the General Land Office (now the Bureau of Land Management) parceled out the western frontier into public and private sections. Their notes contain witness tree measurements and landscape descriptions that allow mapping of historical vegetation for this era (Figures 2 and 3). The lands that are now Lewis and Clark National Historical Park were a mosaic of spruce forests, swamps, shrublands, dry prairies, dunes, coastal headlands, and salt marshes in the 1800s and early 1900s (Christy et al. 2009). Although urbanization, dune stabilization, non-native species, and accretion have changed the size and ratio of these habitats, this mosaic is still present across most of the LEWI units. Several habitats are present in Park units that have been identified as conservation targets by NatureServe and The Nature Conservancy (NatureServe 2010; TNC 2006). North Pacific Hypermaritime Sitka Spruce Forest, North Pacific Maritime Coastal Sand Dune and Strand, and North Pacific Coastal Herbaceous Bald and Bluff are ecosystems present in park units that are noted as having a limited distribution on the Pacific Coast and therefore are a priority for conservation (TNC 2006). These ecosystem types correspond to the rare communities mapped in this report, with the addition of other communities that are locally rare. A new vegetation map for LEWI is currently under development, also being developed through a partnership between ORBIC and NPS. The results of this mapping project will be published in a future Technical Report.

# Historical Vegetation Cover, Northwest Oregon Coast



**Figure 2**. Historical vegetation cover of the northwest Oregon coast, as recorded in field surveyor notes during General Land Office Surveys in the 1800s and early 1900s. The area in the historical map that is water at Fort Stevens and part of Sunset Beach is now land that has been added relatively recently by deposition of river sediments and sand influenced by the building of the jetty from 1885 to 1895.





**Figure 3**. Historical vegetation cover of the Cape Disappointment area in southwest Washington, as recorded in field surveyor notes during General Land Office Surveys in the 1800s and early 1900s. The area within the current boundary of Cape Disappointment that was historically water has been added relatively recently by deposition of river sediments and sand influenced by the building of the North Jetty from 1914 to 1917.

#### 1.3.4 Previous botanical studies

Formal herbarium specimens have been collected at LEWI since the Lewis and Clark Expedition in 1805. Notable early collectors include the botanist Wilhelm (William) Suksdorf who collected extensively in Washington State in the late 1800s and early 1900s, including the area of Cape Disappointment. Thomas Howell and L. F. Henderson made forays from Portland to Fort Stevens to collect plants in the 1880s. C.L. Hitchcock, co-author of the *Flora of the Pacific Northwest* (Hitchcock and Cronquist 1973) collected at Cape Disappointment in the 1960s. More recent collectors from the 1990s and 2000s, in addition to park staff, include Mark Eggers, Peter F. Zika, Ben Legler, Sarah Gage, and Sharon Rodman. Most of these specimens are held at the Burke Museum Herbarium at the University of Washington in Seattle, Washington or at the Oregon State University Herbarium in Corvallis, Oregon. Many Pacific Northwest herbaria records can be accessed online from the Consortium of Pacific Northwest Herbaria online portal (Consortium of Pacific Northwest Herbaria 2007).

The Cape Disappointment unit underwent a vascular plant and plant community inventory in 2004 (Sayce and Eid 2004). Most of the unit was surveyed on foot, with the rest being inventoried by binoculars or aerial photographs. Locations of different plant communities within the unit were noted and a list of vascular plant species generated. The Fort Clatsop vascular plant inventory was certified in 2005 with additional surveys taking place from 2006 to 2008.

## 2 Methods

In August 2008 the National Park Service and the Oregon Biodiversity Information Center (ORBIC) agreed to work together to inventory vascular plants on the new lands within LEWI. In March 2009, the existing specimens at the Lewis and Clark Herbarium were reviewed, with name changes and mis-identifications noted as needed. Those specimens requiring identification confirmation were sent to the Oregon State University herbarium for confirmation by Dr. Richard Halse. In February 2010 a second trip to the LEWI Herbarium was made to affix formal annotation labels to the existing specimens and to deposit new collections that had been made during the field season.

Name changes on specimens were in accordance with the Flora of North America (1993). This nomenclature was selected rather than the Integrated Taxonomic Information System (ITIS) for two reasons: there is a lag between general acceptance of new names by taxonomists and academics and their subsequent incorporation into ITIS; and ITIS generally follows the Flora of North America in time. However, where the Flora of North America is incomplete or final determinations have not been made, label nomenclature followed ITIS.

Field surveys were conducted from April 2009 to September 2009 and from March 2010 to September 2010. Walk-over surveys were completed at all park units at several times during the growing season. Systematic transects or randomly generated survey points were not employed because our goal was to concentrate on newly acquired habitats and known or suspected locations of reported but unconfirmed species, and avoid re-surveying areas and habitats that had been well documented at FOCL during previous survey efforts. In addition, by using a walk-over survey method, multiple revisits to areas of botanical interest were easily incorporated into the survey, allowing for collection of plants across the growing season at single locations.

Surveys for this project focused on the newly acquired units within the legislative boundary at LEWI (Cape Disappointment, Dismal Nitch, Middle Village/Station Camp, and Sunset Beach/Yeon Property) and, in particular, the less common habitats contained within those additions. These areas were identified using satellite imagery and existing vegetation maps, as well as following recommendations from park staff on known locations of target species. As the Fort Clatsop unit is primarily lowland spruce forest that had previously been inventoried, habitats such as salt marsh and dunes were surveyed more intensively than spruce forest areas. Confirmed and unconfirmed species lists for the individual units were provided by park staff to assist in the inventory. A list of non-native species of concern as identified by the park and the North Coast Cooperative Weed Management group was provided by the park and all of these species were mapped where encountered.

Rare plants, rare communities, and non-native species of interest were mapped using a Garmin Etrex GPS unit in the NAD 83 geodetic datum. Maps of these species were created using ArcMap version 9.3.1 (ESRI 1999). Species observations were recorded in field notebooks with habitat notes, notable environmental variables, and associated species. Whole plants were collected, pressed, and mounted onto archival herbarium paper for specimen vouchers, submitted to the LEWI herabarium and to the Oregon State University herbarium. Newly documented species were entered into the NPSpecies database version 2.21, the National Park Service's

standard species observation database run on the Windows XP operating system in MS Access 2002/2003.

Although the Fort Stevens, Fort Columbia, and Ecola units were not within the legislative boundary of LEWI, they were visited during field work for the LEWI vegetation mapping project, occurring concurrently with the vegetation survey project, and for their floristic interest. Emphasis was placed on collecting at rare communities that had not previously been surveyed such as salt marshes and grassy headlands.

For the purpose of this report the vascular plant checklist and herbarium inventory include only those species documented at the following units: Fort Clatsop, Sunset Beach/Yeon, Dismal Nitch, Middle Village/Station Camp, and Cape Disappointment. This is due to the fact that the Park Service does not directly manage the natural resources at the other units and they are not within the legislative boundaries of LEWI. Maps for rare species or invasive species were created for all units in which they were encountered and are found in the Appendices.

# **3 Results**

### 3.1 Summary of the flora of Lewis and Clark National Historical Park

Plant inventories prior to 2008 had resulted in a vascular plant species list of 287 species in LEWI, 267 of which were verified by vouchered specimens (Table 1). During the course of this project, 180 species were added to the park list, including 142 new species documented by voucher specimens. Searches through the online Consortium of Pacific Northwest Herbaria yielded another 17 species with vouchers held at other herbariums. The number of species without verification increased to 12 based on reports of species on the newly acquired Park units. Several of these unverified species were located in nearby areas but were outside the legislative boundary of the park. Of the new species documented at LEWI, only 19 were located within the FOCL unit; 168 were found in new areas within the park's legislative boundary. These efforts brought the total number of species within the legislative boundary of the park up to 467 species.

Stage of Inventory	# of species (total % verification)	# verified by voucher (%)	# verified by reference (%)	# verified by observation (#)	# without verification (%)
Initial Inventory (2000)	246 (90%)	211 (86%)	9 (4%)	2 (1%)	24 (10%)
Certified List (10/05/2005)	254 (99%)	232 (91%)	17 (7%)	3 (1%)	2 (1%)
NPS Surveys (2006 -2008)	287 (99%)	267 (93%)	17 (6%)	1 (1%)	2 (1%)
Current Study (2009-2010)	467 (98%)	426 (92%)	5 (1%)	24 (5%)	12 (2%)

Table 1. Summary of species verification at LEWI by stage of inventory.

A complete list of vouchered species for LEWI is found in Appendix A. Potentially present species are found in Appendix B. Species removed or rejected from the list are provided in Appendix C along with the reasons for their removal. The list of confirmed species with ecological notes is found in Appendix D.

### 3.2 Lifeform and biogeographical diversity

The park's flora is dominated by perennial forbs and graminoids. Perennial forbs represent 39% of all taxa, while perennial graminoids make up 14% of taxa. Annual or biennial forbs represent 25% of the park flora, with annual graminoids representing 4%. Trees and shrubs make up a relatively small percentage of the flora (9% and 8% respectively) but contribute greatly to habitat structure and community characteristics. Most of species occurring in the park have a wide distribution, also occurring in neighboring states or countries. In contrast, 7% are regional endemics occurring only on the Pacific coast within a limited area, and 1% are local endemics occurring only within a 150 mile radius of the park.

Although the majority of the park's plants are native species, a large proportion of the flora (40%) are non-native, introduced species and this number may increase if new species are introduced by winds, tides, animals, visitors, and vehicles. Native species are also introduced through these vectors, though non-native, invasive species often have advantages over native species by possessing characteristics that make them highly competitive in their new environment (Bryson and Carter 2004). While some introduced plants may have minimal impact

on native species, aggressive non-natives can displace native species, altering plant community structure and function. As a result, controlling these species is a management priority for the NPS (Table 4, discussed in section 3.5).

#### 3.3 Plant communities of special concern

At the start of the project a list of rare plant communities thought to be present or potentially present in the park was developed by park staff and ORBIC staff. These communities were mapped wherever encountered, during the survey, within the park. Thirteen are considered to be rare in Oregon or Washington with a NatureServe Global Rank of G1 or G2, or with a State Rank of S1 or S2. All species and plant communities in Oregon and Washington have been assigned a state and global rank by ORBIC, the Washington Natural Heritage Program, or NatureServe. These ranks range from highly imperiled, with a rank of 1, to demonstrably secure, with a rank of 5. A detailed description of the methodology used to rank species and habitats and instructions for its use are found within the NatureServe Conservation Assessment: Methodology for Assigning Ranks (Faber-Langendoen et al. 2011). Six rare community types were confirmed and mapped at LEWI (Table 2).

These community types follow the National Vegetation Classification system (NVC) developed by USDA Forest Service, USGS, and NatureServe through a cooperative partnership and adopted in 2008 by the federal geographic data committee (FGDC) as a national standard (USNVC 2011). The classification is hierarchical, including broad scale vegetation classes, such as "Evergreen Forest" or "Temperate or subpolar needle-leaved evergreen forest" at the highest levels. The plant association level is the finest or most detailed level of the classification, and the plant communities listed here represent plant associations in the NVC. This classification is widely used in the USA for characterizing vegetation types and provides a standard classification for inter-agency and multi-partner projects. Maps of known locations of rare communities can be found in Appendix E.

Scientific Name	Common Name	RANK <sup>1</sup>	Present in Park?	Comments
Carex macrocephala Herbaceous Vegetation	Big-Headed Sedge	G1G2S1	yes	Cape D; Ft. Stevens (small area)
Picea sitchensis/Carex obnupta - Lysichiton americanus Forest	Sitka Spruce / Slough Sedge -Skunk Cabbage Swamp	G2G3S1	yes	Cape Disappointment
Festuca rubra coastal headland	Red Fescue Coastal Headland	G2S2	yes	Cape Disappointment headlands; Ecola
<i>Calamagrostis nutkaensis -Elymus glaucus</i> Perennial Grassland	Pacific Reedgrass - Blue Wildrye	G2S1	yes	Cape D North Head headland; may occur on Ecola headlands
Carex lyngbyei - Argentina egedii Herbaceous Vegetation	Lyngby sedge - Pacific Silverweed Salt Marsh	G4S2	yes	Fort Clatsop; Ft. Stevens; and Cape D
<i>Salicornia virginica</i> Herbaceous Vegetation	Glasswort Salt Marsh	G3G4S2	yes	Ft. Stevens
<i>Deschampsia caespitosa - Argentina egedii</i> Herbaceous Vegetation	Tufted Hairgrass - Pacific Silverweed High Salt Marsh	G3G4S2	no	May be at Ft. Stevens salt marsh
<i>Empetrum nigrum - Gaultheria shallon</i> Dwarf-shrubland	Crowberry - Salal Oceanfront Shrubland	G2S2	no	Known from southern OR
Festuca rubra - Ambrosia chamissonis Herbaceous Vegetation	Red Fescue - Beach Bursage Herbaceous Vegetation	G1S1	no	Known only from Puget Lowlands
Festuca rubra Stabilized Dune Herbaceous Vegetation	Red Fescue Stabilized Sand Dunes	G1S1	no	Sensitive to trampling, vehicles, beachgrass
Leymus mollis ssp. mollis - Abronia latifolia Herbaceous Vegetation	Unstabilized Coastal Dune Wildrye	G1S1	no	Needs unstabilized dunes
Pinus contorta var. contorta / Gaultheria shallon - Rhododendron macrophyllum - Vaccinium ovatum Forest	Shore Pine / Western Rhododendron - Evergreen Huckleberry	G1S1	no	Known from southern OR
Pseudotsuga menziesii-Tsuga heterophylla/Mahonia nervosa Forest	Douglas-fir - Western Hemlock / Dwarf Oregon-grape Forest	G2	no	Known from Puget Lowlands; fire-dependent

Table 2. List of rare plant communities potentially present in at Lewis and Clark NHP and survey results.

 Global Ranks as reported by NatureServe. State rank for Oregon as determined by Oregon Biodiversity Information Center. Rank Definitions: G=Global, S=State, T=Taxon (variety, subspecies).
1=Critically imperiled; 2=Imperiled; 3=Rare, uncommon, or threatened; 4=Not rare and apparently secure; 5=Demonstrably widespread, abundant, and secure; NR=Not Ranked.

#### 3.3.1 Carex macrocephala Herbaceous Vegetation

*Carex macrocephala* (big-headed sedge) Herbaceous Vegetation occurs in Oregon, Washington, and British Columbia on open sand on spits, berms, or small dunes that are protected from high wind and wave energy but are still subjected to inundation by storms. Big-headed sedge is always dominant, and cover ranges between 20-50% with open sand between. Other species do not exceed 5% cover and can include yellow sand-verbena (*Abronia latifolia*), silver bur-sage (*Ambrosia chamissonis*), or beach morning-glory (*Calystegia soldanella*) (Kagan et al. 2004, Christy et al. 1998). Many of these sites are threatened by exotic species encroachment, recreational activities, and changing coastal geomorphological processes (NatureServe 2010). This community occurs along the jetty and in smaller populations on the beaches at Beards Hollow and Benson Beach in Cape Disappointment Park. There are also two very small patches at Fort Stevens State Park (less than 1/10 acres total).



**Figure 4**. Big-headed sedge herbaceous alliance at Beards Hollow beach in Cape Disappointment. The sedges are the brighter green, low rosettes. Dark-brown heads of the female culms are visible. Note encroachment by non-native beachgrass. Japanese sedge was found nearby scattered amongst the native big-headed sedges. Photo taken in August 2010.

### 3.3.2 Picea sitchensis/Carex obnupta – Lysichiton americanus Forest

*Picea sitchensis* (Sitka spruce)/*Carex obnupta* (slough sedge) – *Lysichiton americanus* (skunk cabbage) Forest occurs in California, Oregon, and Washington in coastal wetlands, usually on floodplains near perennial streams or rivers. It can also be found in depressions in older, stabilized sand dunes. They are typified by a spruce-dominated canopy with slough sedge and skunk cabbage in perennially wet soils with high organic content. Other species present may include salmonberry (*Rubus spectabilis*), red alder (*Alnus rubra*), or salal (*Gaultheria shallon*) on drier hummocks. The distribution of this community reaches from northern California to British Columbia. Due to the accessibility of these stands, their occurrence on private lands, and the value of timber within them, this community is now rare throughout its range, especially old-growth stands (Christy et al. 1998).

A variant of this community type is present in Cape Disappointment. A number of stands of Sitka spruce with slough sedge ground cover are present in several locations in this unit, but skunk cabbage is absent (Sayce and Eid 2004). While Sitka spruce and slough sedge occur together at Fort Stevens as well, these occurrences are found on the accretion zone behind the jetty and along the dunes. Spruce trees here grow in a Krummholz form, usually with beachgrass or introduced dunegrass present. Due to the differences in associated species, growth form, and habitat, the Krummholz dune spruce community was determined to be sufficiently different from the rare forest type that it was not mapped.



**Figure 5**. Sitka spruce / slough sedge – skunk cabbage forest at Cape Disappointment. This is an example of the association where skunk cabbage is not present. Photo taken in April 2010.

### 3.3.3 Festuca rubra Coastal Headland

The *Festuca rubra* (red fescue) Coastal Headland community occurs on rocky cliffsides along the Pacific coast from central California to southern Washington. These forb rich grasslands occur on shallow-soiled bluffs or cliffs with extreme to moderate slopes and exposure to salt spray and persistent winds. Soils are well-drained, often with a high gravel content. Most known sites have been heavily impacted by encroachment of non-native species, usually introduced on the larger sites as a result of past livestock grazing (NatureServe 2010). This community is present at the Cape Disappointment and Ecola units.



**Figure 6**. Degraded red fescue coastal headland at Cape Disappointment. Red fescue cover is less than 1% while non-native grasses are more plentiful (Sayce and Eid 2004). Photo taken in May 2010.

#### 3.3.4 Calamagrostis nutkaensis – Elymus glaucus Perennial Grassland

The *Calamagrostis nutkaensis* (Pacific reedgrass) – *Elymus glaucus* (blue wildrye) Perennial Grassland community occurs along the coast from northern California to southwest Washington on open bluffs with exposure to high winds and salt spray. Pacific reedgrass is the dominant species with an average of 60% cover. Blue wildrye composes about 2-3% cover. This community often occurs between the Red fescue Coastal Headland type and Sitka spruce forest. This grassland is present at the North Head headland in Cape Disappointment and is the only occurrence in southwest Washington and one of three occurrences for the entire state (Washington State Parks and Recreation Commission 2004). This type is a bit more common in Oregon, and is found at Ecola state park, although it also is often impacted by introduced perennial grasses introduced from historic livestock use (Kagan et al. 2004).



**Figure 7**. Pacific reedgrass – Blue wildrye Herbaceous Vegetation at Cape Disappointment. Pacific reedgrass is the light-colored bunchgrass. The brown clumps are bracken fern (*Pteridium aquilinum*). Photo taken in April 2010.

#### 3.3.5 Carex lyngbyei – Argentina egedii Herbaceous Vegetation

The *Carex lyngbyei* (Lyngbye sedge) – *Argentina egedii* (Pacific silverweed) association occurs in brackish marshes and deflation plains in estuaries from British Columbia south to northern California. This community is influenced by tides and storm surges which bring salt water into the stand, rework sediments, and deposit logs and debris. Stands are strictly herbaceous with Lyngbye sedge cover up to 90% (Christy et al. 1998). This community is present at Fort Clatsop, Cape Disappointment, and Fort Stevens. Only three occurrences of this wetland type are known to occur in Washington State (Washington State Parks and Recreation Commission 2004). [Specific location information has been removed].



**Figure 8**. Lyngbye's sedge – pacific silverweed herbaceous vegetation type in a Bakers Bay salt marsh at Cape Disappointment. Photo taken in June 2010.

#### 3.3.6 Salicornia virginica Herbaceous Vegetation

The *Salicornia virginica* (common pickleweed) association occurs in salt marshes from California to British Columbia. Stands can be on beaches or rocky shores with a sparse to continuous herbaceous layer where common pickleweed is dominant or co-dominant with other species (Evens and San 2005). This community is present at Fort Stevens. [Specific location information has been removed].



**Figure 9**. Common pickleweed plant (left) and salt marsh community (right) at Fort Stevens State Park. Photo taken in September 2010.

#### 3.4 Rare or sensitive plant species

Thirteen rare plant species (those tracked by the states or by Natural Heritage offices) that were known to occur or had the potential to occur at LEWI were targeted for survey at LEWI (Table 3). Of these, ten species were located and mapped at the park. Henderson's sidalcea (*Sidalcea hendersonii*) was intentionally planted as part of a native landscaping project at Cape Disappointment. Ocean-bluff bluegrass (*Poa unilateralis*) occurs on headlands and former headlands at Cape Disappointment and has been reported from but not documented at Ecola. The Washington Natural Heritage Program has listed ocean-bluff bluegrass on their list of threatened plants for Washington State.

Pink sandverbena (*Abronia umbellata* ssp. *breviflora*) is on the Oregon endangered species list but was last reported in Clatsop County near Gearhart in 1993; there are no documented sightings of this species in LEWI units (ORBIC 2010). Coyotebrush (*Baccharis pilularis*) is listed as threatened in Washington State and is present at Cape Disappointment. This population is the northernmost known location for coyotebrush.

**Table 3.** Rare or sensitive species surveyed for at Lewis and Clark NHP. Washington ranks were lastupdated in January 2009; Oregon ranks in October 2010.

Scientific Name	Common Name	State Status	Global Rank*	OR Rank*	WA Rank*	In Park
Abronia umbellata ssp. breviflora	Pink sandverbena	OR:LE	G4G5T2	S1	S1	
Baccharis pilularis	Coyotebrush	WA:LT	G5	SNR	S1	х
Callitriche hermaphroditica	Autumnal water starwort		G5	SNR	SNR	х
Carex brevicaulis	Short-stemmed sedge		G5	S2	SNR	х
Carex macrocephala	Big-headed sedge		G5	S2	SNR	х
Carex pluriflora	Many flowered sedge		G4	S1	S1S2	
Hydrocotyle ranunculoides	Floating marsh- pennywort		G5	SNR	SNR	х
Lilaea scilloides	Flowering quillwort		G5?	S3?	SNR	х
Myriophyllum ussuriense	Asian water-milfoil		G3	S1?	SNR	
Poa unilateralis	Ocean-bluff bluegrass	WA:LT	G3	S1?	S2	х
Samolus valerandi ssp. parviflorus	Water-pimpernel		G5	SNR	S1	х
Sidalcea hendersonii	Henderson's sidalcea		G3	S1	SNR	х
Viola adunca	Early blue violet		G5	SNR	SNR	x

\* Global Ranks as reported by NatureServe. State rank for Oregon as determined by Oregon Biodiversity Information Center, and Washington as determined by Washington Natural Heritage. Rank Definitions: G=Global, S=State, T=Taxon (variety, subspecies). 1=Critically imperiled; 2=Imperiled; 3=Rare, uncommon, or threatened; 4=Not rare and apparently secure; 5=Demonstrably widespread, abundant, and secure; NR=Not Ranked.

The following sections describe species that were encountered and mapped during field surveys. Maps of sensitive species locations for each unit are found in Appendix F.

#### 3.4.1 Baccharis pilularis – coyotebrush

Coyotebrush is an evergreen shrub in the Aster family found in coastal ecosystems from California to Washington. It is common in California and southern Oregon where it is found in oak woodlands and on ocean bluffs. In Washington it is only known from Cape Disappointment, where a few patches and individual shrubs are scattered in the dunes and along cliffs. Sea cliff habitat has changed with the building of the jetty, filling these areas in with dunes that are gradually becoming shrubland and forestland. Changing habitat and encroachment of invasive species such as Scots broom (*Cytisus scoparius*) are threats to these Washington plants. This species has also been reported at Fort Stevens, but no plants were encountered in the 2009 or 2010 field seasons.

#### 3.4.2 Callitriche hermaphroditica – autumnal water starwort

Autumnal water starwort is a delicate aquatic plant in the water-starwort family usually found in shallow water and occurs over much of western and northern North America and Canada. While it is ranked as critically imperiled in the north-eastern extent of its range, it is not currently ranked in Oregon or Washington. Autumnal water starwort is present in the Fort Clatsop and Cape Disappointment units.

#### 3.4.3 Carex brevicaulis – short-stemmed sedge

Short-stemmed sedge is found on stabilized sand dunes free of European beachgrass from California to British Columbia. It grows 2 to 20 cm tall and is reddish at the base of the stems. The inflorescences have terminal and lateral male spikes and female basal spikes, most being less than a centimeter long. This sedge is losing habitat due to dune stabilization by European beachgrass, succession of shore pine, and housing developments (Wilson et al. 2008). There is a small population of short-stemmed sedge in the Sunset Beach/Yeon unit.

### 3.4.4 Carex macrocephala – big-headed sedge

Big-headed sedge (Figure 10) is one of the few sedges that live in shifting sand from California to Alaska. Its large fruiting heads are distinctive, being 3.5-8 cm long and 2.5-5 cm wide, deep brown, with spreading spikes. Once a dominant dune community species, big-headed sedge has lost habitat to dune stabilization by beachgrass and housing developments (Wilson et al. 2008). Several large populations are present at Cape Disappointment, where there are still large stretches of open beach habitat. Two small patches were also found at Fort Stevens.

There is a look-alike sedge native to Asia, Japanese sedge (*Carex kobomugi*), that occurs in similar habitats and can be confused with big-headed sedge (Figure 11). Japanese sedge differs from big-headed sedge in having slightly smaller fruiting heads ranging from 3-6 cm long and 2-4 cm wide which are generally green-tinged rather than deep brown with ascending rather than spreading spikes. Perigynia of Japanese sedge have 12 or more ventral nerves, whereas the perigynia of big-headed sedge have only 7 to 9 ventral nerves (Wilson et al. 2008). Japanese sedge was planted for dune stabilization on the east coast of North America, where it is now being eradicated as it has spread to cover many miles of beaches. Japanese sedge is present and expanding at Cape Disappointment where it can be found alongside big-headed sedge.



**Figure 10**. *Carex macrocephala* (big-headed sedge) male culm (left) at Del Rey Beach and female culm (right) at Cape Disappointment. Note spreading perigynia and dark color of female inflorescence. Photo at left taken in July 2010, photo at right taken in August 2010.



**Figure 11**. *Carex kobomugi* (Japanese sedge) male culms (left) and female culm (right) at Cape Disappointment. Perigynia are more ascending and greener than the native *Carex macrocephala*, as well as having more lines on the ventral surface. See paragraph above for more detail. Photo at left taken in April 2010; photo at right taken in August 2010.
## 3.4.5 Hydrocotyle ranunculoides – floating marsh-pennywort

Floating marsh-pennywort is an aquatic plant in the carrot family found in much of the southern United States as well as California, Oregon, and Washington. It is generally found in slowmoving waters or ponds. It has long, thin stems that can float on the water surface and bright green, glossy, lobed leaves. It is endangered in Illinois, New Jersey, and New York and was historically present in British Columbia but is not currently ranked for Oregon or Washington. Floating marsh-pennywort is present at Cape Disappointment, Fort Clatsop, Fort Stevens, Fort Columbia, and Sunset Beach.

## 3.4.6 Lilaea scilloides – flowering quillwort

Flowering quillwort is a small wetland plant in the arrow-grass family that is native to western North America. It has fleshy, grass-like leaves and small flowering spikes that are much shorter than the leaves. It is an easily overlooked plant found in shallow waters or coastal tide flats in alkaline, saline, or brackish areas (Washington DOE 2010). Flowering quillwort is present at the Fort Clatsop unit.

## 3.4.7 Poa unilateralis – ocean-bluff bluegrass

Ocean-bluff bluegrass is a short perennial bunchgrass growing 15-40 cm tall growing on rocky headlands, sea cliffs, or sandy coastal bluffs in California, Oregon, and Washington. Though it is rare due to its limited habitat, those populations growing on steep or protected cliffs appear to be stable (NatureServe 2010; Sayce and Eid 2004). Ocean-bluff bluegrass is present at Cape Disappointment.

## 3.4.8 Samolus valerandi ssp. parviflorus – water-pimpernel

Water-pimpernel is a clumping wetland perennial in the primrose family found in much of the United States, Canada, and South America. It grows to 40 cm tall with a basal rosette of broad, light-green leaves and a raceme of small white flowers. It is found in wet soils in lowland wetlands generally below 1300 m elevation (Washington Natural Heritage Program 2005). Water-pimpernel is present in the Fort Clatsop unit.

## 3.4.9 Sidalcea hendersonii – Henderson's sidalcea

Henderson's sidalcea is a showy perennial in the mallow family found from Oregon to Alaska. It grows to 150 cm tall and has a spikelike inflorescence of large deep pink to pink-lavender flowers. It is found along the coast, generally on or near tidelands (Hitchcock and Cronquist 1973). Henderson's sidalcea was planted at Cape Disappointment as part of a native landscaping project using plants sprouted from seeds collected from a Baker's Bay population (Kathleen Sayce, personal communication, 14 October 2009).

## 3.4.10 Viola adunca – early blue violet

Early blue violet is a perennial violet found in much of the United States and Canada. It is found in dry to moist meadows, woods, and on open ground (Hitchcock and Cronquist 1973). It is the larval host plant for the Oregon silverspot butterfly (*Speyeria zerene hippolyta*), a federally listed threatened species that had a small population near the park in the 1990s (ORBIC 2010). The Clatsop County population of the Oregon silverspot, like the Washingon State populations, has likely vanished, but the recovery plan includes a viable population in this area. Due to the importance of early blue violet to the Oregon silverspot, early blue violet locations are being mapped as a way to assess the potential for restoration or management of silverspot habitat. Multiple small patches of early blue violet occur at the Sunset Beach/Yeon unit.



Figure 12. Remnant prairie habitat for early blue violet in the Yeon section of Sunset Beach. Photo taken in April 2010.

### 3.5 Non-native species

A list of 59 non-native, invasive species of interest that could possibly occur at LEWI was constructed using the Oregon Department of Agriculture Noxious Weed List and the Washington State Noxious Weed List, as well as input from the local weed boards, ORBIC, and NPS (Table 4). Of these, 35 have been documented in the park either with voucher specimens or observations during this project. Each of these species was ranked for management priority by park staff and ORBIC staff, considering the potential for harm to the native ecosystem, aggressiveness of spread of the species, amount of cover already present at the park, and estimated cost of removal.

Eight species have been identified by the North Coast Cooperative Weed Management Group as early detection, rapid response (EDRR) species. These invasive plants have not yet become wellestablished in Clatsop County, Oregon and are targeted for public education and prevention. They are: garlic mustard (*Alliaria petiolata*), false brome (*Brachypodium sylvaticum*), traveler's joy (*Clematis vitalba*), spurge laurel (*Daphne laureola*), shining geranium (*Geranium lucidum*), herb robert (*Geranium robertianum*), policeman's helmet (*Impatiens glandulifera*), and common reed (*Phragmites australis*). Park staff are removing or treating these species as soon as they are encountered on Park lands.

Scientific Name	Common Name	Mgt Priority <sup>1</sup>	OR Listing <sup>2</sup>	WA Listing <sup>3</sup>	In Park⁴
Agropyron repens	quackgrass	4	В		х
Alliaria petiolata	Garlic mustard	1	В	А	
Brachypodium sylvaticum	False Brome	1	В	А	
Buddleja davidii	Butterfly bush	3	В		
Cabomba caroliniana	fanwort	4		В	х
Centaurea pratensis	Meadow knapweed	1	В	В	
Cirsium arvense	Canada thistle	4	В	С	х
Cirsium vulgare	Bull thistle	4	В	С	х
Clematis vitalba	Clematis, Old Man's Beard	1	В	С	
Conium maculatum	poison hemlock	3	В	В	х
Convolvulus arvensis	field bindweed	3	В	С	
Cortaderia selloana	Pampas Grass	3			
Cotoneaster rugosus	cotoneaster	2			х
Cytisus scoparius	Scots broom	1	В	В	х
Daphne laureola	spurge laurel	1	В	В	х
Daucus carota	Queen Anne's lace	4		В	х
Digitalis purpurea	Foxglove	3			х
Egeria densa	Brazilian waterweed	3	В	В	х
Genista monspessulana	French Broom	3	В		
Geranium lucidum	shining geranium	1	В	А	
Geranium robertianum	herb robert	2	В	В	х
Hedera helix	English ivy	2	В	С	х
Heracleum mantegazzianum	Giant Hogweed	1	А	А	
Hypericum perforatum	St. Johnswort	4	В	С	х
Hypochaeris radicata	hairy cat's-ear	4		В	х
llex aquifolium	English holly	2			х
Impatiens glandulifera	Policeman's Helmet	1	В	В	
Iris pseudacorus	Yellow flag iris	1	В	С	х
Lathyrus latifolius	Everlasting Peavine	2	В		х
Leucanthemum vulgare	oxeye daisy	3		В	х
Linaria vulgaris	yellow toadflax	3	В	С	?
Lonicera periclymenum	European honeysuckle	3			х
Lythrum salicaria	Purple loosestrife	1	В	В	х
Myriophyllum aquaticum	Parrot feather watermilfoil	4	В	В	х
Myriophyllum spicatum	Eurasian watermilfoil	4	В	В	?
Nymphaea odorata	American white waterlily	4			х
Nymphoides peltata	Yellow floating heart	1	А	В	
Phalaris arundinacea	Reed canary grass	3		С	х
Phragmites australis	Common Reed	2	А	В	х
Polygonum cuspidatum	Japanese knotweed	1	В	В	х
Polygonum polystachyum	Himalayan knotweed	1	В	В	

Polygonum sachalinense	Giant knotweed	1	В	В	
Polygonum x bohemicum	Hybrid knotweed	1		В	
Potamogeton crispus	curly pondweed	4		С	х
Pueraria lobata	Kudzu	1	А	А	
Ranunculus ficaria	lesser celandine	2	В		х
Rubus armeniacus	Himalayan (Armenian) blackberry	3	В	С	х
Rubus laciniatus	Cutleaf blackberry	3		С	х
Senecio jacobaea	Tansy ragwort	4	В	В	х
Senecio vulgaris	common groundsel	3		С	x
Soliva sessilis	field burreed	4		В	х
Sonchus arvensis	perennial sowthistle	4		В	
Sorbus aucuparia	European mountain ash	1			х
Spartina patens	Saltmarsh/meadow cordgrass	1	А	А	
Spartina sp.	Cordgrasses	1	А	A or B	
Tanacetum vulgare	common tansy	3		С	?
Tribulus terrestris	Puncturevine	1	В		
Ulex europaeus	Gorse	2	В	В	x

Table 5. Non-native, invasive species that were surveyed for at Lewis and Clark NHP (continued).

1. Management priorities: 1=top, 2=high, 3=medium, 4=low.

2. Oregon List A and B are both quarantined in Oregon. List A weeds can potentially (and should) be eradicated. List B weeds are more widely distributed but are priorities for control or containment. Ranks current as of Feb. 4, 2010.

3. Washington List A weeds are required by law to be eradicated. List B weeds should be controlled and contained where feasible and new infestations prevented. List C weed control may be enforced by individual counties at their discretion.

4. x - denotes species has been documented in the park, but may not persist due to treatments or life cycle. ? - denotes the presence of this species on a local unit list but its presence has not been documented and was not encountered in the 2009-2010 field seasons.

The following sections describe species that were encountered and mapped during field surveys. Maps of invasive species found in each unit are found in Appendix G.

### 3.5.1 Cirsium arvense – Canada thistle

Canada thistle is an herbaceous perennial growing 1.5 to 4 feet tall with lobed, prickly leaves and clusters of purple flower heads. It is a major agricultural pest in North America and can crowd out native species in many habitats including prairies, savannas, dunes, and meadows. Canada thistle spreads by seed or by lateral roots. Control can be done by hand removal (provided the root mass is removed), mowing, burning, or herbicides (Roddy 2009). Canada thistle is present in the Cape Disappointment, Sunset Beach, and the Fort Clatsop units. In Fort Clatsop, it has been found at South Clatsop Slough, Otter Point, and on the east shore of the Lewis and Clark River and is manually and chemically treated annually.

### 3.5.2 Daphne laureola – spurge laurel

Spurge laurel is a shade-tolerant evergreen shrub in the Thymelaeaceae family native to Europe and the Mediterranean. Spurge laurel grows 2 to 4 feet tall and has densely whorled shiny green

leaves. It has escaped from gardens and become naturalized in some areas of Washington (King County 2010). An infestation on the Yeon Property of the Sunset Beach unit was first noted in spring 2009 and is being manually and chemically removed by Park staff. This was the first documented population of spurge laurel in Clatsop County.

## 3.5.3 Geranium lucidum – shining geranium

Shining geranium is a low-growing annual native to Eurasia that can spread through semi-open areas to form carpets of vegetation that exclude native species. The common name comes from the shiny appearance of the leaves, which are round to kidney-shaped with 5 to 7 lobes. Spread is by seed rather than vegetatively, so hand-control and removal is possible for small populations. Herbicide treatment may be necessary for larger populations. Shining geranium was found alongside herb robert at a Fort Stevens campsite.

## 3.5.4 Geranium robertianum – herb robert

Herb robert is a low-growing annual or biennial that is shade-tolerant and can spread under forest canopies. It is an escaped garden plant with weak, hairy-sticky red stems, dissected leaves, and small pink flowers. Its other common name "stinky bob" comes from the strong skunky odor given off when its stems are broken or leaves crushed. Due to its shallow roots hand-pulling is an effective control (King County 2010). Herb robert was located in the Cape Disappointment, Fort Stevens, Dismal Nitch, and Fort Clatsop units. Plants will be pulled and locations monitored.

## 3.5.5 Hedera helix – English ivy

English ivy is a shade-tolerant woody evergreen vine in the ginseng family. It is extensively used in landscaping and gardening projects and can escape into nearby wooded areas. Control by hand-pulling or cutting can be effective but resprouting from remaining rhizomes is common so multiple-year treatment or herbicide is needed. English ivy is present in all Park units. A large infestation was present at Beards Hollow in Cape Disappointment, but it has been undergoing treatment for several years and is much reduced, though ongoing maintenance is needed for the remaining plants. English ivy is manually and chemically controlled at the Fort Clatsop unit.

### 3.5.6 *llex aquifolium – English holly*

English holly is a shade-tolerant evergreen tree with spiny, glossy green leaves and red berries. It is grown for ornamental products as well as for landscaping and gardening. The berries are good forage for birds, which provide a dispersal mechansism for this species. Hand-pulling of small saplings is possible but larger trees need to be cut and treated with herbicide as the tree will resprout from the stump. English holly is found in all Park units scattered along trails and throughout wooded areas, with the most trees being encountered in Fort Stevens around Coffenbury Lake. It has been actively controlled by Park staff in the Fort Clatsop unit since 2000 using both manual controls and treatment with the herbicide Garlon.

## 3.5.7 Iris pseudacorus – yellow flag iris

Yellow flag iris is a showy wetland plant native to Europe and the Mediterranean region. It is used in landscaping and gardens that has escaped cultivation. It displaces native vegetation along streambanks, ponds, and shorelines. Its floating seeds can be dispersed along the waterways on which it grows. Yellow flag iris has a very strong root system, creating mats of rhizomes which make manual control of large populations very difficult. In addition, chemicals present in the leaves and rhizomes can be a skin irritant. Large infestations may require herbicide treatment. (King County 2010). Yellow flag iris is present in the Cape Disappointment, Dismal Nitch, Fort

Columbia, Sunset Beach, and Fort Clatsop units. It has been actively controlled in the Fort Clatsop unit since 2000, and by the Exotic Plant Management Team (EPMT) at the Dismal Nitch unit since 2009. Beards Hollow and Middle Marsh at Cape Disappointment have the largest concentrations of yellow flag iris, with several hundred stems present. The small populations at Dismal Nitch and Fort Columbia are found around lagoons off the Columbia River. Fort Clatsop has small populations scattered along the Lewis and Clark River. Yellow flag iris has been reported on the shore of Sunset Lake with highest abundance near the Astoria Golf Course and along the middle section of the lake (Sytsma 2005). These plants could potentially spread north into the Sunset Beach unit.

### 3.5.8 Lathyrus latifolius – everlasting peavine

Everlasting peavine is a trailing perennial in the pea family with winged stems and deep pink flowers that has been used for erosion control but can escape and displace native vegetation. Hand-pulling is possible for smaller infestations, while herbicide may be necessary for larger areas or on slopes where hand-pulling could cause slope destabilization. Everlasting peavine is present in the Fort Clatsop unit at Netul Landing and is being manually and chemically treated annually. Small populations are also present at North Head Lighthouse and near the Waikiki Beach parking area at Cape Disappointment.

## 3.5.9 Lonicera periclymenum – European honeysuckle

European honeysuckle is a deciduous perennial twining woody vine with opposite oval-shaped leaves, showy and fragrant white flowers that can be tinged with yellow or purple, and red berries. It is grown as an ornamental and has escaped cultivation. European honeysuckle was encountered in the Fort Stevens, Sunset Beach, Fort Clatsop, and Cape Disappointment units. Manual and herbicide control of European honeysuckle began in 2006 at Fort Clatsop, and at Sunset Beach where it is a serious infestation. It is especially abundant at the Yeon site, where the source of infestation may be specimens that were planted in the ornamental border surrounding the house.

### 3.5.10 Lythrum salicaria – purple loosestrife

Purple loosestrife is a perennial emergent wetland plant growing to 3 meters in height with a tall showy infloresence of bright magenta flowers. It is planted as an ornamental but has become a widespread and problematic weed in wetlands throughout much of North America. Purple loosestrife can create monoculture thickets along waterways that exclude native species and alter wetland ecosystems. Once established, large populations of loosestrife are very difficult to eliminate. (Washington DOE 2010). Purple loosestrife is found in the Dismal Nitch, Fort Columbia, Fort Stevens, Fort Clatsop, and Cape Disappointment units. The Fort Columbia and Dismal Nitch populations are found in lagoons off the Columbia River, and population numbers are low. A few scattered plants are present along the northwest shore of Trestle Bay in Fort Stevens. Several plants were found around O'Neill Lake at Cape Disappointment, with the highest concentration of plants seen at the northwest end of the lake. A few young plants were seen at Fort Clatsop along the Lewis and Clark River on the Netul Landing trail in 2010. Purple loosestrife has been reported at the southern end of Sunset Lake (Sytsma 2005) and could spread north into the Sunset Beach unit. The plants around the lagoon at Dismal Nitch have been manually controlled by Park staff since 2007, and plants in the Fort Clatsop unit have been manually removed since 2000. Biocontrol agents are also effective and may be available from local government.

### 3.5.11 Myriophyllum aquaticum – parrot feather watermilfoil

Parrot feather watermilfoil is a freshwater rhizomatous perennial aquatic plant used in the aquarium trade and as an aquatic garden plant which has escaped cultivation. Parrot feather has both submerged and emergent leaves. The emergent leaves are a bright green color with manydivided leaves that give it a feathery appearance. It is most successful in slow-moving, nutrientrich waterways. (Washington DOE 2010). Parrot feather was found in the Fort Clatsop unit on the Skipanon River, in a ditch at the northeast boundary of the unit, on log rafts in the Lewis and Clark River, and in a pond along the Fort to Sea trail in the Sunset Beach unit just west of Highway 101. The source of the Skipanon River population is most likely Cullaby Lake and Cullaby Creek upstream of the Skipanon, which are both moderately infested with parrot feather and could potentially introduce more plants. The Sunset Beach population covered much of the banks of the pond and numbered several hundred plants. Control of this species has not been undertaken. Another non-native watermilfoil, Eurasian watermilfoil (Myriophyllum spicatum) has been reported at Cape Disappointment (Washington State Parks and Recreation Commission 2004). An established method of control for parrot feather is herbicide application using time release capsules, but as this is a non-targeted treatment it is not an ideal method (Lindsay Cornelius, personal communication).

### 3.5.12 Nymphaea odorata – American white waterlily

American white waterlily is an attractive aquatic plant with large floating lilypad leaves and showy white or pink flowers. Because of its aesthetic appeal it has been used in water gardens and plantings in lakes, but it is now known to be an aggressive invader. White waterlily spreads both by seeds and rhizomes. It can be controlled through cutting, harvesting, covering, or aquatic herbicides (Washington DOE 2010). American white waterlily was found in the Sunset Beach unit in Sunset Lake where the Fort to Sea Trail crosses the lake at the northeast corner of the unit.

White waterlily has been present in Sunset Lake for more than 40 years and has become a significant detriment to those that use the lake for boating, fishing, and recreation as well as decreasing the quality of habitat for wildlife (Sytsma 2005). Due to the importance of recreation and aesthetic use to the surrounding community, Sytsma et al. recommended a modified high-level of control in Sunset Lake including public education, prevention, monitoring, and small-scale hand removal for most invasives, and large-scale harvesting for waterlily.

### 3.5.13 Phragmites australis – common reed

Common reed is a tall, rhizomatous perennial grass growing in wetlands, estuaries, and swamps on several continents. Its height is its distinguishing characteristic: it can grow to 3-4 meters tall. The canes and leaves have been used for thatch, forage for livestock, and cellulose production. It can rapidly expand by rhizomes, creates thick monocultures that excludes native plants, and can change wetland hydrology (Saltonstall 2009). Several states have given common reed noxious weed status. Stands of common reed have been located just outside the Fort Clatsop unit on the Lewis and Clark River, and in Trestle Bay in the Fort Stevens unit.

The taxonomy of common reed is currently in review, but there appear to be three strains present in North America, two of which are considered native and one that is invasive (Kartesz 2010). Although a thorough determination of physical characteristics has not been made of the common reed populations that are present in or near the park, the growth form and rapid expansion of these patches suggest that these plants are the invasive haplotype.

#### 3.5.14 Polygonum cuspidatum – Japanese knotweed

Japanese knotweed is a large, broad-leaved herbaceous perennial that grows to 1-3 meters tall and is native to Asia. Its hollow stems resemble bamboo and it has been planted as an ornamental and also as a food plant as the young stems are edible. It spreads mainly by stout rhizomes and has become a common invasive in riparian zones. Pulling or digging can be effective for removing small or young plants, but larger infestations require other tactics. Japanese knotweed is present at Dismal Nitch and was reported to be in Cape Disappointment by Sayce and Eid in 2004. Several plants of knotweed (species unknown, likely P. cuspidatum) were also located on the east side of the spit at Fort Stevens. The closely related giant knotweed (Polygonum sachalinense) has similar invasive characteristics and was found just outside the Fort Stevens boundary east of the historical area. Japanese knotweed and Himalayan knotweed (Polygonum polystachyum) were present at Cape Disappointment at historic homesites, but were not encountered during the field season, potentially as these species have been treated by the park for some years (Washington State Parks and Recreation Commission 2004). The three locations of Japanese knotweed at Dismal Nitch have been treated since 2007 by cutting, herbicide, and flaming, yet the plants have regrown each year. All three plants are rooted into the rivershore riprap, rendering manual removal of the roots impossible.

### 3.5.15 Ranunculus ficaria – fig buttercup

Fig buttercup is a shiny-leaved herbaceous perennial with yellow flowers that is native to Eurasia. It is planted as an ornamental but spreads rapidly due to the production of bulblets which break off in the soil and produce new plants. This leads to carpets of fig buttercup which crowds out native vegetation. Fig buttercup resembles the native marsh marigold (*Caltha palustris*), but marsh marigold does not produce bulblets or form carpets of vegetation as fig buttercup does. Due to the difficulty of removing all bulblets in the soil, fig buttercup is often treated with herbicide unless the population is small enough to remove all pieces of the plant (Swearingen 2010). A few plants of fig buttercup were found at Dismal Nitch west of the parking lot. Park staff physically removed the plants and surrounding soil in 2009, and returned to remove about three dozen new plants in 2010. Removal and monitoring will be ongoing for this population until it is eradicated.

### 3.5.16 Sorbus aucuparia – European mountain ash

European mountain ash is a perennial deciduous shrub or tree with pinnately divided leaves and orange or red berries. It is native to Eurasia but has been widely planted for ornamental purposes. It is shade tolerant and can grow under forest canopy. Birds act as a dispersal mechanism by eating the fruits. European mountain-ash does not spread vegetatively (USDA 2010). European mountain ash is present in the Fort Clatsop unit. Hand-cutting and removal of seedlings was started in this unit in 2008, and larger trees have been cut and treated.

#### 3.5.17 Ulex europaeus – gorse

Gorse is a perennial, spiny, woody shrub growing 3-7 meters tall and is native to Europe. It can form dense thickets of spiny shrubland that can exclude native species. As mature shrubs can have thick woody stems, cutting off at the ground is often necessary rather than digging or pulling. Plants with stems less than two inches in diameter can be effectively removed using a

weed wrench. For leverage on sandy soils, a plywood base can be attached to the wrench. Once cut stumps can be treated with herbicide or cut again next year to continue to deplete the plant's energy stores. Young plants can be hand pulled or hoed, and as the seeds can persist in the seed bank for many years monitoring of populations for regrowth is necessary.

Six gorse plants were found in the Dismal Nitch unit in 2006, on the east side of Megler Road, just south of the gate. The large top growth was removed by cutting and the stems were treated with Garlon. The area is monitored for resprouting annually. In 2010 one plant that had resprouted was cut and the stem treated with Garlon. Gorse is also reported from the Fort Stevens and Cape Disappointment units. Several small plants were hand pulled from south Netul Landing in the Fort Clatsop unit in 2001 and 2002, but no regrowth has since occurred at that site.

### 3.5.18 Other non-native plants of interest

Several other non-native plants of interest are present in the park, but their abundance makes it impractical to map their locations. Of particularly wide distribution are Scots broom and Himalayan blackberry (*Rubus armeniacus*, synonymous with *Rubus discolor*). Cut-leaf blackberry (*Rubus laciniatus*) is also present in lower abundance. These species are capable of widespread distribution and habitat change, replacing native communities and altering landscapes. However, due to their long establishment in the Pacific Northwest control can be costly or impractical. A few larger areas of Scots broom and the two blackberry species at the Fort Clatsop unit have been treated by the EPMT. Hand removal of Scots broom at Cape Disappointment has occurred in the past. Control of these species could be prioritized to treat areas with sensitive species, rare communities, or high restoration potential to maximize the effectiveness of the cost of treatment.

Aquatic non-native species pose additional management problems. Many aquatic plants can spread vegetatively, from plant fragments, or have floating seeds that are easily spread along waterways. If an exotic species is established upstream or elsewhere along the coastline, populations can be reintroduced after their downstream removal. Recreational boat traffic can also be a dispersal mechanism and a way for these species to become reintroduced. Chemical treatments of aquatic plants can be damaging to native aquatic species and must be applied with caution, for example through targeted injection or wick application. The inaccessibility of aquatic invasive species rooted at the bottom of lakes and rivers also adds to the difficulty of treatment.

In addition to the non-native aquatic plants that were discussed above, others known to occur in the park are fanwort (*Cabomba caroliniana*) found in Sunset Lake and Coffenbury Lake, water celery (*Vallisneria americana*) found in Sunset Lake and Coffenbury Lake, Brazilian waterweed (*Egeria densa*) found in the Skipanon River along the Fort to Sea trail, and pond water starwort (*Callitriche stagnalis*) found in Sunset Lake. Some of these species are reported from the Fort Clatsop unit as well.

# **4** Discussion

## 4.1 Sensitive communities and rare plant species management

Several new locations of rare communities were recorded within the park's boundaries and associated state park units. The two units with the greatest number and coverage of these rare communities were Cape Disappointment and Fort Stevens State Parks. Their locations on the Columbia River estuary and the amount of protected acreage these parks represent translate to a wealth of habitat types, including headlands and salt marshes which have geographically limited distributions.

Both the upland and wetland Sitka spruce forests represent important conservation targets for LEWI. Cape Disappointment has large areas of the Sitka spruce / Slough sedge – Skunk cabbage Forest type, or rather a natural variant of this type where skunk cabbage is not always present. The park can continue to support Sitka spruce conservation by planting seedlings or removing competing species in peripheral habitats where spruce is beginning to recolonize. Invasive species such as Scots broom can be removed from Sitka spruce stands to encourage natural reseeding of spruce trees; Scots broom and Sitka spruce occur together on the accretion zone behind the jetty in Cape Disappointment.

Both wetland and upland Sitka spruce forests were identified as conservation targets (TNC 2006) due to their limited habitat range and the forest's value for timber, which has led to a decrease in Sitka spruce cover over time. In addition Sitka spruce old growth forest provides critical habitat for the federally threatened marbled murrelet (*Brachyramphys marmoratus*). Current management such as thinning of the upland forests at the Fort Clatsop unit to promote late successional conditions will contribute to recovery efforts, in spite of natural setbacks by windthrow from major storms. The development trajectory is on track in most locations and little change in management is required. Only in some of the early seral spruce forests at Ecola are there locations where removal or cutting of red alder might speed the pace of succession.

By and large, the management prescriptions for both the upland and wetland Sitka spruce forests are the same. Non-native trees, shrubs and forbs need to be controlled. For the upland stands, removing some red alder which is slowing growth and regeneration of conifers can help in moving from early and mid-seral stands, to the more important late seral stands. The Nature Conservancy explored this at Tillamook Head, before transferring this property to the Oregon Parks and Recreation Department. While there is little doubt this would be effective, its cost and the potential disturbance created makes it a difficult management prescription to follow. However, it appears to be especially needed in the most eastern upland Spruce forests at Ecola State Park.

Coastal headlands are present at Cape Disappointment and Ecola. As Ecola is outside the legislative boundary of LEWI, its headlands were not mapped and will not be discussed here. The Cape Disappointment headlands are degraded by non-native species, particularly graminoids such as ripgut brome (*Bromus diandrus*), soft brome (*Bromus hordaeceus* ssp. *hordaeceus*), and sweet vernal grass (*Anthoxanthum odoratum*) (Sayce and Eid 2004). However, the rare species ocean-bluff bluegrass is found on several headlands at Cape Disappointment, and red fescue is also occasionally present, representing a remnant of the Red fescue Coastal Headland rare community type. The North Head headland at Cape Disappointment hosts an occurrence of

Pacific reedgrass - blue wildrye Herbaceous Vegetation, one of a few occurrences known in Washington State. Removal and management of non-native species where ocean-bluff bluegrass or Pacific reedgrass is present is recommended to preserve these populations. However, completely restoring these grasslands to be dominated or co-dominated by native grasses is unlikely due to the prevalence of non-native grasses and the heavy use of headlands by people and ungulates that act as reintroduction agents of these non-native species. Consequently, management emphasis is focused on conservation of existing rare community types and areas where rare species are present. Geography is also acting against headland communities that have been cut off from the ocean by accretion. The reduction of salt spray in these areas will lead to a steady decline in salt-dependent headland species and a gradual transition to shrub or forest types.

The Big-headed sedge Herbaceous Vegetation type is present in large amounts at Cape Disappointment and in very small remnant patches at Fort Stevens. The major threat to this community type is the encroachment of non-native beachgrasses (Ammophila spp.). Big-headed sedge grows on shifting, open sand, and the invasion of beachgrass decreases the available habitat and introduces competition for resources. Removal or control of beachgrass is difficult and potentially labor-intensive and expensive but treatment can open up areas of dunes to native species and allow for expansion or restoration of native communities (Pickart 1997). Due to the presence of native species interspersed within the beachgrass stands and the high amount of public use of these beaches and dunes, manual removal would be recommended over mechanical or chemical treatment. Pickart (1997) determined that manual removal of beachgrass by California Conservation Corps at a Nature Conservancy preserve in California had a cost of \$21,831 per acre of beachgrass removed, not including the cost of transportation. It could be possible to mitigate this cost by using volunteer work parties and by targeting small patches around rare plants. The Columbia Land Trust has found that the "adopt a plot" model has worked very well for costly weed control in communities where stewardship ethic is high (Lindsay Cornelius, personal communication). Pickart also noted that by selectively removing beachgrass and preserving native plants on-site, there was no need to revegetate the project site after beachgrass removal as these retained native species successfully recolonized the site.

The US Forest Service and Bureau of Land Management have removed beachgrass for snowy plover management on some beaches in Oregon. The snowy plover is a federally listed bird species that nests in or near open sand. Federal agencies have managed beachgrass in plover nesting areas by bulldozing and removing beachgrass, then following up with either manual removal or direct application of herbicide for resprouts. Treatment costs for a combination of mechanical removal, burning, and herbicide treatment ranged in cost from \$2,000 to \$6,000 per acre in the 1990s (USDA Forest Service 1994).

Another non-native species that has the potential to be very detrimental to the big-headed sedge populations at Cape Disappointment is Japanese sedge. This sedge has a similar growth form, habit, and appearance to big-headed sedge and has been seen growing amongst big-headed sedge on Cape Disappointment beaches. Japanese sedge is considered a noxious weed in some eastern US states, despite being used as a dune stabilizer in the past, and has spread over many hundreds of acres of beaches there. The populations of Japanese sedge at Cape Disappointment are currently limited, so proactive control or eradication may yet be possible. McGough et al. (2003) tested low-impact management strategies for Japanese sedge in New Jersey and found that

repeated narrowly-focused spray application of Roundup® was effective in greatly decreasing the number of Japanese sedge stems while producing limited loss of nearby native species. The densities of Japanese sedge McGoug *et al.* were testing were significantly denser (hundreds of stems per meter) than the patches found at Cape Disappointment (dozens of stems per meter) so this method of treatment combined with manual digging of remaining stems and rhizomes could be effective at removing these relatively small patches.

Management to promote or restore other native and rare sand dune communities historically found at Fort Stevens and Sunset Beach is a bit more problematic. No other rare dune plant communities were identified from the park, but most of the native forb and grass dominated, partially stabilized dune communities described from the Oregon Dunes National Recreation Area (Christy et al. 1998) are at risk. Based on the historical vegetation from the area, most of these were likely present in these two park units. In addition, a number of partially stabilized types, particularly shorepine woodland communities such as shore pine / hairy manzanita (*Pinus contorta* var. *contorta* / *Arctostaphylos columbiania*) and shore pine / kinnikinnik (*Pinus contorta* var. *contorta* / *Arctostaphylos uva-ursi*) might provide good restoration objectives for the pasture or non-native forests included in the new acquisitions at Sunset Beach. Detailed descriptions of these shore pine communities can be found on NatureServe Explorer (NatureServe 2010) or in Christy et al. 1998.

Only small amounts of the Lyngby sedge – pacific silverweed Herbaceous Vegetation type are present within the legislative boundaries of the park, but these marshes are sufficiently rare to merit management. While the hydrographic conditions that influence these salt marshes are out of control of the park, control of non-native species can help maintain the quality of these marshes. Knotweeds, purple loosestrife, and yellowflag iris are common invasive species that will be periodically introduced to these marshes via tides. If these sites are periodically monitored, these invasive species can be removed before their populations can become large enough to impact the salt marsh. Common reed is also an encroaching threat as it is present just outside the boundary of Fort Clatsop on the east bank of the Lewis and Clark River and is also found in the salt marsh at Fort Stevens. The subspecies of these populations have not been determined, but the density of stems and its recent colonization suggests these patches are the non-native subspecies. Should common reed turn up inside Park units, and the evidence points to it being the non-native subspecies, efforts should be made to eradicate the population before it reaches an unmanageable size. Saltonstall (2009) recommended repeated glyphosphate-based herbicide treatments in late summer or fall, and optional burning after herbicide treatment to remove above-ground biomass and further set back the common reed population. Mechanical control is unlikely to eradicate common reed.

There is an occurrence of Virginia glasswort Herbaceous Vegetation on Clatsop Spit in the Fort Stevens unit. Although outside the legislative boundary of the park, it is notable for its size and rarity. There are small patches of Virginia glasswort at Cape Disappointment but its numbers are not great enough to support this community type. Should Fort Stevens be included within the legislative boundary in the future, this site should be managed for removal or control of invasive species and any proposed jetty work should be studied for impact on the marsh before action is taken. By taking the management actions suggested above to conserve rare habitats, rare species that depend on these habitats may also be protected. For example, a few of the rare plants at LEWI are also the main component of a targeted rare community, such as the Big-headed sedge community and the grassy balds where ocean-bluff bluegrass is present. Other species will require their own targeted management. All rare species will benefit from control of invasive species, but due to the time and cost of weed removal, priority sites should be identified based on either the health or uniqueness of the rare species. In addition, visitor activities may need to be managed for certain populations and treated areas protected so that native vegetation has time to recolonize the area. Beaches and headlands are the most impacted by visitors due to their scenic beauty and opportunities for recreation. If small areas are treated, roping off areas and providing interpretive signs may be enough to close off an area until plantings or existing native species can become established.

### 4.2 Non-native plant species management

The park has been actively treating and monitoring many non-native plant species for several years. The Exotic Plant Management Team's work in Park units and surrounding areas, reporting on locations of invasive species by local groups, and involvement of Cooperative Weed Management Groups (CWMGs) represent a valuable collaborative approach to invasive species management that should be fostered. The Early Detection, Rapid Response (EDRR) protocol and lists created by CWMGs and other groups can prevent new invasive species from becoming established by removing them before their populations become unmanageable. The park has also involved the public by hosting volunteer work parties; this too is a valuable and effective way to control non-native species while giving park visitors and local residents opportunity to become invested in these habitats and the park. These relationships and protocols should continue to be maintained to increase the effectiveness and defray costs of weed management in the park.

While non-native species represent significant cover of Park units, priorities can be made for where and how to treat or manage non-native species. Priority should be given to areas with rare species or rare communities present, or where visitor experience is being negatively impacted by non-native species. Visitor education can be useful in preventing introductions of weeds by making visitors aware of simple preventative measures such as cleaning hiking boots before entering the park and washing water craft before boating on Park lakes. Boot brushes can be provided at parking lots and trail heads. Interpretive signs can show photographs of EDRR species and provide a way to report target non-native species locations. Asking visitors to pull and dispose of these target non-native species can help Park staff who do not have the time to patrol all areas of the park themselves, although care must be taken to make sure visitors do not confuse target non-native species.

Before developing a management plan for individual non-native species, tried-and-tested methods should be reviewed in the literature and contact made with other local weed managers for their expertise. Some specific management strategies are proposed in the sensitive communities management section above.

## 4.3 Updated species list and future floristic work

During the course of this project the park vascular plant list was increased from 267 species to 467, and there was a 75% increase in the number of verified species. All but 19 of the species

added were located in the new areas of the park. There are undoubtedly more species yet to be documented, as annuals crop up some years and not others, perennials are encountered when not in flower or fruit and identification cannot be confirmed, and new species continue to be introduced by natural or anthropogenic means. The Middle Village/Station Camp unit was the most under-surveyed of the new additions to the legislative boundary of LEWI, due to the relative inaccessibility of the majority of the property and the lack of unique habitat types. One arduous trip was made to the top of the slope in this unit, and no new species or communities of interest were discovered during the outing. While it is possible there are new species in this unit to discover, it was felt that our time was more productively spent surveying less common habitats and more accessible areas in the other units.

Fort Stevens, Fort Columbia, and Ecola state parks were not thoroughly surveyed, being outside the current legislative boundary of LEWI. Species noted in these cooperative management areas during field work were documented in a separate database provided to the park, allowing these observations to easily be incorporated should these parks become incorporated into the legislative boundary of LEWI in the future.

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# Appendices

The following appendices contain annotated checklists of vascular flora at Lewis and Clark National Historical Park.

Appendix A lists confirmed, historical, and reported taxa that have been documented by specimen voucher, reliable observation, or official reports. Vouchers were examined at the Fort Clatsop Herbarium and queried from the NPSpecies database. NPSpecies is the National Park Service's standard database for tracking species observations, specimens, and scientific names. The LEWI NPSpecies dataset is a compendium of previous botanical work and has been certified by Park staff. Specimens contained at the University of Washington Burke Museum and the Oregon State University Herbarium were queried using the Consortium of Pacific Northwest Herbaria's online database. Observations were collected in the field in 2009 and 2010 and also queried from the NPSpecies database. Reported taxa were queried from the NPSpecies database.

Appendix B lists potentially occurring, but unconfirmed taxa that have a) been reported but not documented within the park or b) have been found in neighboring areas or in units that are not part of the legislative boundary of Lewis and Clark National Historical Park.

Appendix C lists taxa rejected from the park list due to false or questionable reports.

Appendix D lists the same confirmed taxa as Appendix D but describes habitat use in the park and is organized by life form rather than family in order to better meet the needs of NPS interpretive specialists.

The codes and abbreviations for each field in the appropriate appendices are summarized below.

### Family, Species Name (Appendices A, B, C, and D)

Family and species nomenclature and concepts follow the Integrated Taxonomic Information System (ITIS), except where recent taxonomic changes were incorporated following the Flora of North America.

### Synonyms/Taxonomic Notes (Appendices A, B, and C)

Pertinent synonyms are listed for taxa with alternative names in local flora or commonly used historical names.

### Common Name (Appendices A, B, C, and D)

Common names are derived mainly from the USDA PLANTS database and ITIS.

### Nativity (Nat) (Appendices A and D)

Nativity indicates whether a species is native (Nat) to Oregon and/or Washington (academically accepted as naturally occuring in the Pacific Northwest for hundreds or thousands of years) or non-native (Non) (introduced through human interference in recent, post-European settlement

history). Nativity is based on the Oregon Flora Project and the USDA PLANTS database. Native hybrid (Nat Hybd) is used to denote hybrid plants determined to be native.

## Life Form (Appendices A, B, and D)

Life form was obtained from the USDA PLANTS database. Trees (Tree) are woody perennials, normally with a single stem growing to greater than four meters. Shrub (Shr) refers to a woody perennial with multiple stems, usually not growing to greater than four meters. Subshrubs (Sub) are woody perennials with multiple stems not growing to more than one-half meter in height. Forb/herbs (Forb) are non-woody perennials, annuals, or biennials. This classification includes ferns, horsetails, lycopods, and whisk-ferns but excludes graminoids. Graminoids (Gram) are grasses or grass-like plants, including grasses, sedges, rushes, quillworts, and arrow-grasses. Vines (Vine) are climbing or twining plants with relatively long stems that may or may not be woody. Where a plant can display characteristics of multiple life forms, these are listed and separated by commas.

## **Duration (Dur) (Appendix A)**

Duration refers to the lifespan of the species. Annual (Ann) species live for one year or season only. Biennial species (Bien) may live for two years. Perennial (Per) species persist for several years.

## Range (Appendices A, B, and C)

Range represents the distribution of the species in northwest Oregon and southwest Washington and the relation to its distribution in North America. Range distribution was determined primarily by the Biota of North America Program and the Oregon Flora Project. Nativity was not taken into account when determining range; this field reports how widely a species is found, whether or not it evolved here or was introduced from its native range. Wide (Wide) ranging taxa are present in at least 10% of Oregon and Washington and are also found in neighboring states. Regional (Reg) ranging taxa is only found in the Pacific Northwest (may include parts of Canada and Alaska). Local (Loc) taxa in only found in southwest Washington and/or northwest Oregon (defined as about a 150-mile radius from the extreme northwest and southwest tips of Oregon and Washington). Disjunct (Disj) taxa is one that is found in Oregon or Washington and is not found in adjacent states, but is present in other areas of North America. Lastly cultivated (Cul) taxa are present in the park but are a garden or ornamental plant that was intentionally planted.

### Park Status (Appendices A and D)

Park Status denotes the present status of the taxa in the park. Present (Pres) taxa were recently (since 1970) confirmed to be occurring in the park. Historical (Hist) taxa were documented from before 1970 but have not since been observed. Reported (Rep) taxa were noted in official reports but have not been confirmed by observation or voucher. Unconfirmed (Uncon) taxa have been noted anecdotally or found in nearby locales, but have not been documented in the park.

## Population Size (Appendix A)

Population size describes the abundance and frequency of a species in the park. Abundance information was queried from the NPSpecies database and based on personal observation. Abundant (Abun) taxa have large populations and are often key components in one or more vegetation types, or are widely distributed across the park. Common (Com) taxa have large populations but may be restricted in their habitats or only occur in a few locations in the park. Uncommon (Unc) taxa have small to medium sized populations and are found in few vegetation communities or have a low occurrence in several community types. Rare (Rare) taxa have low populations within the park and are not often encountered. Taxa that were present historically but that do not have an extant population within the park are noted as (NA), not applicable.

## Source (Appendix A)

Source gives a reference for the assigned park status. These are Park staff, associated contractors, researchers, and accredited databases reporting documented species occurrences within the park.

## Year Doc. (Appendix A)

Year documented is the year the species status within the park was confirmed or reported. This does not indicate the year the first documented specimen was collected, which may be a much earlier date.

## **Comments (Appendices B and D)**

Comments give more detail or speculation about the status of a species in the park, or speculation on its status.

## Flower time (Appendix D)

Flower time refers to the months or seasons when a species is most likely to be in flower. Indeterminate or insufficient is given when a species' phenology is not determined. Nonflowering is given for species with spores, e.g. ferns and horsetails. Gymnosperms, while not flowering plants, are given a flower time for when their pollen is generally released. The main source for flower time was the USDA PLANTS database.

## Habitat (Appendix D)

The distribution of species across a generalized set of habitats is denoted by an 'x' in the columns for habitats where that species occurs, based on observations in the field and general literature. The habitat types are: Headland/Sea cliff, Dune/Deflation Plane/Meadow (includes beaches and weedy grasslands but not manicured lawn areas), Lowland Forest, Estuary/Wetland (includes aquatics, salt marsh species), and Disturbed/Developed (includes roadsides, campgrounds, lawns, etc).

## Appendix A. Confirmed, historical, and reported vascular plant taxa of Lewis and Clark National Historical Park, organized by family and scientific name with taxonomic and biogeographic notes.

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Aceraceae	Acer circinatum		vine maple	Nat	Wide	Tree, Shr, Vine	Per	Pres	Unc	David Ek, NPS	2000
Aceraceae	Acer macrophyllum		bigleaf maple	Nat	Wide	Tree	Per	Pres	Rare	David Ek, NPS	2000
Aceraceae	Acer platanoides		Norway maple	Non	Wide	Tree	Per	Pres	Rare	David Ek, NPS	2000
Alismataceae	Alisma triviale		northern water- plantain	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Alismataceae	Sagittaria latifolia		common arrowhead	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Apiaceae	Angelica genuflexa		kneeling angelica	Nat	Reg	Forb	Per	Pres	Unc	David Ek, NPS	2000
Apiaceae	Angelica lucida		seacoast angelica	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Apiaceae	Cicuta douglasii		western water hemlock	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Apiaceae	Conioselinum gmelinii	Conioselinum pacificum	Pacific hemlockparsley	Nat	Wide	Forb	Per	Pres	Unc	BONAP database	2000
Apiaceae	Daucus carota		Queen Anne's lace	Non	Wide	Forb	Bien	Pres	Unc	Herbarium & field notes	2007
Apiaceae	Heracleum maximum	Heracleum lanatum	common cowparsnip	Nat	Wide	Forb	Per	Pres	Com	BONAP database	2000
Apiaceae	Hydrocotyle ranunculoides		floating marsh pennywort	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Apiaceae	Lilaeopsis occidentalis		western grasswort	Nat	Reg	Forb	Per	Pres	Com	David Ek, NPS	2000
Apiaceae	Oenanthe sarmentosa		water parsely	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000

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Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Apiaceae	Osmorhiza purpurea		purple sweetroot	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Apiaceae	Sium suave		common waterparsnip	Nat	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000
Apocynaceae	Vinca minor		common periwinkle	Non	Wide	Vine, Forb	Per	Pres	Com	David Ek, NPS	2000
Aquifoliaceae	llex aquifolium		English holly	Non	Wide	Tree, Shr	Per	Pres	Com	David Ek, NPS	2000
Araceae	Lysichiton americanus		American skunkcabbage	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Araliaceae	Hedera helix		English ivy	Non	Wide	Vine	Per	Pres	Unc	David Ek, NPS	2000
Araucariaceae	Araucaria araucana		monkeypuzzle tree	Non	Cul	Tree	Per	Pres	Rare	David Ek, NPS	2000
Asteraceae	Achillea millefolium		common yarrow	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Asteraceae	Anaphalis margaritacea		common pearleverlasting	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Asteraceae	Anthemis cotula		chamomile	Non	Wide	Forb	Ann	Pres	Unc	Herbarium & field notes	2007
Asteraceae	Artemisia suksdorfii		coastal wormwood	Nat	Wide	Forb	Per	Pres	Unc	Herbarium & field notes	2000
Asteraceae	Baccharis pilularis		coyotebrush	Nat	Wide	Sub, Shr	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Asteraceae	Bellis perennis		English daisy	Non	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Asteraceae	Bidens cernua		nodding beggarticks	Nat	Wide	Forb	Ann	Pres	Com	David Ek, NPS	2000
Asteraceae	Bidens frondosa		devils beggartick	Nat	Wide	Forb	Ann	Pres	Unc	David Ek, NPS	2000
Asteraceae	Cirsium arvense		Californian thistle	Non	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Asteraceae	Cirsium brevistylum		clustered thistle	Nat	Wide	Forb	Ann, Bien, Per	Pres	Unc	Herbarium & field notes	2007
Asteraceae	Cirsium edule		edible thistle	Nat	Wide	Forb	Bien, Per	Pres	Rare	David Ek, NPS	2000
Asteraceae	Cirsium vulgare		bull thistle	Non	Wide	Forb	Bien	Pres	Com	David Ek, NPS	2000
Asteraceae	Conyza canadensis		Canada horseweed	Nat	Wide	Forb	Ann, Bien	Pres	Com	Lindsey Wise, ORBIC	2000
Asteraceae	Cotula coronopifolia		brassbuttons	Non	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000
Asteraceae	Crepis capillaris		smooth hawksbeard	Non	Wide	Forb	Ann, Bien	Pres	Com	David Ek, NPS	2000
Asteraceae	Erechtites glomerata		Australian fireweed	Non	Reg	Forb	Ann, Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Asteraceae	Erechtites minima		Australian fireweed	Non	Reg	Forb	Ann, Per	Pres	Unc	David Ek, NPS	2000
Asteraceae	Gnaphalium palustre		cudweed	Nat	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009
Asteraceae	Gnaphalium uliginosum		low cudweed	Non	Wide	Forb	Ann	Pres	Unc	David Ek, NPS	2000
Asteraceae	Hieracium albiflorum		whiteflower hawkweed	Nat	Wide	Forb	Per	Pres	Unc	Lynne Johnson & Nancy Eid, NPS	2007
Asteraceae	Hypochaeris glabra		smooth cat's ear	Non	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2010
Asteraceae	Hypochaeris radicata		spotted cat's ear	Non	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Asteraceae	Lapsana communis		common nipplewort	Non	Wide	Forb	Ann	Pres	Com	David Ek, NPS	2000

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Asteraceae	Leontodon taraxacoides ssp. taraxacoides		lesser hawkbit	Non	Wide	Forb	Bien, Per	Pres	Com	Lindsey Wise, ORBIC	2009
Asteraceae	Leucacantha cyanus	Centaurea cyanus	Bachelor's button	Non	Wide	Forb	Ann	Pres	Rare	Lindsey Wise, ORBIC	2009
Asteraceae	Leucanthemum vulgare	Chrysanthemum leucanthemum	ox-eye daisy	Non	Wide	Forb	Per	Pres	Unc	BONAP database	2000
Asteraceae	Matricaria discoidea	Matricaria matricarioides, Chamomilla suaveolens	pineapple weed	Non	Wide	Forb	Ann	Pres	Unc	Herbarium & field notes	2007
Asteraceae	Mycelis muralis	Lactuca muralis	wall-lettuce	Non	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009
Asteraceae	Petasites frigidus var. palmatus	Petasites palmatus	arctic sweet coltsfoot	Nat	Wide	Forb	Per	Pres	Unc	Herbarium & field notes	2007
Asteraceae	Senecio jacobaea		ragwort	Non	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Asteraceae	Senecio sylvaticus		woodland ragwort	Non	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009
Asteraceae	Senecio triangularis	Senecio triangularis var. triangularis	arrowleaf ragwort	Nat	Wide	Sub, Forb	Per	Pres	Unc	David Ek, NPS	2000
Asteraceae	Senecio vulgaris		common groundsel	Non	Wide	Forb	Ann, Bien	Pres	Unc	David Ek, NPS	2000
Asteraceae	Solidago canadensis		Canada goldenrod	Nat	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000
Asteraceae	Solidago canadensis ssp. salebrosa		Canada goldenrod	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Asteraceae	Solidago simplex var. spathulata		Dune goldenrod	Nat	Wide	Forb, Sub	Per	Pres	Unc	Lindsey Wise, ORBIC	2009

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Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Asteraceae	Soliva sessilis		field burrweed	Non	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2010
Asteraceae	Sonchus asper		prickly sowthistle	Non	Wide	Forb	Ann	Pres	Com	David Ek, NPS	2000
Asteraceae	Sonchus oleraceus		annual sowthistle	Non	Wide	Forb	Ann	Pres	Com	Herbarium & field notes	2000
Asteraceae	Symphyotrichum subspicatum var. subspicatum	Aster subspicatus	Douglas aster	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Asteraceae	Tanacetum camphoratum	Tanacetum douglasii	dune tansy	Nat	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000
Asteraceae	Taraxacum officinale		dandelion	Non	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Balsaminaceae	Impatiens capensis		jewelweed	Non	Wide	Forb	Ann	Pres	Com	Peter F. Zika, UW	2006
Balsaminaceae	Impatiens ecalcarata		spurless touch- me-not	Nat	Wide	Forb	Ann	Pres	Com	David Ek, NPS	2000
Balsaminaceae	Impatiens x pacifica		Pacific jewelweed	Nat Hybd	Loc	Forb	Ann	Pres	Unc	Peter F. Zika, UW	2010
Berberidaceae	Berberis aquifolium	Mahonia aquifolium	hollyleaved barberry	Nat	Wide	Shr, Sub	Per	Pres	Rare	BONAP database	2000
Betulaceae	Alnus rubra		red alder	Nat	Wide	Tree	Per	Pres	Abun	David Ek, NPS	2000
Blechnaceae	Blechnum spicant		deer fern	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Boraginaceae	Myosotis discolor		changing forget- me-not	Non	Wide	Forb	Ann, Per	Pres	Unc	David Ek, NPS	2000
Boraginaceae	Myosotis laxa		bay forget-me-not	Nat	Wide	Forb	Ann, Bien, Per	Pres	Unc	David Ek, NPS	2000
Brassicaceae	Barbarea orthoceras		erectpod wintercress	Nat	Wide	Forb	Bien, Per	Pres	Unc	David Ek, NPS	2000
Brassicaceae	Brassica rapa		turnip rape	Non	Wide	Forb	Ann, Bien	Pres	Unc	Lindsey Wise, ORBIC	2009

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Brassicaceae	Cakile edentula		American searocket	Nat	Wide	Forb	Ann, Bien, Per	Pres	Com	Lindsey Wise, ORBIC	2009
Brassicaceae	Cakile maritima		Eurpoean searocket	Non	Wide	Forb	Ann, Per	Pres	Com	Lindsey Wise, ORBIC	2009
Brassicaceae	Cardamine angulata		seaside bittercress	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Brassicaceae	Cardamine breweri var. orbicularis		Sierra bittercress	Nat	Wide	Forb	Per	Pres	Unc	Margaret McCarter et al, NPS	2000
Brassicaceae	Cardamine hirsuta		hairy bittercress	Non	Wide	Forb	Ann	Pres	Com	Lynne Johnson & Nancy Eid, NPS	2000
Brassicaceae	Cardamine oligosperma var. oligosperma		little western bittercress	Nat	Wide	Forb	Ann, Bien	Pres	Com	David Ek, NPS	2000
Brassicaceae	Draba verna		spring draba	Nat	Wide	Forb	Ann	Pres	Com	Lindsey Wise, ORBIC	2010
Brassicaceae	Rorippa curvisiliqua		curvepod yellowcress	Nat	Wide	Forb	Ann, Bien	Pres	Rare	David Ek, NPS	2000
Brassicaceae	Rorippa palustris	Rorippa islandica	bog yellowcress	Nat	Wide	Forb	Ann, Bien, Per	Pres	Unc	David Ek, NPS	2000
Brassicaceae	Sisymbrium officinale		hedge mustard	Non	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2010
Brassicaceae	Teesdalia nudicaulis		barestem teesdalia	Non	Wide	Forb	Ann	Pres	Unc	Nancy Eid, NPS	2006
Buxaceae	Buxus sp.		boxwood	Non	Cul	Shr	Per	Rep	Rare	David Ek, NPS	2000
Buxaceae	Pachysandra terminalis		Japanese pachysandra	Non	Wide	Shr	Per	Pres	Unc	David Ek, NPS	2000

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Cabombaceae	Cabomba caroliniana		Carolina fanwort	Non	Wide	Forb	Per	Pres	Com	Lindsey Wise, ORBIC	2010
Callitrichaceae	Callitriche hermaphroditica		northern water- starwort	Nat	Wide	Forb	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Callitrichaceae	Callitriche stagnalis		pond water- starwort	Non	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Campanulaceae	Lobelia cardinalis		cardinalflower	Nat	Disj	Forb	Per	Hist	NA	Consortium of PNW Herbaria	1964
Caprifoliaceae	Lonicera involucrata var. involucrata		twinberry honeysuckle	Nat	Wide	Shr	Per	Pres	Com	Lindsey Wise, ORBIC	2009
Caprifoliaceae	Lonicera periclymenum		European honeysuckle	Non	Wide	Shr	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Caprifoliaceae	Sambucus racemosa var. racemosa		scarlet elderberry	Nat	Wide	Tree, Shr	Per	Pres	Com	David Ek, NPS	2000
Caprifoliaceae	Symphoricarpos albus var. laevigatus		common snowberry	Nat	Wide	Sub, Shr	Per	Pres	Unc	David Ek, NPS	2000
Caprifoliaceae	Weigela sp.		weigela	Non	Wide	Shr	Per	Rep	Rare	David Ek, NPS	2000
Caryophyllaceae	Cardionema ramosissimum	Cardionema ramosissima	sandcarpet	Nat	Wide	Forb	Per	Pres	Rare	Herbarium & field notes	2007
Caryophyllaceae	Cerastium arvense		field chickweed	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Caryophyllaceae	Cerastium fontanum ssp. vulgare	Cerastium vulgatum	big chickweed	Non	Wide	Forb	Bien, Per	Pres	Com	BONAP database	2000
Caryophyllaceae	Cerastium glomeratum	Cerastium viscosum	sticky chickweed	Non	Wide	Forb	Ann	Pres	Com	BONAP database	2000

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Caryophyllaceae	Cerastium semidecandrum		fivestamen chickweed	Non	Wide	Forb	Ann	Pres	Rare	Consortium of PNW Herbaria	2010
Caryophyllaceae	Dianthus armeria		Deptford pink	Non	Wide	Forb	Ann, Bien	Pres	Unc	Lindsey Wise, ORBIC	2010
Caryophyllaceae	Honckenya peploides		seaside sandplant	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Caryophyllaceae	Honckenya peploides ssp. major		seaside sandplant	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Caryophyllaceae	Moenchia erecta		upright chickweed	Non	Wide	Forb	Ann	Pres	Rare	Consortium of PNW Herbaria	2010
Caryophyllaceae	Sagina apetala		annual pearlwort	Non	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009
Caryophyllaceae	Sagina maxima ssp. crassicaulis		stickystem pearlwort	Nat	Wide	Forb	Ann, Bien, Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Caryophyllaceae	Sagina procumbens		procumbent pearlwort	Non	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000
Caryophyllaceae	Scleranthus annuus		German knotgrass	Non	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2010
Caryophyllaceae	Silene gallica		common catchfly	Non	Wide	Forb	Ann, Bien	Pres	Unc	Lindsey Wise, ORBIC	2010
Caryophyllaceae	Spergula arvensis	Spergularia arvensis ssp. arvensis	pickpurse	Non	Wide	Forb	Ann	Pres	Unc	David Ek, NPS	2000
Caryophyllaceae	Spergularia rubra		red sandspurry	Non	Wide	Forb	Ann, Per	Pres	Unc	Lindsey Wise, ORBIC	2009

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Caryophyllaceae	Stellaria calycantha		northern starwort	Nat	Wide	Forb	Ann, Per	Pres	Unc	Jimmy Kagan, ORBIC	2009
Caryophyllaceae	Stellaria crispa		crisp starwort	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Caryophyllaceae	Stellaria humifusa		saltmarsh starwort	Nat	Wide	Forb	Ann	Pres	Unc	Herbarium & field notes	2008
Caryophyllaceae	Stellaria longipes var. longipes		longstalk starwort	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Caryophyllaceae	Stellaria media		chickweed	Non	Wide	Forb	Ann, Per	Pres	Com	David Ek, NPS	2000
Ceratophyllaceae	Ceratophyllum demersum		coon's tail	Nat	Wide	Forb	Per	Pres	Com	Lindsey Wise, ORBIC	2009
Chenopodiaceae	Atriplex prostrata		hastate orache	Nat	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009
Chenopodiaceae	Chenopodium album		lambsquarters goosefoot	Non	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009
Chenopodiaceae	Salicornia virginica		Virginia glasswort	Nat	Wide	Forb, Sub	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Clusiaceae	Hypericum anagalloides		creeping St. Johnswort	Nat	Wide	Forb	Ann, Per	Pres	Rare	David Ek, NPS	2000
Clusiaceae	Hypericum androsaemum		sweet-amber	Non	Wide	Shr	Per	Pres	Rare	Lindsey Wise, ORBIC	2010
Clusiaceae	Hypericum perforatum		St. Johnswort	Non	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000
Clusiaceae	Hypericum scouleri ssp. scouleri	Hypericum formosum var. scouleri	Scouler St. Johnswort	Nat	Wide	Forb	Per	Pres	Unc	Lynne Johnson & Nancy Eid, NPS	2000
Convolvulaceae	Calystegia sepium ssp. sepium	Convolvulus sepium	hedge false bindweed	Non	Wide	Vine, Forb	Per	Pres	Unc	BONAP database	2000

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Convolvulaceae	Calystegia soldanella		seashore morning-glory	Nat	Wide	Vine, Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Cornaceae	Cornus sericea		redosier dogwood	Nat	Wide	Tree, Shr	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Crassulaceae	Crassula tillaea		moss pygmyweed	Non	Reg	Forb	Ann	Pres	Rare	Peter F. Zika, UW	2003
Crassulaceae	Sedum oreganum		Oregon stonecrop	Nat	Reg	Forb	Per	Pres	Com	Lindsey Wise, ORBIC	2009
Cucurbitaceae	Marah oreganus		coastal manroot	Nat	Wide	Vine, Forb	Per	Pres	Unc	Herbarium & field notes	2007
Cupressaceae	Chamaecyparis Iawsoniana		Oregon cedar	Non	Wide	Tree	Per	Pres	Unc	David Ek, NPS	2000
Cupressaceae	Thuja plicata		western red cedar	Nat	Wide	Tree	Per	Pres	Com	David Ek, NPS	2000
Cyperaceae	Carex brevicaulis		shortstem sedge	Nat	Wide	Gram	Per	Pres	Rare	Consortium of PNW Herbaria	2010
Cyperaceae	Carex deweyana		Dewey sedge	Nat	Wide	Gram	Per	Pres	Unc	David Ek, NPS	2000
Cyperaceae	Carex kobomugi		Japanese sedge	Non	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Cyperaceae	Carex leptopoda		shortscale sedge	Nat	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Cyperaceae	Carex lyngbyei		Lyngbye's sedge	Nat	Reg	Gram	Per	Pres	Com	David Ek, NPS	2000
Cyperaceae	Carex macrocephala		big-head ed sedge	Nat	Reg	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Cyperaceae	Carex obnupta		slough sedge	Nat	Reg	Gram	Per	Pres	Abun	David Ek, NPS	2000

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Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Cyperaceae	Carex pansa		sanddune sedge	Nat	Reg	Gram	Per	Pres	Unc	Herbarium & field notes	2007
Cyperaceae	Carex stipata		owlfruit sedge	Nat	Wide	Gram	Per	Pres	Unc	David Ek, NPS	2000
Cyperaceae	Carex stipata var. stipata		owlfruit sedge	Nat	Wide	Gram	Per	Pres	Unc	Consortium of PNW Herbaria	2010
Cyperaceae	Eleocharis ovata		ovate spikerush	Nat	Wide	Gram	Ann	Pres	Unc	David Ek, NPS	2000
Cyperaceae	Eleocharis palustris		spikesedge	Nat	Wide	Gram	Per	Pres	Com	David Ek, NPS	2000
Cyperaceae	Eleocharis parvula	Eleocharis parvula var. parvula	dwarf spikesedge	Nat	Wide	Gram	Ann, Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Cyperaceae	Isolepis cernua	Scirpus cernuus	low bulrush	Nat	Wide	Gram	Ann	Pres	Com	Lynne Johnson & Nancy Eid, NPS	2000
Cyperaceae	Schoenoplectus acutus var. occidentalis	Scirpus acutus var. occidentalis	tule	Nat	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Cyperaceae	Schoenoplectus americanus	Scirpus americanus	American bulrush	Nat	Wide	Gram	Per	Pres	Unc	Herbarium & field notes	2007
Cyperaceae	Schoenoplectus tabernaemontani	Scirpus validus, Scirpus tabernaemontani	soft-stem bulrush	Nat	Wide	Gram	Per	Pres	Com	BONAP database	2000
Cyperaceae	Scirpus microcarpus		panicled bulrush	Nat	Wide	Gram	Per	Pres	Com	David Ek, NPS	2000
Dennstaedti- aceae	Pteridium aquilinum		northern bracken fern	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Dipsacaceae	Dipsacus fullonum ssp. sylvestris	Dipsacus sylvestris	common teasel	Non	Wide	Forb	Bien	Pres	Com	Lindsey Wise, ORBIC	2009

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Dryopteridaceae	Athyrium filix- femina		common ladyfern	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Dryopteridaceae	Dryopteris expansa		spreading woodfern	Nat	Wide	Forb	Per	Pres	Unc	Nancy Eid. David Ek, NPS	2000
Dryopteridaceae	Polystichum munitum		western swordfern	Nat	Wide	Forb	Per	Pres	Abun	David Ek, NPS	2000
Equisetaceae	Equisetum arvense		western horsetail	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Equisetaceae	Equisetum hyemale	Equisetum hyemale var. pseudohyemale	western scouringrush	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Equisetaceae	Equisetum telmateia ssp. braunii		giant horsetail	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Ericaceae	Arctostaphylos uva- ursi		bearberry	Nat	Wide	Sub, Shr	Per	Pres	Com	David Ek, NPS	2000
Ericaceae	Gaultheria shallon		salal	Nat	Reg	Sub, Shr	Per	Pres	Abun	David Ek, NPS	2000
Ericaceae	Menziesia ferruginea		rusty menziesia	Nat	Wide	Shr	Per	Pres	Unc	David Ek, NPS	2000
Ericaceae	Rhododendron macrophyllum		Pacific rhododendron	Nat	Wide	Tree, Shr	Per	Pres	Unc	BONAP database	2000
Ericaceae	Rhododendron occidentale		western azalea	Nat	Reg	Shr	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Ericaceae	Vaccinium ovalifolium		oval-leaf huckleberry	Nat	Wide	Shr	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Ericaceae	Vaccinium ovatum		California huckleberry	Nat	Wide	Sub, Shr	Per	Pres	Com	David Ek, NPS	2000
Ericaceae	Vaccinium parvifolium		red huckleberry	Nat	Wide	Shr	Per	Pres	Com	David Ek, NPS	2000
Euphorbiaceae	Chamaesyce maculata		spotted sandmat	Non	Wide	Forb	Ann	Pres	Com	Lindsey Wise, ORBIC	2009

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Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Fabaceae	Cytisus scoparius		English broom	Non	Wide	Shr	Per	Pres	Unc	David Ek, NPS	2000
Fabaceae	Lathyrus japonicus		beach pea	Nat	Wide	Vine, Forb	Per	Pres	Abun	Herbarium & field notes	2007
Fabaceae	Lathyrus latifolius		everlasting peavine	Non	Wide	Vine, Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Fabaceae	Lathyrus littoralis		silky beach pea	Nat	Reg	Vine, Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Fabaceae	Lathyrus palustris		marsh pea	Nat	Wide	Vine, Forb	Per	Pres	Unc	David Ek, NPS	2000
Fabaceae	Lotus corniculatus		bird's-foot-trefoil	Non	Wide	Forb	Per	Pres	Com	Lindsey Wise, ORBIC	2009
Fabaceae	Lotus denticulatus		riverbar bird's-foot trefoil	Nat	Wide	Forb	Ann	Pres	Rare	Consortium of PNW Herbaria	2010
Fabaceae	Lotus pedunculatus	Lotus uliginosus	big trefoil	Non	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Fabaceae	Lotus unifoliolatus var. unifoliolatus	Lotus purshianus	American bird's- foot-trefoil	Nat	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2010
Fabaceae	Lupinus arboreus		yellow bush lupine	Non	Wide	Sub, Shr	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Fabaceae	Lupinus latifolius var. latifolius		broad-leaved lupine	Nat	Reg	Forb	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Fabaceae	Lupinus littoralis		seashore lupine	Nat	Reg	Sub, Forb	Per	Pres	Com	Herbarium & field notes	2007
Fabaceae	Medicago lupulina		black medic	Non	Wide	Forb	Ann, Per	Pres	Com	Lindsey Wise, ORBIC	2009

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Fabaceae	Melilotus alba		white sweetclover	Non	Wide	Forb	Ann, Bien, Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Fabaceae	Robinia pseudoacacia		black locust	Non	Wide	Tree	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Fabaceae	Trifolium arvense		rabbitfoot clover	Non	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2010
Fabaceae	Trifolium dubium		hop clover	Non	Wide	Forb	Ann	Pres	Com	David Ek, NPS	2000
Fabaceae	Trifolium hybridum		alsike clover	Non	Wide	Forb	Ann, Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Fabaceae	Trifolium pratense		red clover	Non	Wide	Forb	Bien, Per	Pres	Rare	Herbarium & field notes	2007
Fabaceae	Trifolium repens		Dutch clover	Non	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Fabaceae	Trifolium subterraneum		subterranean clover	Non	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009
Fabaceae	Trifolium wormskjoldii		cow clover	Nat	Wide	Forb	Ann, Per	Pres	Unc	David Ek, NPS	2000
Fabaceae	Ulex europaeus		gorse	Non	Wide	Shr	Per	Hist	NA	Netul Landing Plant List, NPS	2001
Fabaceae	Vicia americana ssp. americana		American vetch	Nat	Wide	Forb, Vine	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Fabaceae	Vicia hirsuta		tiny vetch	Non	Wide	Forb	Ann	Pres	Com	Lindsey Wise, ORBIC	2010
Fabaceae	Vicia nigricans ssp. gigantea	Vicia gigantea	giant vetch	Nat	Wide	Vine, Forb	Per	Pres	Unc	BONAP database	2000
Fabaceae	Vicia sativa ssp. nigra	Vicia sativa var. angustifolia	common vetch	Non	Wide	Vine, Forb	Ann	Pres	Com	BONAP database	2000

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Fabaceae	Vicia tetrasperma		lentil vetch	Non	Wide	Vine, Forb	Ann	Pres	Com	Lynne Johnson & Nancy Eid, NPS	2007
Fumariaceae	Corydalis scouleri		Scouler's fumewort	Nat	Reg	Forb	Per	Pres	Unc	Herbarium & field notes	2007
Fumariaceae	Dicentra formosa		Pacific bleeding heart	Nat	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000
Gentianaceae	Centaurium erythraea		European centaury	Non	Wide	Forb	Ann, Bien	Pres	Unc	Lindsey Wise, ORBIC	2009
Geraniaceae	Erodium cicutarium		redstem stork's bill	Non	Wide	Forb	Ann, Bien	Pres	Unc	Lindsey Wise, ORBIC	2010
Geraniaceae	Geranium dissectum		cutleaf geranium	Non	Wide	Forb	Ann, Bien	Pres	Unc	Lindsey Wise, ORBIC	2009
Geraniaceae	Geranium molle		dovefoot geranium	Non	Wide	Forb	Ann, Bien, Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Geraniaceae	Geranium robertianum		herb robert	Non	Wide	Forb	Ann, Bien	Pres	Rare	Lindsey Wise, ORBIC	2009
Grossulariaceae	Escallonia rubra		redclaws	Non	Reg	Shr	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Grossulariaceae	Ribes bracteosum		stink currant	Nat	Wide	Shr	Per	Pres	Com	David Ek, NPS	2000
Grossulariaceae	Ribes divaricatum var. divaricatum		spreading gooseberry	Nat	Wide	Shr	Per	Pres	Unc	David Ek, NPS	2000
Grossulariaceae	Ribes lacustre		prickly currant	Nat	Wide	Shr	Per	Pres	Unc	David Ek, NPS	2000
Grossulariaceae	Ribes laxiflorum		trailing black currant	Nat	Wide	Vine, Shr	Per	Pres	Unc	David Ek, NPS	2000
Grossulariaceae	Ribes sanguineum		redflower currant	Nat	Wide	Shr	Per	Pres	Unc	Lindsey Wise, ORBIC	2009

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Haloragaceae	Myriophyllum aquaticum	Myriophyllum brasiliense	parrot's-feather	Non	Wide	Forb	Per	Pres	Com	BONAP database	2000
Haloragaceae	Myriophyllum hippuroides		western watermilfoil	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Hippuridaceae	Hippuris vulgaris		marestail	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Hydrangeaceae	Deutzia scabra		fuzzy pride-of- Rochester	Non	Wide	Shr	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Hydrocharitaceae	Egeria densa		Brazilian waterweed	Non	Wide	Forb	Per	Pres	Rare	Lindsey Wise, ORBIC	2010
Hydrocharitaceae	Elodea canadensis		broad waterweed	Nat	Wide	Forb	Per	Pres	Com	Lindsey Wise, ORBIC	2009
Hydrocharitaceae	Vallisneria americana		American eelgrass	Non	Wide	Forb	Per	Pres	Com	Lindsey Wise, ORBIC	2009
Hydrophyllaceae	Hydrophyllum tenuipes		Pacific waterleaf	Nat	Reg	Forb	Per	Pres	Unc	Herbarium & field notes	2007
Hydrophyllaceae	Phacelia nemoralis		shade phacelia	Nat	Reg	Forb	Bien, Per	Pres	Unc	Herbarium & field notes	2007
Hydrophyllaceae	Romanzoffia tracyi		Tracy's mist maiden	Nat	Reg	Forb	Per	Pres	Rare	Consortium of PNW Herbaria	2010
Iridaceae	Crocosmia X crocosmiiflora		montbretia	Non	Wide	Forb	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Iridaceae	Iris pseudacorus		paleyellow iris	Non	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Iridaceae	Sisyrinchium californicum		golden blue-eyed grass	Nat	Wide	Forb	Per	Pres	Rare	Lynne Johnson & Nancy Eid, NPS	2000
Iridaceae	Sisyrinchium idahoense var. occidentale		ldaho blue-eyed grass	Nat	Wide	Forb	Per	Pres	Rare	Nancy Eid	2000
Juncaceae	Juncus acuminatus		sharp-fruit rush	Nat	Wide	Gram	Per	Pres	Com	David Ek, NPS	2000
Juncaceae	Juncus articulatus		jointed rush	Nat	Wide	Gram	Per	Pres	Unc	Lynne Johnson & Nancy Eid, NPS	2000
Juncaceae	Juncus balticus var. balticus	Juncus arcticus ssp. littoralis	Baltic rush	Nat	Wide	Gram	Per	Pres	Rare	Lynne Johnson & Nancy Eid, NPS	2000
Juncaceae	Juncus breweri		Brewer's rush	Nat	Reg	Gram	Per	Pres	Rare	Consortium of PNW Herbaria	2010
Juncaceae	Juncus bufonius		toad rush	Non	Wide	Gram	Ann	Pres	Com	Lindsey Wise, ORBIC	2009
Juncaceae	Juncus effusus var. effusus		common rush	Non	Wide	Gram	Per	Pres	Com	Lynne Johnson & Nancy Eid, NPS	2000
Juncaceae	Juncus effusus var. pacificus		Pacific rush	Nat	Wide	Gram	Per	Pres	Com	Lynne Johnson & Nancy Eid, NPS	2000
Juncaceae	Juncus ensifolius		swordleaf rush	Nat	Wide	Gram	Per	Pres	Unc	David Ek, NPS	2000

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Juncaceae	Juncus hesperius		three-stamened rush	Nat	Reg	Gram	Per	Pres	Unc	Lynne Johnson & Nancy Eid, NPS	2000
Juncaceae	Juncus lesueurii		salt rush	Nat	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Juncaceae	Juncus nevadensis var. inventus		Sierra rush	Nat	Loc	Gram	Per	Pres	Rare	Consortium of Pacific Northwest Herbaria	2010
Juncaceae	Juncus oxymeris		pointed rush	Nat	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Juncaceae	Juncus supiniformis		hairyleaf rush	Nat	Reg	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Juncaceae	Juncus tenuis		path rush	Nat	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Juncaceae	Luzula comosa		Pacific woodrush	Nat	Wide	Gram	Per	Pres	Unc	Lynne Johnson & Nancy Eid, NPS	2000
Juncaceae	Luzula parviflora		smallflower woodrush	Nat	Wide	Gram	Per	Pres	Unc	David Ek, NPS	2000
Juncaginaceae	Lilaea scilloides		awl-leaf lilaea	Nat	Wide	Gram	Ann	Pres	Rare	Herbarium & field notes	2001
Juncaginaceae	Triglochin maritima		seaside arrowgrass	Nat	Wide	Gram	Per	Pres	Com	Lindsey Wise, ORBIC	2010
Juncaginaceae	Triglochin striata		three-rib arrowgrass	Nat	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Lamiaceae	Glechoma hederacea		creeping charlie	Non	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Lamiaceae	Lamium purpureum		purple deadnettle	Non	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009
Lamiaceae	Lycopus americanus		water horehound	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Lamiaceae	Mentha aquatica	Mentha citrata	water mint	Non	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000
Lamiaceae	Mentha arvensis	Mentha arvensis var. glabrata	field mint	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Lamiaceae	Mentha pulegium		pennyroyal	Non	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Lamiaceae	Mentha X piperita		peppermint	Non	Wide	Forb	Per	Pres	Unc	Lynne Johnson & Nancy Eid, NPS	2000
Lamiaceae	Prunella vulgaris ssp. lanceolata		lance selfheal	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Lamiaceae	Prunella vulgaris ssp. vulgaris		common selfheal	Non	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Lamiaceae	Stachys mexicana		Mexican hedgenettle	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Lemnaceae	Lemna minor		common duckweed	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Lemnaceae	Spirodela polyrhiza		giant duckweed	Nat	Wide	Forb	Per	Pres	Unc	Herbarium & field notes	2000
Liliaceae	Hyacinthoides nonscripta	Scilla nonscripta	English bluebell	Non	Wide	Forb	Per	Pres	Unc	BONAP database	2000
Liliaceae	Maianthemum dilatatum		false lily of the vally	Nat	Wide	Forb	Per	Pres	Abun	David Ek, NPS	2000
Liliaceae	Maianthemum racemosum		feathery false lily of the vally	Nat	Wide	Forb	Per	Pres	Unc	Herbarium & field notes	2000
Liliaceae	Narcissus sp.		daffodil	Non	Wide	Forb	Per	Pres	Unc	Herbarium & field notes	2007

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Liliaceae	Prosartes smithii	Disporum smithii	largeflower fairybells	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Liliaceae	Streptopus amplexifolius		clasping twistedstalk	Nat	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000
Liliaceae	Trillium ovatum		Pacific trillium	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Lycopodiaceae	Lycopodium clavatum		common club moss	Nat	Wide	Forb, Sub	Per	Pres	Rare	Herbarium & field notes	2000
Lythraceae	Lythrum hyssopifolia		hyssop loosestrife	Non	Wide	Forb	Ann	Pres	Rare	Lindsey Wise, ORBIC	2010
Lythraceae	Lythrum portula		spatulaleaf loosestrife	Non	Wide	Forb	Ann	Pres	Unc	Herbarium & field notes	2007
Lythraceae	Lythrum salicaria		purple loosestrife	Non	Wide	Forb, Sub	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Malvaceae	Sidalcea hendersonii		Henderson's checkerbloom	Nat	Loc	Forb	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Monotropaceae	Monotropa uniflora		Indian pipe	Nat	Wide	Forb	Per	Pres	Rare	Lindsey Wise, ORBIC	2010
Myricaceae	Morella californica	Myrica californica	California wax myrtle	Nat	Wide	Tree, Shr	Per	Pres	Unc	Herbarium & field notes	2007
Najadaceae	Najas flexilis		nodding waternymph	Nat	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009
Nyctaginaceae	Abronia latifolia		coastal sand verbena	Nat	Loc	Forb	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Nymphaeaceae	Nuphar lutea ssp. polysepala		Rocky Mountain cowlily	Nat	Wide	Forb	Per	Pres	Com	Lindsey Wise, ORBIC	2009
Nymphaeaceae	Nymphaea odorata		white waterlily	Non	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Onagraceae	Chamerion angustifolium		fireweed	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Onagraceae	Epilobium ciliatum ssp. glandulosum		fringed willowherb	Nat	Wide	Forb	Per	Pres	Unc	Herbarium & field notes	2007
Onagraceae	Epilobium minutum		chaparral willowherb	Nat	Wide	Forb	Ann	Pres	Rare	Herbarium & field notes	2007
Onagraceae	Fuchsia magellanica		hardy fuchsia	Non	Reg	Shr, Vine	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Onagraceae	Ludwigia palustris	Ludwigia palustris var. pacifica	marsh seedbox	Nat	Wide	Forb	Per	Pres	Com	Lindsey Wise, ORBIC	2009
Onagraceae	Oenothera glazioviana	Oenothera erythrosepala	redsepal evening- primrose	Non	Wide	Forb	Bien	Pres	Unc	Lindsey Wise, ORBIC	2009
Ophioglossaceae	Botrychium multifidum		leathery grapefern	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Orchidaceae	Goodyera oblongifolia		rattlesnake plantain	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Orchidaceae	Spiranthes romanzoffiana		hooded lady's tresses	Nat	Wide	Forb	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Oxalidaceae	Oxalis oregana		redwood-sorrel	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Oxalidaceae	Oxalis trilliifolia		threeleaf woodsorrel	Nat	Wide	Forb	Per	Pres	Unc	Herbarium & field notes	2007
Papaveraceae	Eschscholzia californica		California goldenpoppy	Nat	Wide	Forb	Ann, Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Pinaceae	Abies grandis		silver fir	Nat	Wide	Tree	Per	Pres	Unc	David Ek, NPS	2000
Pinaceae	Abies procera		noble fir	Nat	Reg	Tree	Per	Pres	Rare	David Ek, NPS	2000

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Pinaceae	Cedrus libani		cedar of Lebanon	Non	Loc	Tree	Per	Rep	Rare	David Ek, NPS	2000
Pinaceae	Picea sitchensis		coast spruce	Nat	Wide	Tree	Per	Pres	Com	David Ek, NPS	2000
Pinaceae	Pinus contorta var. contorta		beach pine	Nat	Wide	Tree	Per	Pres	Unc	David Ek, NPS	2000
Pinaceae	Pinus nigra		australian pine	Non	Wide	Tree	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Pinaceae	Pinus pinaster		cluster pine	Non	Cul	Tree	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Pinaceae	Pinus sylvestris		Scots pine	Non	Cul	Tree	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Pinaceae	Pseudotsuga menziesii		Douglas fir	Nat	Wide	Tree	Per	Pres	Unc	David Ek, NPS	2000
Pinaceae	Tsuga heterophylla		pacific hemlock	Nat	Wide	Tree	Per	Pres	Abun	David Ek, NPS	2000
Plantaginaceae	Plantago coronopus		buckhorn plantain	Non	Wide	Forb	Ann, Bien	Pres	Com	Lindsey Wise, ORBIC	2009
Plantaginaceae	Plantago elongata		prairie plantain	Nat	Wide	Forb	Ann	Pres	Rare	Consortium of Pacific Northwest Herbaria	2010
Plantaginaceae	Plantago lanceolata		ribwort	Non	Wide	Forb	Ann, Bien, Per	Pres	Com	David Ek, NPS	2000
Plantaginaceae	Plantago major	Plantago major var. pachyphylla	rippleseed plantain	Non	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Plantaginaceae	Plantago psyllium		sand plantain	Non	Wide	Forb	Ann	Pres	Rare	Consortium of Pacific Northwest Herbaria	2010

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Plantaginaceae	Plantago subnuda		tall coastal plantain	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Plumbaginaceae	Armeria maritima ssp. californica		California seapink	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Poaceae	Agrostis capillaris		colonial bentgrass	Non	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Poaceae	Agrostis exarata		spike bentgrass	Nat	Wide	Gram	Per	Pres	Com	Lindsey Wise, ORBIC	2009
Poaceae	Agrostis pallens		seashore bentgrass	Nat	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Poaceae	Agrostis scabra		rough bent	Nat	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Poaceae	Agrostis stolonifera	Agrostis alba var. palustris, Agrostis stolonifera var. palustris	spreading bent	Non	Wide	Gram	Per	Pres	Com	BONAP database	2000
Poaceae	Aira praecox		yellow hairgrass	Non	Wide	Gram	Ann	Pres	Com	Lindsey Wise, ORBIC	2009
Poaceae	Alopecurus geniculatus		marsh meadow- foxtail	Nat	Wide	Gram	Per	Pres	Com	David Ek, NPS	2000
Poaceae	Alopecurus pratensis		field meadow- foxtail	Non	Wide	Gram	Per	Pres	Com	David Ek, NPS	2000
Poaceae	Ammophila arenaria		European beachgrass	Non	Wide	Gram	Per	Pres	Abun	Lindsey Wise, ORBIC	2009
Poaceae	Ammophila breviligulata		American beachgrass	Non	Wide	Gram	Per	Pres	Abun	Lindsey Wise, ORBIC	2009
Poaceae	Anthoxanthum odoratum		sweet vernalgrass	Non	Wide	Gram	Per	Pres	Unc	David Ek, NPS	2000

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Poaceae	Bromus carinatus		California brome	Nat	Wide	Gram	Ann, Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Poaceae	Bromus diandrus	Bromus rigidus	ripgut brome	Non	Wide	Gram	Ann, Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Poaceae	Bromus hordeaceus ssp. hordeaceus	Bromus mollis	downy brome	Non	Wide	Gram	Ann	Pres	Com	BONAP database	2000
Poaceae	Bromus sitchensis var. sitchensis		Sitka brome	Nat	Wide	Gram	Per	Pres	Com	Lindsey Wise, ORBIC	2009
Poaceae	Bromus sterilis		poverty brome	Non	Wide	Gram	Ann	Pres	Unc	Lindsey Wise, ORBIC	2010
Poaceae	Cynosurus echinatus		bristly dogstail grass	Non	Wide	Gram	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009
Poaceae	Dactylis glomerata		cocksfoot	Non	Wide	Gram	Per	Pres	Com	David Ek, NPS	2000
Poaceae	Danthonia californica		California oatgrass	Nat	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Poaceae	Deschampsia caespitosa	Deschampsia caespitosa var. arctica, D. caespitosa var. longiflora	tufted hairgrass	Nat	Wide	Gram	Per	Pres	Com	David Ek, NPS	2000
Poaceae	Deschampsia elongata	Aira elongata	slender hairgrass	Nat	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Poaceae	Digitaria sanguinalis		hairy crab grass	Non	Wide	Gram	Ann	Pres	Com	Lindsey Wise, ORBIC	2009
Poaceae	Echinochloa crus- galli		Japanese millet	Non	Wide	Gram	Ann	Pres	Unc	David Ek, NPS	2000

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Poaceae	Elymus repens	Elytrigia repens	quackgrass	Non	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Poaceae	Festuca rubra		red fescue	Nat	Wide	Gram	Per	Pres	Unc	David Ek, NPS	2000
Poaceae	Glyceria grandis		American mannagrass	Nat	Wide	Gram	Per	Pres	Rare	Lynne Johnson & Nancy Eid, NPS	2000
Poaceae	Glyceria leptostachya		davy mannagrass	Nat	Reg	Gram	Per	Pres	Unc	Herbarium & field notes	2007
Poaceae	Holcus lanatus		common velvetgrass	Non	Wide	Gram	Per	Pres	Com	David Ek, NPS	2000
Poaceae	Leymus mollis ssp. mollis		American dunegrass	Nat	Wide	Gram	Per	Pres	Abun	Lindsey Wise, ORBIC	2009
Poaceae	Lolium perenne		perennial	Non	Wide	Gram	Per	Pres	Com	Lindsey Wise, ORBIC	2009
Poaceae	Lolium perenne ssp. multiflorum	Lolium multiflorum	Italian ryegrass	Non	Wide	Gram	Ann, Per	Pres	Com	BONAP database	2000
Poaceae	Phalaris arundinacea		reed canary grass	Non	Wide	Gram	Per	Pres	Com	David Ek, NPS	2000
Poaceae	Poa annua		walkgrass	Non	Wide	Gram	Ann	Pres	Com	Lindsey Wise, ORBIC	2009
Poaceae	Poa bulbosa		bulbous bluegrass	Non	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Poaceae	Poa compressa		Canada bluegrass	Non	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Poaceae	Poa howellii		Howell's bluegrass	Non	Wide	Gram	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009

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Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Poaceae	Poa macrantha		seashore bluegrass	Nat	Reg	Gram	Per	Pres	Rare	Consortium of Pacific Northwest Herbaria	2010
Poaceae	Poa pratensis		Kentucky bluegrass	Nat	Wide	Gram	Per	Pres	Com	David Ek, NPS	2000
Poaceae	Poa trivialis		rough bluegrass	Non	Wide	Gram	Per	Pres	Rare	David Ek, NPS	2000
Poaceae	Poa unilateralis		ocean-bluff bluegrass	Nat	Reg	Gram	Per	Pres	Rare	Sayce & Eid, NPS	2004
Poaceae	Polypogon monspeliensis		annual rabbitsfoot grass	Non	Wide	Gram	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009
Poaceae	Schedonorus arundinaceus	Schedonorus phoenix, Festuca arundinacea	tall fescue	Non	Wide	Gram	Per	Pres	Com	David Ek, NPS	2000
Poaceae	Torreyochloa pallida var. pauciflora	Puccinellia pallida var. pauciflora	pale false mannagrass	Nat	Wide	Gram	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Poaceae	Trisetum canescens	Trisetum cernuum	tall trisetum	Nat	Wide	Gram	Per	Pres	Unc	BONAP database	2009
Poaceae	Triticum aestivum		common wheat	Non	Wide	Gram	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009
Poaceae	Vulpia bromoides	Festuca bromoides	brome fescue	Non	Wide	Gram	Ann	Pres	Unc	Lindsey Wise, ORBIC	2010
Polemoniaceae	Navarretia squarrosa		skunkbush	Nat	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2009
Polygonaceae	Polygonum amphibium var. emersum	Polygonum coccineum; Persicaria amphibia	colored smartweed	Nat	Wide	Forb	Per	Pres	Unc	BONAP database	2000
Polygonaceae	Polygonum aviculare	Polygonum arenastrum	prostrate knotweed	Non	Wide	Forb	Ann, Per	Pres	Unc	Herbarium & field notes	2007

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Polygonaceae	Polygonum cuspidatum	Fallopia japonica	Japanese knotweed	Non	Wide	Forb, Sub	Per	Pres	Rare	Nancy Eid, NPS	2010
Polygonaceae	Polygonum hydropiper		annual smartweed	Non	Wide	Forb	Ann	Pres	Unc	David Ek, NPS	2000
Polygonaceae	Polygonum hydropiperoides		swamp smartweed	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Polygonaceae	Polygonum hydropiperoides hydropiperoides	Polygonum hydropiperoides var. hydropiperoides	waterpepper	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Polygonaceae	Polygonum paronychia		beach knotweed	Nat	Wide	Sub	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Polygonaceae	Polygonum persicaria		ladysthumb smartweed	Non	Wide	Forb	Ann, Per	Pres	Unc	Herbarium & field notes	2007
Polygonaceae	Polygonum polystachyum		Himalayan knotweed	Non	Wide	Forb	Per	Pres	Rare	Cape D Mgt Plan	2004
Polygonaceae	Rumex acetosella		sheep sorrel	Non	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Polygonaceae	Rumex aquaticus var. fenestratus	Rumex occidentalis	western dock	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Polygonaceae	Rumex conglomeratus		clustered dock	Non	Wide	Forb	Per	Pres	Unc	Lynne Johnson & Nancy Eid, NPS	2000
Polygonaceae	Rumex crispus		Curley dock	Non	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Polygonaceae	Rumex maritimus		golden dock	Nat	Wide	Forb	Ann, Bien	Pres	Rare	Consortium of PNW Herbaria	2010
Polygonaceae	Rumex obtusifolius		bitter dock	Non	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Polypodiaceae	Polypodium glycyrrhiza		licorice fern	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000

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Polypodiaceae	Polypodium scouleri		leathery polypody	Nat	Wide	Forb	Per	Pres	Com	Lindsey Wise, ORBIC	2009
Portulacaceae	Claytonia perfoliata	Montia perfoliata	miner's lettuce	Nat	Wide	Forb	Ann, Per	Pres	Unc	Herbarium & field notes	2007
Portulacaceae	Claytonia sibirica		Siberian springbeauty	Nat	Wide	Forb	Ann, Per	Pres	Com	Lynne Johnson & Nancy Eid, NPS	2000
Portulacaceae	Montia fontana		annual water miner's lettuce	Nat	Wide	Forb	Ann	Pres	Rare	Lindsey Wise, ORBIC	2010
Portulacaceae	Montia parvifolia ssp. flagellaris		littleleaf minerslettuce	Nat	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000
Potamogeton- aceae	Potamogeton crispus		curly pondweed	Non	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Potamogeton- aceae	Potamogeton foliosus		leafy pondweed	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Potamogeton- aceae	Potamogeton gramineus		grassy pondweed	Nat	Wide	Forb	Per	Pres	Unc	Lynne Johnson & Nancy Eid, NPS	2000
Potamogeton- aceae	Potamogeton zosteriformis		flat-stem pondweed	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Primulaceae	Lysimachia terrestris		earth loosestrife	Non	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Primulaceae	Samolus valerandi ssp. parviflorus	Samolus parviflorus	water brookweed	Nat	Wide	Forb	Per	Pres	Rare	Herbarium & field notes	2007
Pteridaceae	Adiantum aleuticum		maidenfern	Nat	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000
Pyrolaceae	Moneses uniflora		single delight	Nat	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000

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Ranunculaceae	Ranunculus acris		meadow buttercup	Non	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000
Ranunculaceae	Ranunculus ficaria	Ficaria verna	fig buttercup	Non	Wide	Forb	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Ranunculaceae	Ranunculus flammula		greater creeping spearwort	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Ranunculaceae	Ranunculus repens		creeping buttercup	Non	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Ranunculaceae	Ranunculus sceleratus		celeryleaf buttercup	Nat	Wide	Forb	Ann, Per	Pres	Rare	David Ek, NPS	2000
Ranunculaceae	Ranunculus uncinatus		hooked buttercup	Nat	Wide	Forb	Ann, Per	Pres	Unc	David Ek, NPS	2000
Rhamnaceae	Frangula purshiana	Rhamnus purshiana	cascara buckthorn	Nat	Wide	Tree, Shr	Per	Pres	Unc	BONAP database	2000
Rosaceae	Amelanchier alnifolia		Saskatoon serviceberry	Nat	Wide	Tree, Shr	Per	Pres	Rare	Consortium of PNW Herbaria	2010
Rosaceae	Aphanes microcarpa	Aphanes australis	slender parsley piert	Non	Wide	Forb	Ann	Pres	Rare	Peter F. Zika, UW	2003
Rosaceae	Argentina egedii ssp. egedii	Potentilla anserina ssp. pacifica, Potentilla egedii	Pacific silverweed	Nat	Wide	Forb	Per	Pres	Com	BONAP database	2000
Rosaceae	Aruncus dioicus var. vulgaris	Aruncus dioicus, Aruncus sylvester	bride's feathers	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Rosaceae	Cotoneaster franchetii	-	orange cotoneaster	Non	Reg	Shr	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Rosaceae	Cotoneaster horizontalis		rockspray cotoneaster	Non	Wide	Shr	Per	Pres	Unc	Lindsey Wise, ORBIC	2009

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Rosaceae	Crataegus douglasii		black hawthorn	Nat	Wide	Tree, Shr	Per	Pres	Unc	Jimmy Kagan, ORBIC	2010
Rosaceae	Crataegus monogyna		oneseed hawthorn	Non	Wide	Tree, Shr	Per	Pres	Rare	Herbarium & field notes	2007
Rosaceae	Fragaria chiloensis		beach strawberry	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Rosaceae	Geum macrophyllum var. macrophyllum		large-leaf avens	Nat	Wide	Forb	Per	Pres	Com	Herbarium & field notes	2007
Rosaceae	Malus fusca	Pyrus fusca	Oregon crabapple	Nat	Wide	Tree, Shr	Per	Pres	Com	David Ek, NPS	2000
Rosaceae	Malus pumila	Malus sylvestris, Malus domestica	paradise apple	Non	Wide	Tree	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Rosaceae	Oemleria cerasiformis		Indian plum	Nat	Wide	Tree, Shr	Per	Pres	Unc	David Ek, NPS	2000
Rosaceae	Physocarpus capitatus		Pacific ninebark	Nat	Wide	Shr	Per	Pres	Unc	David Ek, NPS	2000
Rosaceae	Prunus avium		sweet cherry	Non	Wide	Tree	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Rosaceae	Prunus cerasus		sour cherry	Non	Wide	Tree, Shr	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Rosaceae	Prunus domestica		European plum	Non	Wide	Tree	Per	Pres	Unc	Lynne Johnson & Nancy Eid, NPS	2000
Rosaceae	Rosa nutkana		Nootka rose	Nat	Wide	Sub	Per	Pres	Com	David Ek, NPS	2000
Rosaceae	Rubus armeniacus	Rubus discolor, Rubus procerus	Himalaya blackberry	Non	Wide	Sub	Per	Pres	Com	David Ek, NPS	2000
Rosaceae	Rubus laciniatus		cut-leaved blackberry	Non	Wide	Vine, Sub	Per	Pres	Com	David Ek, NPS	2000

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Rosaceae	Rubus parviflorus		thimbleberry	Nat	Wide	Sub	Per	Pres	Unc	David Ek, NPS	2000
Rosaceae	Rubus spectabilis		salmonberry	Nat	Wide	Vine, Sub	Per	Pres	Com	David Ek, NPS	2000
Rosaceae	Rubus ursinus		California blackberry	Nat	Wide	Sub	Per	Pres	Com	David Ek, NPS	2000
Rosaceae	Sorbaria arborea		giant false spiraea	Non	Cul	Shr	Per	Pres	Rare	Lindsey Wise, ORBIC	2009
Rosaceae	Sorbus aucuparia		European mountainash	Non	Wide	Tree, Shr	Per	Pres	Unc	David Ek, NPS	2000
Rosaceae	Spiraea douglasii		rose spirea	Nat	Wide	Shr	Per	Pres	Unc	David Ek, NPS	2000
Rubiaceae	Galium aparine	Galium aparine var. echinospermum	sticky-willy	Nat	Wide	Vine, Forb	Ann	Pres	Com	David Ek, NPS	2000
Rubiaceae	Galium trifidum		small bedstraw	Nat	Wide	Vine, Forb	Per	Pres	Unc	David Ek, NPS	2000
Rubiaceae	Galium trifidum ssp. columbianum	Galium cymosum, Galium trifidum var. pacificum	threepetal bedstraw	Nat	Wide	Vine, Forb	Per	Pres	Com	Lindsey Wise, ORBIC	2009
Rubiaceae	Galium triflorum		fragrant bedstraw	Nat	Wide	Forb, Vine	Per	Pres	Unc	David Ek, NPS	2000
Salicaceae	Populus balsamifera ssp. trichocarpa		balsam poplar	Nat	Wide	Tree	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Salicaceae	Salix alba		golden willow	Non	Wide	Tree	Per	Pres	Unc	Lynne Johnson & Nancy Eid, NPS	2000
Salicaceae	Salix hookeriana		dune willow	Nat	Wide	Tree, Shr	Per	Pres	Com	David Ek, NPS	2000
Salicaceae	Salix lucida ssp. lasiandra	Salix lasiandra	Pacific willow	Nat	Wide	Tree, Shr	Per	Pres	Unc	David Ek, NPS	2000

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Salicaceae	Salix scouleriana		Scouler's willow	Nat	Wide	Tree	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Salicaceae	Salix sitchensis		Sitka willow	Nat	Wide	Tree, Shr	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Saxifragaceae	Boykinia occidentalis	Boykinia elata	coastal brookfoam	Nat	Wide	Forb	Per	Pres	Unc	BONAP database	2000
Saxifragaceae	Chrysosplenium glechomifolium	Chrysosplenium glechomaefolium	Pacific golden saxifrage	Nat	Reg	Forb	Per	Pres	Rare	David Ek, NPS	2000
Saxifragaceae	Heuchera micrantha var. diversifolia		crevice alumroot	Nat	Reg	Forb	Per	Pres	Unc	Herbarium & field notes	2007
Saxifragaceae	Tellima grandiflora		bigflower tellima	Nat	Wide	Forb	Per	Pres	Rare	David Ek, NPS	2000
Saxifragaceae	Tiarella trifoliata		threeleaf foamflower	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Saxifragaceae	Tiarella trifoliata var. trifoliata		threeleaf foamflower	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Saxifragaceae	Tolmiea menziesii		youth on age	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Scrophulariaceae	Castilleja affinis ssp. litoralis		Pacific paintbrush	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Scrophulariaceae	Castilleja ambigua ssp. ambigua		johnny-nip	Nat	Reg	Forb	Ann	Pres	Unc	Herbarium & field notes	2007
Scrophulariaceae	Cymbalaria muralis		Kenilworth ivy	Non	Wide	Forb	Ann	Pres	Rare	Lindsey Wise, ORBIC	2009
Scrophulariaceae	Digitalis purpurea		purple foxglove	Non	Wide	Forb	Bien	Pres	Com	David Ek, NPS	2000
Scrophulariaceae	Mimulus dentatus		coastal monkeyflower	Nat	Wide	Forb	Per	Pres	Unc	Herbarium & field notes	2007

Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Scrophulariaceae	Mimulus guttatus		yellow monkeyflower	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Scrophulariaceae	Parentucellia viscosa		yellow glandweed	Non	Wide	Forb	Ann	Pres	Unc	David Ek, NPS	2000
Scrophulariaceae	Scrophularia californica		California figwort	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Scrophulariaceae	Scrophularia californica ssp. californica		California figwort	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Scrophulariaceae	Triphysaria pusilla	Orthocarpus pusillus	dwarf owl's-clover	Nat	Wide	Forb	Ann	Pres	Unc	David Ek, NPS	2000
Scrophulariaceae	Veronica americana		American speedwell	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Scrophulariaceae	Veronica arvensis		rock speedwell	Non	Wide	Forb	Ann	Pres	Unc	David Ek, NPS	2000
Scrophulariaceae	Veronica scutellata		grass-leaf speedwell	Nat	Wide	Forb	Per	Pres	Unc	Lindsey Wise, ORBIC	2009
Scrophulariaceae	Veronica serpyllifolia ssp. serpyllifolia		thymeleaf speedwell	Non	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Selaginellaceae	Selaginella oregana		Oregon spikemoss	Nat	Wide	Forb	Per	Pres	Unc	Herbarium & field notes	2007
Solanaceae	Solanum dulcamara		woody nightshade	Non	Wide	Sub, Forb, Vine	Per	Pres	Unc	David Ek, NPS	2000
Sparganiaceae	Sparganium angustifolium	Sparganium emersum var. angustifolium	narrow leaf bur reed	Nat	Wide	Forb	Per	Pres	Com	John Christy & Lindsey Wise, ORBIC	2010
Sparganiaceae	Sparganium eurycarpum		broad fruit bur reed	Nat	Wide	Forb	Per	Pres	Unc	Herbarium & field notes	2007

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Family	Species name	Synonyms	Common name	Nat	Range	Life form	Dur	Park stat	Pop size	Source	Year doc
Тахасеае	Taxus brevifolia		Pacific yew	Nat	Wide	Tree	Per	Rep	NA	David Ek, NPS	2000
Thymelaeaceae	Daphne laureola		spurge laurel	Non	Disj	Tree, Shr	Per	Pres	Unc	Lindsey Wise, ORBIC	2010
Typhaceae	Typha angustifolia		narrow-leaf cat-tail	Non	Wide	Forb	Per	Pres	Com	Lynne Johnson & Nancy Eid, NPS	2000
Typhaceae	Typha latifolia		cattail	Nat	Wide	Forb	Per	Pres	Com	David Ek, NPS	2000
Urticaceae	Urtica dioica ssp. gracilis	Urtica dioica var Iyallii	California nettle	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Valerianaceae	Plectritis congesta ssp. brachystemon		shortspur seablush	Nat	Wide	Forb	Ann	Pres	Unc	Lindsey Wise, ORBIC	2010
Valerianaceae	Valerianella locusta		Lewiston cornsalad	Non	Wide	Forb	Ann	Pres	Rare	Lindsey Wise, ORBIC	2010
Violaceae	Viola adunca		early blue violet	Nat	Wide	Forb	Per	Pres	Rare	Carla Cole, LEWI.	2009
Violaceae	Viola glabella		pioneer violet	Nat	Wide	Forb	Per	Pres	Unc	David Ek, NPS	2000
Violaceae	Viola sempervirens		evergreen violet	Nat	Wide	Forb	Per	Pres	Rare	Lynne Johnson & Nancy Eid, NPS	2000
Zannichelliaceae	Zannichellia palustris		horned-pondweed	Nat	Wide	Forb	Per	Pres	Unc	Herbarium & field notes	2007

## Appendix B. Potential (unconfirmed) taxa of Lewis and Clark National Historical Park.

Family	Species name	Synonyms	Common name	Park Status	Comments
Asteraceae	Adenocaulon bicolor		American trailplant	Uncon	Reported from Ft Columbia
Brassicaceae	Capsella bursa-pastoris		shepherd's purse	Uncon	Observed in Fort Stevens
Cyperaceae	Carex aquatilis var. dives	Carex sitchensis	Sitka sedge	Uncon	Reported to be at Cape Disappointment
Fabaceae	Lupinus rivularis		riverbank lupine	Uncon	Collected at Fort Stevens
Fabaceae	Trifolium campestre		Field (Big-hop) clover	Uncon	In BONAP database
Fabaceae	Vicia villosa		winter vetch	Uncon	On 1972 Fort Clatsop species list
Hydrocharitaceae	Myriophyllum subspicatum		Eurasian watermilfoil	Uncon	Reported to be at Cape Disappointment
Hydrophyllaceae	Hydrophyllum occidentale		squaw-lettuce	Uncon	On 1972 Fort Clatsop species list
Onagraceae	Epilobium brachycarpum		autumn willowherb	Uncon	In BONAP database
Ranunculaceae	Ranunculus occidentalis		western buttercup	Uncon	On 1972 Fort Clatsop species list
Rosaceae	Prunus laurocerasus		cherry laurel	Uncon	Collected at Fort Stevens

## Appendix C. Rejected (falsely reported or questionable) taxa of Lewis and Clark National Historical Park.

Family	Species name	Synonyms	Common name	Life form	Comments
Alismataceae	Alisma plantago-aquatica		European water plantain	Forb	mis-ID of Alisma triviale
Caryophyllaceae	Stellaria humifusa		saltmarsh starwort		mis-ID of Stellaria calycantha
Ericaceae	Vaccinium alaskaense		Alaska huckleberry	Shrub	Specimens are actually V. ovalifolium; definition of species has changed.
Juncaceae	Luzula campestris		field woodrush	Gram	Re-alignment of species. Previously noted for Park as L. campestris var. congesta, which is synonymous with L. congesta.
Rosaceae	Prunus subcordata		Klamath plum	Tree	Falsely reported from Fort Clatsop

## Appendix D. Confirmed, historical, and reported taxa of Lewis and Clark National Historical Park, organized by life form with ecological notes

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Aceraceae	Acer circinatum	vine maple	Nat	Tree, Shr, Vine	Pres	Spring			Х		
Aceraceae	Acer macrophyllum	bigleaf maple	Nat	Tree	Pres	Mid Spring			х		
Aceraceae	Acer platanoides	Norway maple	Non	Tree	Pres	Early Spring			х		Х
Alismataceae	Alisma triviale	northern water- plantain	Nat	Forb	Pres	Mid Summer				х	
Alismataceae	Sagittaria latifolia	common arrowhead	Nat	Forb	Pres	Late Spring				х	
Apiaceae	Angelica genuflexa	kneeling angelica	Nat	Forb	Pres	Late Spring				х	
Apiaceae	Angelica lucida	seacoast angelica	Nat	Forb	Pres	Late Spring	х	х			
Apiaceae	Cicuta douglasii	western water hemlock	Nat	Forb	Pres	Late Spring				х	
Apiaceae	Conioselinum gmelinii	Pacific hemlockparsley	Nat	Forb	Pres	May to August	х	х			
Apiaceae	Daucus carota	Queen Anne's lace	Non	Forb	Pres	May to October		х			х
Apiaceae	Heracleum maximum	common cowparsnip	Nat	Forb	Pres	Early Summer		х	х		
Apiaceae	Hydrocotyle ranunculoides	floating marsh pennywort	Nat	Forb	Pres	Early May to Late August				х	
Apiaceae	Lilaeopsis occidentalis	western grasswort	Nat	Forb	Pres	Late Spring				х	
Apiaceae	Oenanthe sarmentosa	water parsely	Nat	Forb	Pres	Summer				х	
Apiaceae	Osmorhiza purpurea	purple sweetroot	Nat	Forb	Pres	Early Spring			х		
Apiaceae	Sium suave	common waterparsnip	Nat	Forb	Pres	Mid Summer				x	
Apocynaceae	Vinca minor	common periwinkle	Non	Vine, Forb	Pres	Early Summer					Х

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Aquifoliaceae	llex aquifolium	English holly	Non	Tree, Shr	Pres	Mid Summer			х		х
Araceae	Lysichiton americanus	American skunkcabbage	Nat	Forb	Pres	Early Spring				x	
Araliaceae	Hedera helix	English ivy	Non	Vine	Pres	Late Spring			х		х
Araucariaceae	Araucaria araucana	monkeypuzzle tree	Non	Tree	Pres	Late Winter					Х
Asteraceae	Achillea millefolium	common yarrow	Nat	Forb	Pres	Early Summer		х			х
Asteraceae	Anaphalis margaritacea	common pearleverlasting	Nat	Forb	Pres	Early Summer		х			
Asteraceae	Anthemis cotula	chamomile	Non	Forb	Pres	Summer					Х
Asteraceae	Artemisia suksdorfii	coastal wormwood	Nat	Forb	Pres	Summer	х	х			
Asteraceae	Baccharis pilularis	coyotebrush	Nat	Sub, Shr	Pres	Late Summer		х	х		
Asteraceae	Bellis perennis	English daisy	Non	Forb	Pres	Late Spring to Mid Fall					х
Asteraceae	Bidens cernua	nodding beggarticks	Nat	Forb	Pres	Late Summer		х			
Asteraceae	Bidens frondosa	devils beggartick	Nat	Forb	Pres	Late Summer		х			х
Asteraceae	Cirsium arvense	Californian thistle	Non	Forb	Pres	All Summer		х	х		Х
Asteraceae	Cirsium brevistylum	clustered thistle	Nat	Forb	Pres	All Summer		х	х	х	
Asteraceae	Cirsium edule	edible thistle	Nat	Forb	Pres	All Summer		х	Х		
Asteraceae	Cirsium vulgare	bull thistle	Non	Forb	Pres	June to September		х	х	х	Х
Asteraceae	Conyza canadensis	Canada horseweed	Nat	Forb	Pres	Indeterminate					х
Asteraceae	Cotula coronopifolia	brassbuttons	Non	Forb	Pres	Early Spring to Late Summer		х			Х
Asteraceae	Crepis capillaris	smooth hawksbeard	Non	Forb	Pres	July to September			X		х
Asteraceae	Erechtites glomerata	Australian fireweed	Non	Forb	Pres	April to October		x	х		

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Asteraceae	Erechtites minima	Australian fireweed	Non	Forb	Pres	Early Summer		х	х		
Asteraceae	Gnaphalium palustre	cudweed	Nat	Forb	Pres	All Summer		х			
Asteraceae	Gnaphalium uliginosum	low cudweed	Non	Forb	Pres	All Year Long		х			х
Asteraceae	Hieracium albiflorum	whiteflower hawkweed	Nat	Forb	Pres	Late Spring			х		
Asteraceae	Hypochaeris glabra	smooth cat's ear	Non	Forb	Pres	Spring and Summer					х
Asteraceae	Hypochaeris radicata	spotted cat's ear	Non	Forb	Pres	All Spring and Summer		х	х		х
Asteraceae	Lapsana communis	common nipplewort	Non	Forb	Pres	Mid Summer			х		
Asteraceae	Leontodon taraxacoides ssp. taraxacoides	lesser hawkbit	Non	Forb	Pres	March to July		х	x		х
Asteraceae	Leucacantha cyanus	Bachelor's button	Non	Forb	Pres	Early Summer to Early Fall					х
Asteraceae	Leucanthemum vulgare	ox-eye daisy	Non	Forb	Pres	Summer		х			х
Asteraceae	Matricaria discoidea	pineapple weed	Non	Forb	Pres	All Spring and All Summer					х
Asteraceae	Mycelis muralis	wall-lettuce	Non	Forb	Pres	Late June to Early July			х		х
Asteraceae	Petasites frigidus var. palmatus	arctic sweet coltsfoot	Nat	Forb	Pres	Late Winter to Mid Spring			х	х	
Asteraceae	Senecio jacobaea	ragwort	Non	Forb	Pres	July to September		х			х
Asteraceae	Senecio sylvaticus	woodland ragwort	Non	Forb	Pres	Late Summer			х		х
Asteraceae	Senecio triangularis	arrowleaf ragwort	Nat	Sub, Forb	Pres	Mid Summer			Х	х	
Asteraceae	Senecio vulgaris	common groundsel	Non	Forb	Pres	Early Spring			Х		х
Asteraceae	Solidago canadensis	Canada goldenrod	Nat	Forb	Pres	Late Summer		х	х		

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Asteraceae	Solidago canadensis ssp. salebrosa	Canada goldenrod	Nat	Forb	Pres	Late Spring to Early Summer		х	x		
Asteraceae	Solidago simplex var. spathulata	Dune goldenrod	Nat	Forb, Sub	Pres	June to September		х			
Asteraceae	Soliva sessilis	field burrweed	Non	Forb	Pres	Spring to Summer			х		х
Asteraceae	Sonchus asper	prickly sowthistle	Non	Forb	Pres	Mid-February to May			х		х
Asteraceae	Sonchus oleraceus	annual sowthistle	Non	Forb	Pres	Mid-February to May					х
Asteraceae	Symphyotrichum subspicatum var. subspicatum	Douglas aster	Nat	Forb	Pres	Late Summer		x	Х		
Asteraceae	Tanacetum camphoratum	dune tansy	Nat	Forb	Pres	June to July		х			
Asteraceae	Taraxacum officinale	dandelion	Non	Forb	Pres	Early Spring		х	х		х
Balsaminaceae	Impatiens capensis	jewelweed	Non	Forb	Pres	Indeterminate			х		
Balsaminaceae	Impatiens ecalcarata	spurless touch- me-not	Nat	Forb	Pres	Late Spring to Fall			Х		
Balsaminaceae	Impatiens x pacifica	Pacific jewelweed	Nat Hybd	Forb	Pres				х		
Berberidaceae	Berberis aquifolium	hollyleaved barberry	Nat	Shr, Sub	Pres	Late Spring			х		
Betulaceae	Alnus rubra	red alder	Nat	Tree	Pres	Early Spring			х	х	
Blechnaceae	Blechnum spicant	deer fern	Nat	Forb	Pres	Spring			Х		
Boraginaceae	Myosotis discolor	changing forget- me-not	Non	Forb	Pres	May to June			Х		
Boraginaceae	Myosotis laxa	bay forget-me-not	Nat	Forb	Pres	May to July			Х	х	
Brassicaceae	Barbarea orthoceras	erectpod wintercress	Nat	Forb	Pres	Mid to Late Spring		х		х	
Brassicaceae	Brassica rapa	turnip rape	Non	Forb	Pres	Late Spring		х			х
Brassicaceae	Cakile edentula	American searocket	Nat	Forb	Pres	All Summer to Fall		х			

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Brassicaceae	Cakile maritima	Eurpoean searocket	Non	Forb	Pres	All Spring and Summer		х			
Brassicaceae	Cardamine angulata	seaside bittercress	Nat	Forb	Pres	Late Spring			х		
Brassicaceae	Cardamine breweri var. orbicularis	Sierra bittercress	Nat	Forb	Pres	Spring				х	
Brassicaceae	Cardamine hirsuta	hairy bittercress	Non	Forb	Pres	Late Winter to Mid Spring			х		х
Brassicaceae	Cardamine oligosperma var. oligosperma	little western bittercress	Nat	Forb	Pres	Early Spring			х		Х
Brassicaceae	Draba verna	spring draba	Nat	Forb	Pres	Early Spring		х	Х		Х
Brassicaceae	Rorippa curvisiliqua	curvepod yellowcress	Nat	Forb	Pres	All Spring and Summer				х	
Brassicaceae	Rorippa palustris	bog yellowcress	Nat	Forb	Pres	May to October				х	
Brassicaceae	Sisymbrium officinale	hedge mustard	Non	Forb	Pres	Summer			х		
Brassicaceae	Teesdalia nudicaulis	barestem teesdalia	Non	Forb	Pres	June and July		х			х
Buxaceae	Buxus sp.	boxwood	Non	Shr	Rep						х
Buxaceae	Pachysandra terminalis	Japanese pachysandra	Non	Shr	Pres	April					Х
Cabombaceae	Cabomba caroliniana	Carolina fanwort	Non	Forb	Pres	Indeterminate				х	
Callitrichaceae	Callitriche hermaphroditica	northern water- starwort	Nat	Forb	Pres	Late Summer				х	
Callitrichaceae	Callitriche stagnalis	pond water- starwort	Non	Forb	Pres	April to November				х	
Campanulaceae	Lobelia cardinalis	cardinalflower	Nat	Forb	Hist	Summer					Х
Caprifoliaceae	Lonicera involucrata var. involucrata	twinberry honeysuckle	Nat	Shr	Pres	Summer			х		
Caprifoliaceae	Lonicera periclymenum	European honeysuckle	Non	Shr	Pres	Summer			х		Х

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Caprifoliaceae	Sambucus racemosa var. racemosa	scarlet elderberry	Nat	Tree, Shr	Pres	Late Winter to Early Spring			х		
Caprifoliaceae	Symphoricarpos albus var. laevigatus	common snowberry	Nat	Sub, Shr	Pres	Early Summer			Х		
Caprifoliaceae	Weigela sp.	weigela	Non	Shr	Rep	Spring					х
Caryophyllaceae	Cardionema ramosissimum	sandcarpet	Nat	Forb	Pres	All Spring and Summer		х			х
Caryophyllaceae	Cerastium arvense	field chickweed	Nat	Forb	Pres	Late Spring to Early Summer	х				
Caryophyllaceae	Cerastium fontanum ssp. vulgare	big chickweed	Non	Forb	Pres	March to July		x			х
Caryophyllaceae	Cerastium glomeratum	sticky chickweed	Non	Forb	Pres	May to June		х			х
Caryophyllaceae	Cerastium semidecandrum	fivestamen chickweed	Non	Forb	Pres	Spring					х
Caryophyllaceae	Dianthus armeria	Deptford pink	Non	Forb	Pres	Summer		х			х
Caryophyllaceae	Honckenya peploides	seaside sandplant	Nat	Forb	Pres	Spring and Summer		х			
Caryophyllaceae	Honckenya peploides ssp. major	seaside sandplant	Nat	Forb	Pres	Spring and Summer		х			
Caryophyllaceae	Moenchia erecta	upright chickweed	Non	Forb	Pres	Spring					х
Caryophyllaceae	Sagina apetala	annual pearlwort	Non	Forb	Pres	July to November		х			
Caryophyllaceae	Sagina maxima ssp. crassicaulis	stickystem pearlwort	Nat	Forb	Pres	April to June		х			
Caryophyllaceae	Sagina procumbens	procumbent pearlwort	Non	Forb	Pres	June to September		х			
Caryophyllaceae	Scleranthus annuus	German knotgrass	Non	Forb	Pres	Spring and Summer		х			х
Caryophyllaceae	Silene gallica	common catchfly	Non	Forb	Pres	Summer	х				Х
Caryophyllaceae	Spergula arvensis	pickpurse	Non	Forb	Pres	June to August		х			х
Caryophyllaceae	Spergularia rubra	red sandspurry	Non	Forb	Pres	All Year Long		х			х

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Caryophyllaceae	Stellaria calycantha	northern starwort	Nat	Forb	Pres	Summer		х			
Caryophyllaceae	Stellaria crispa	crisp starwort	Nat	Forb	Pres	Summer		х	х		
Caryophyllaceae	Stellaria humifusa	saltmarsh starwort	Nat	Forb	Pres	Spring				х	
Caryophyllaceae	Stellaria longipes var. longipes	longstalk starwort	Nat	Forb	Pres	Mid Spring		х			
Caryophyllaceae	Stellaria media	chickweed	Non	Forb	Pres	All Spring and Summer		х			х
Ceratophyllaceae	Ceratophyllum demersum	coon's tail	Nat	Forb	Pres	Summer				х	
Chenopodiaceae	Atriplex prostrata	hastate orache	Nat	Forb	Pres	July to September		х			
Chenopodiaceae	Chenopodium album	lambsquarters goosefoot	Non	Forb	Pres	June to October		х			х
Chenopodiaceae	Salicornia virginica	Virginia glasswort	Nat	Forb, Sub	Pres	Late Spring		х			
Clusiaceae	Hypericum anagalloides	creeping St. Johnswort	Nat	Forb	Pres	Early Summer		х		х	
Clusiaceae	Hypericum androsaemum	sweet-amber	Non	Shr	Pres	Summer					х
Clusiaceae	Hypericum perforatum	St. Johnswort	Non	Forb	Pres	All Summer		х			х
Clusiaceae	Hypericum scouleri ssp. scouleri	Scouler St. Johnswort	Nat	Forb	Pres	June to September				x	
Convolvulaceae	Calystegia sepium ssp. sepium	hedge false bindweed	Non	Vine, Forb	Pres	July to August					х
Convolvulaceae	Calystegia soldanella	seashore morning-glory	Nat	Vine, Forb	Pres	All Spring and Summer		х			
Cornaceae	Cornus sericea	redosier dogwood	Nat	Tree, Shr	Pres	Late Spring and Early Summer			х		
Crassulaceae	Crassula tillaea	moss pygmyweed	Non	Forb	Pres	Summer					х
Crassulaceae	Sedum oreganum	Oregon stonecrop	Nat	Forb	Pres	All Summer			x		
Cucurbitaceae	Marah oreganus	coastal manroot	Nat	Vine, Forb	Pres	All Spring			х		

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Cupressaceae	Chamaecyparis Iawsoniana	Oregon cedar	Non	Tree	Pres	Mid Spring					Х
Cupressaceae	Thuja plicata	western red cedar	Nat	Tree	Pres	Mid Spring			х		
Cyperaceae	Carex brevicaulis	shortstem sedge	Nat	Gram	Pres	Summer		х			
Cyperaceae	Carex deweyana	Dewey sedge	Nat	Gram	Pres	Late Spring			х	х	
Cyperaceae	Carex kobomugi	Japanese sedge	Non	Gram	Pres	April through June		х			
Cyperaceae	Carex leptopoda	shortscale sedge	Nat	Gram	Pres	Spring			х	х	
Cyperaceae	Carex lyngbyei	Lyngbye's sedge	Nat	Gram	Pres	May to August		х		х	
Cyperaceae	Carex macrocephala	big-head ed sedge	Nat	Gram	Pres	Spring		х			
Cyperaceae	Carex obnupta	slough sedge	Nat	Gram	Pres	Mid Spring		х	Х	х	
Cyperaceae	Carex pansa	sanddune sedge	Nat	Gram	Pres	Spring		х			
Cyperaceae	Carex stipata	owlfruit sedge	Nat	Gram	Pres	Mid Spring				х	
Cyperaceae	Carex stipata var. stipata	owlfruit sedge	Nat	Gram	Pres	Mid Spring				х	
Cyperaceae	Eleocharis ovata	ovate spikerush	Nat	Gram	Pres	Late Summer				х	
Cyperaceae	Eleocharis palustris	spikesedge	Nat	Gram	Pres	Late Spring				х	
Cyperaceae	Eleocharis parvula	dwarf spikesedge	Nat	Gram	Pres	Mid Summer				х	
Cyperaceae	Isolepis cernua	low bulrush	Nat	Gram	Pres	Late Spring to Early Fall				x	
Cyperaceae	Schoenoplectus acutus var. occidentalis	tule	Nat	Gram	Pres	May to August				х	
Cyperaceae	Schoenoplectus americanus	American bulrush	Nat	Gram	Pres	April to August				х	
Cyperaceae	Schoenoplectus tabernaemontani	soft-stem bulrush	Nat	Gram	Pres	Late Spring				x	
Cyperaceae	Scirpus microcarpus	panicled bulrush	Nat	Gram	Pres	Late Spring				х	
Dennstaedtiaceae	Pteridium aquilinum	northern bracken fern	Nat	Forb	Pres	Summer			х		
Dipsacaceae	Dipsacus fullonum ssp. sylvestris	common teasel	Non	Forb	Pres	Early Summer to					х
Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
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						Mid Fall					
Dryopteridaceae	Athyrium filix-femina	common ladyfern	Nat	Forb	Pres	Non- flowering			х		
Dryopteridaceae	Dryopteris expansa	spreading woodfern	Nat	Forb	Pres	Non- flowering			х		
Dryopteridaceae	Polystichum munitum	western swordfern	Nat	Forb	Pres	Non- flowering		х	х		
Equisetaceae	Equisetum arvense	western horsetail	Nat	Forb	Pres	Spring			х	х	
Equisetaceae	Equisetum hyemale	western scouringrush	Nat	Forb	Pres	Non- flowering			х		х
Equisetaceae	Equisetum telmateia ssp. braunii	giant horsetail	Nat	Forb	Pres	March to May			Х	х	х
Ericaceae	Arctostaphylos uva- ursi	bearberry	Nat	Sub, Shr	Pres	Late Spring			Х		
Ericaceae	Gaultheria shallon	salal	Nat	Sub, Shr	Pres	Mid Spring		х	х		
Ericaceae	Menziesia ferruginea	rusty menziesia	Nat	Shr	Pres	Early Summer			Х		
Ericaceae	Rhododendron macrophyllum	Pacific rhododendron	Nat	Tree, Shr	Pres	Spring			х		х
Ericaceae	Rhododendron occidentale	western azalea	Nat	Shr	Pres	Late Spring			х		Х
Ericaceae	Vaccinium ovalifolium	oval-leaf huckleberry	Nat	Shr	Pres	Mid Spring			Х		
Ericaceae	Vaccinium ovatum	California huckleberry	Nat	Sub, Shr	Pres	Late Spring		х	х		
Ericaceae	Vaccinium parvifolium	red huckleberry	Nat	Shr	Pres	Spring			Х		
Euphorbiaceae	Chamaesyce maculata	spotted sandmat	Non	Forb	Pres	Mid Summer to Early Fall		х			Х
Fabaceae	Cytisus scoparius	English broom	Non	Shr	Pres	Spring		х			х
Fabaceae	Lathyrus japonicus	beach pea	Nat	Vine, Forb	Pres	Early Spring		х			

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Fabaceae	Lathyrus latifolius	everlasting peavine	Non	Vine, Forb	Pres	All Spring and Summer					х
Fabaceae	Lathyrus littoralis	silky beach pea	Nat	Vine, Forb	Pres	Spring		х			
Fabaceae	Lathyrus palustris	marsh pea	Nat	Vine, Forb	Pres	June to August		х			
Fabaceae	Lotus corniculatus	bird's-foot-trefoil	Non	Forb	Pres	Early Spring		х			х
Fabaceae	Lotus denticulatus	riverbar bird's-foot trefoil	Nat	Forb	Pres	Spring and Summer		х			
Fabaceae	Lotus pedunculatus	big trefoil	Non	Forb	Pres	June to August		х			
Fabaceae	Lotus unifoliolatus var. unifoliolatus	American bird's- foot-trefoil	Nat	Forb	Pres	Spring		х			х
Fabaceae	Lupinus arboreus	yellow bush lupine	Non	Sub, Shr	Pres	Mid Spring		х			
Fabaceae	Lupinus latifolius var. latifolius	broad-leaved lupine	Nat	Forb	Pres	May to August			х		
Fabaceae	Lupinus littoralis	seashore lupine	Nat	Sub, Forb	Pres	Late Spring to Early Summer		х			
Fabaceae	Medicago lupulina	black medic	Non	Forb	Pres	Summer			Х		х
Fabaceae	Melilotus alba	white sweetclover	Non	Forb	Pres	Summer					Х
Fabaceae	Robinia pseudoacacia	black locust	Non	Tree	Pres	Spring		х	Х		х
Fabaceae	Trifolium arvense	rabbitfoot clover	Non	Forb	Pres	Spring to Summer					х
Fabaceae	Trifolium dubium	hop clover	Non	Forb	Pres	All Summer			Х		х
Fabaceae	Trifolium hybridum	alsike clover	Non	Forb	Pres	Late Spring					х
Fabaceae	Trifolium pratense	red clover	Non	Forb	Pres	Late Spring					х
Fabaceae	Trifolium repens	Dutch clover	Non	Forb	Pres	Late Spring					х
Fabaceae	Trifolium subterraneum	subterranean clover	Non	Forb	Pres	Late Winter					х
Fabaceae	Trifolium wormskjoldii	cow clover	Nat	Forb	Pres	Late Spring		х			

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Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Fabaceae	Ulex europaeus	gorse	Non	Shr	Hist	All Spring and Summer		х			х
Fabaceae	Vicia americana ssp. americana	American vetch	Nat	Forb, Vine	Pres	Spring		х			
Fabaceae	Vicia hirsuta	tiny vetch	Non	Forb	Pres	Spring		х			х
Fabaceae	Vicia nigricans ssp. gigantea	giant vetch	Nat	Vine, Forb	Pres	All Spring and Summer		х			
Fabaceae	Vicia sativa ssp. nigra	common vetch	Non	Vine, Forb	Pres	July through September		х	х		
Fabaceae	Vicia tetrasperma	lentil vetch	Non	Vine, Forb	Pres	June to September					х
Fumariaceae	Corydalis scouleri	Scouler's fumewort	Nat	Forb	Pres	Late Spring			х		
Fumariaceae	Dicentra formosa	Pacific bleeding heart	Nat	Forb	Pres	Early Summer			х		
Gentianaceae	Centaurium erythraea	European centaury	Non	Forb	Pres	June to Early September		х			х
Geraniaceae	Erodium cicutarium	redstem stork's bill	Non	Forb	Pres	Summer		х			Х
Geraniaceae	Geranium dissectum	cutleaf geranium	Non	Forb	Pres	All Spring and Summer					х
Geraniaceae	Geranium molle	dovefoot geranium	Non	Forb	Pres	All Spring and Summer					х
Geraniaceae	Geranium robertianum	herb robert	Non	Forb	Pres	All Summer			х		х
Grossulariaceae	Escallonia rubra	redclaws	Non	Shr	Pres	June and July					х
Grossulariaceae	Ribes bracteosum	stink currant	Nat	Shr	Pres	Late Spring to Early Summer			x		
Grossulariaceae	Ribes divaricatum var. divaricatum	spreading gooseberry	Nat	Shr	Pres	Early Spring			x		
Grossulariaceae	Ribes lacustre	prickly currant	Nat	Shr	Pres	Early Spring			х		
Grossulariaceae	Ribes laxiflorum	trailing black currant	Nat	Vine, Shr	Pres	Late Spring to Early Summer			Х		

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Grossulariaceae	Ribes sanguineum	redflower currant	Nat	Shr	Pres	Late Spring			х		
Haloragaceae	Myriophyllum aquaticum	parrot's-feather	Non	Forb	Pres	Mid Summer				х	
Haloragaceae	Myriophyllum hippuroides	western watermilfoil	Nat	Forb	Pres	Mid Summer				х	
Hippuridaceae	Hippuris vulgaris	marestail	Nat	Forb	Pres	Late Spring				х	
Hydrangeaceae	Deutzia scabra	fuzzy pride-of- Rochester	Non	Shr	Pres	Early June					х
Hydrocharitaceae	Egeria densa	Brazilian waterweed	Non	Forb	Pres					х	
Hydrocharitaceae	Elodea canadensis	broad waterweed	Nat	Forb	Pres	Summer				х	
Hydrocharitaceae	Vallisneria americana	American eelgrass	Non	Forb	Pres	Mid Summer				х	
Hydrophyllaceae	Hydrophyllum tenuipes	Pacific waterleaf	Nat	Forb	Pres	Mid Spring to Mid Summer			х		
Hydrophyllaceae	Phacelia nemoralis	shade phacelia	Nat	Forb	Pres	June		х	х		
Hydrophyllaceae	Romanzoffia tracyi	Tracy's mist maiden	Nat	Forb	Pres	Spring	Х				
Iridaceae	Crocosmia X crocosmiiflora	montbretia	Non	Forb	Pres	July to September			х		х
Iridaceae	Iris pseudacorus	paleyellow iris	Non	Forb	Pres	Early Summer		х		х	
Iridaceae	Sisyrinchium californicum	golden blue-eyed grass	Nat	Forb	Pres	Early Summer		х			
Iridaceae	Sisyrinchium idahoense var. occidentale	ldaho blue-eyed grass	Nat	Forb	Pres	Mid Summer		х			
Juncaceae	Juncus acuminatus	sharp-fruit rush	Nat	Gram	Pres	Spring		х		х	
Juncaceae	Juncus articulatus	jointed rush	Nat	Gram	Pres	Early Summer				х	
Juncaceae	Juncus balticus var. balticus	Baltic rush	Nat	Gram	Pres	May to September				x	
Juncaceae	Juncus breweri	Brewer's rush	Nat	Gram	Pres	Spring and Summer		х			
Juncaceae	Juncus bufonius	toad rush	Non	Gram	Pres	Spring		х			х

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Juncaceae	Juncus effusus var. effusus	common rush	Non	Gram	Pres	June to August				х	
Juncaceae	Juncus effusus var. pacificus	Pacific rush	Nat	Gram	Pres	June to August				x	
Juncaceae	Juncus ensifolius	swordleaf rush	Nat	Gram	Pres	Summer				х	
Juncaceae	Juncus hesperius	three-stamened rush	Nat	Gram	Pres	Spring				х	
Juncaceae	Juncus lesueurii	salt rush	Nat	Gram	Pres	May to August		х		х	
Juncaceae	Juncus nevadensis var. inventus	Sierra rush	Nat	Gram	Pres	Summer	x	x		х	
Juncaceae	Juncus oxymeris	pointed rush	Nat	Gram	Pres	June to August				х	
Juncaceae	Juncus supiniformis	hairyleaf rush	Nat	Gram	Pres	Summer				х	
Juncaceae	Juncus tenuis	path rush	Nat	Gram	Pres	Late Spring				х	
Juncaceae	Luzula comosa	Pacific woodrush	Nat	Gram	Pres	February to June			х	х	
Juncaceae	Luzula parviflora	smallflower woodrush	Nat	Gram	Pres	Mid Summer			х		
Juncaginaceae	Lilaea scilloides	awl-leaf lilaea	Nat	Gram	Pres	Mid Spring				х	
Juncaginaceae	Triglochin maritima	seaside arrowgrass	Nat	Gram	Pres	Spring				х	
Juncaginaceae	Triglochin striata	three-rib arrowgrass	Nat	Gram	Pres	Spring				х	
Lamiaceae	Glechoma hederacea	creeping charlie	Non	Forb	Pres	April to July			Х		x
Lamiaceae	Lamium purpureum	purple deadnettle	Non	Forb	Pres	All Spring and Summer		x			x
Lamiaceae	Lycopus americanus	water horehound	Nat	Forb	Pres	Early Summer			х	х	
Lamiaceae	Mentha aquatica	water mint	Non	Forb	Pres	August to October			x	x	
Lamiaceae	Mentha arvensis	field mint	Nat	Forb	Pres	Spring			х	х	
Lamiaceae	Mentha pulegium	pennyroyal	Non	Forb	Pres	April to August		х			х

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Lamiaceae	Mentha X piperita	peppermint	Non	Forb	Pres	July to August		х			х
Lamiaceae	Prunella vulgaris ssp. lanceolata	lance selfheal	Nat	Forb	Pres	June through October			х		х
Lamiaceae	Prunella vulgaris ssp. vulgaris	common selfheal	Non	Forb	Pres	May through July			х		х
Lamiaceae	Stachys mexicana	Mexican hedgenettle	Nat	Forb	Pres	Early Summer			х	х	
Lemnaceae	Lemna minor	common duckweed	Nat	Forb	Pres	Summer				х	
Lemnaceae	Spirodela polyrhiza	giant duckweed	Nat	Forb	Pres	Insufficient				х	
Liliaceae	Hyacinthoides nonscripta	English bluebell	Non	Forb	Pres	Spring					х
Liliaceae	Maianthemum dilatatum	false lily of the vally	Nat	Forb	Pres	Late Spring			Х		
Liliaceae	Maianthemum racemosum	feathery false lily of the vally	Nat	Forb	Pres	Mid Spring			х		
Liliaceae	Narcissus sp.	daffodil	Non	Forb	Pres	Early Spring					х
Liliaceae	Prosartes smithii	largeflower fairybells	Nat	Forb	Pres	Spring			Х		
Liliaceae	Streptopus amplexifolius	clasping twistedstalk	Nat	Forb	Pres	Late Spring to Early Summer			x		
Liliaceae	Trillium ovatum	Pacific trillium	Nat	Forb	Pres	Early Spring			х		
Lycopodiaceae	Lycopodium clavatum	common club moss	Nat	Forb, Sub	Pres	Early July to Late September			х		
Lythraceae	Lythrum hyssopifolia	hyssop loosestrife	Non	Forb	Pres	Summer					х
Lythraceae	Lythrum portula	spatulaleaf loosestrife	Non	Forb	Pres	Summer		х		х	
Lythraceae	Lythrum salicaria	purple loosestrife	Non	Forb, Sub	Pres	All Summer				х	
Malvaceae	Sidalcea hendersonii	Henderson's checkerbloom	Nat	Forb	Pres	All Summer		х			
Monotropaceae	Monotropa uniflora	Indian pipe	Nat	Forb	Pres	Summer			х		

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Myricaceae	Morella californica	California wax myrtle	Nat	Tree, Shr	Pres	Early Summer		х	х		
Najadaceae	Najas flexilis	nodding waternymph	Nat	Forb	Pres	Late Summer				x	
Nyctaginaceae	Abronia latifolia	coastal sand verbena	Nat	Forb	Pres	All Spring and Summer		х			
Nymphaeaceae	Nuphar lutea ssp. polysepala	Rocky Mountain cowlily	Nat	Forb	Pres	Mid Summer				x	
Nymphaeaceae	Nymphaea odorata	white waterlily	Non	Forb	Pres	Mid to Late Summer				x	
Onagraceae	Chamerion angustifolium	fireweed	Nat	Forb	Pres	All Summer			х		
Onagraceae	Epilobium ciliatum ssp. glandulosum	fringed willowherb	Nat	Forb	Pres	June to August				x	
Onagraceae	Epilobium minutum	chaparral willowherb	Nat	Forb	Pres	All Spring and Summer			х		
Onagraceae	Fuchsia magellanica	hardy fuchsia	Non	Shr, Vine	Pres	Mid Summer to Early Fall					х
Onagraceae	Ludwigia palustris	marsh seedbox	Nat	Forb	Pres	Spring		х		х	
Onagraceae	Oenothera glazioviana	redsepal evening- primrose	Non	Forb	Pres	Late Spring		х			Х
Ophioglossaceae	Botrychium multifidum	leathery grapefern	Nat	Forb	Pres	Early Summer to Fall		х			
Orchidaceae	Goodyera oblongifolia	rattlesnake plantain	Nat	Forb	Pres	Mid Summer			х		
Orchidaceae	Spiranthes romanzoffiana	hooded lady's tresses	Nat	Forb	Pres	Mid Summer		х	х		
Oxalidaceae	Oxalis oregana	redwood-sorrel	Nat	Forb	Pres	All Spring and Summer			х		
Oxalidaceae	Oxalis trilliifolia	threeleaf woodsorrel	Nat	Forb	Pres	Early Summer			х	х	
Papaveraceae	Eschscholzia californica	California goldenpoppy	Nat	Forb	Pres	Late Spring					х
Pinaceae	Abies grandis	silver fir	Nat	Tree	Pres	Late Spring			Х		

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Pinaceae	Abies procera	noble fir	Nat	Tree	Pres	Late Spring			х		
Pinaceae	Cedrus libani	cedar of Lebanon	Non	Tree	Rep	September to November			х		
Pinaceae	Picea sitchensis	coast spruce	Nat	Tree	Pres	Late Spring		х	х		
Pinaceae	Pinus contorta var. contorta	beach pine	Nat	Tree	Pres	Late Spring		х	х		
Pinaceae	Pinus nigra	australian pine	Non	Tree	Pres	Late Spring		х			Х
Pinaceae	Pinus pinaster	cluster pine	Non	Tree	Pres	Spring		х			Х
Pinaceae	Pinus sylvestris	Scots pine	Non	Tree	Pres	Mid Spring		х			Х
Pinaceae	Pseudotsuga menziesii	Douglas fir	Nat	Tree	Pres	Mid Spring			х		
Pinaceae	Tsuga heterophylla	pacific hemlock	Nat	Tree	Pres	Mid Spring			х		
Plantaginaceae	Plantago coronopus	buckhorn plantain	Non	Forb	Pres	Mid Spring			х		
Plantaginaceae	Plantago elongata	prairie plantain	Nat	Forb	Pres	Spring	х	х			Х
Plantaginaceae	Plantago lanceolata	ribwort	Non	Forb	Pres	All Year Long		х			Х
Plantaginaceae	Plantago major	rippleseed plantain	Non	Forb	Pres	All Year Long		х			х
Plantaginaceae	Plantago psyllium	sand plantain	Non	Forb	Pres	Summer					Х
Plantaginaceae	Plantago subnuda	tall coastal plantain	Nat	Forb	Pres	Late Spring	х	х			х
Plumbaginaceae	Armeria maritima ssp. californica	California seapink	Nat	Forb	Pres	Spring to Summer	х				
Poaceae	Agrostis capillaris	colonial bentgrass	Non	Gram	Pres	Mid Summer		х			Х
Poaceae	Agrostis exarata	spike bentgrass	Nat	Gram	Pres	Late Spring		х			
Poaceae	Agrostis pallens	seashore bentgrass	Nat	Gram	Pres	Summer		х			
Poaceae	Agrostis scabra	rough bent	Nat	Gram	Pres	Early Spring		х			
Poaceae	Agrostis stolonifera	spreading bent	Non	Gram	Pres	Mid Summer		х			Х
Poaceae	Aira praecox	yellow hairgrass	Non	Gram	Pres	August	х	х			Х
Poaceae	Alopecurus geniculatus	marsh meadow- foxtail	Nat	Gram	Pres	Summer				х	
Poaceae	Alopecurus	field meadow-	Non	Gram	Pres	Spring				х	

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
	pratensis	foxtail									
Poaceae	Ammophila arenaria	European beachgrass	Non	Gram	Pres	Spring		х			
Poaceae	Ammophila breviligulata	American beachgrass	Non	Gram	Pres	Spring		х			
Poaceae	Anthoxanthum odoratum	sweet vernalgrass	Non	Gram	Pres	Late Winter to Mid Spring		х			х
Poaceae	Bromus carinatus	California brome	Nat	Gram	Pres	Early Spring		х		х	Х
Poaceae	Bromus diandrus	ripgut brome	Non	Gram	Pres	Late Spring	х		х		Х
Poaceae	Bromus hordeaceus ssp. hordeaceus	downy brome	Non	Gram	Pres	Mid Spring					х
Poaceae	Bromus sitchensis var. sitchensis	Sitka brome	Nat	Gram	Pres	Late Spring			х		
Poaceae	Bromus sterilis	poverty brome	Non	Gram	Pres	Late Spring					Х
Poaceae	Cynosurus echinatus	bristly dogstail grass	Non	Gram	Pres	July			х		х
Poaceae	Dactylis glomerata	cocksfoot	Non	Gram	Pres	Mid Spring					Х
Poaceae	Danthonia californica	California oatgrass	Nat	Gram	Pres	Early Spring	Х				х
Poaceae	Deschampsia caespitosa	tufted hairgrass	Nat	Gram	Pres	Mid Summer		х		х	
Poaceae	Deschampsia elongata	slender hairgrass	Nat	Gram	Pres	Summer	х	х			
Poaceae	Digitaria sanguinalis	hairy crab grass	Non	Gram	Pres	August to October					х
Poaceae	Echinochloa crus- galli	Japanese millet	Non	Gram	Pres	July to October				х	x
Poaceae	Elymus repens	quackgrass	Non	Gram	Pres	Mid Spring					x
Poaceae	Festuca rubra	red fescue	Nat	Gram	Pres	Mid Spring	х	х			
Poaceae	Glyceria grandis	American mannagrass	Nat	Gram	Pres	June to July				х	
Poaceae	Glyceria leptostachya	davy mannagrass	Nat	Gram	Pres	May to June				х	

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Poaceae	Holcus lanatus	common velvetgrass	Non	Gram	Pres	Summer		х			х
Poaceae	Leymus mollis ssp. mollis	American dunegrass	Nat	Gram	Pres	Late Spring		x			
Poaceae	Lolium perenne	perennial	Non	Gram	Pres	Mid Spring					х
Poaceae	Lolium perenne ssp. multiflorum	Italian ryegrass	Non	Gram	Pres	Early Spring					х
Poaceae	Phalaris arundinacea	reed canary grass	Non	Gram	Pres	Late Spring				х	
Poaceae	Poa annua	walkgrass	Non	Gram	Pres	Mid Spring					х
Poaceae	Poa bulbosa	bulbous bluegrass	Non	Gram	Pres	Spring			х		х
Poaceae	Poa compressa	Canada bluegrass	Non	Gram	Pres	Late Spring					х
Poaceae	Poa howellii	Howell's bluegrass	Non	Gram	Pres	Spring			Х		
Poaceae	Poa macrantha	seashore bluegrass	Nat	Gram	Pres	Late Winter		х			
Poaceae	Poa pratensis	Kentucky bluegrass	Nat	Gram	Pres	Mid Spring		х			х
Poaceae	Poa trivialis	rough bluegrass	Non	Gram	Pres	Early Spring			х	х	
Poaceae	Poa unilateralis	ocean-bluff bluegrass	Nat	Gram	Pres	July to August	Х				
Poaceae	Polypogon monspeliensis	annual rabbitsfoot grass	Non	Gram	Pres	Late Spring					х
Poaceae	Schedonorus arundinaceus	tall fescue	Non	Gram	Pres	Late Spring		х			х
Poaceae	Torreyochloa pallida var. pauciflora	pale false mannagrass	Nat	Gram	Pres	August to November				х	
Poaceae	Trisetum canescens	tall trisetum	Nat	Gram	Pres	Summer			Х		
Poaceae	Triticum aestivum	common wheat	Non	Gram	Pres	Early Spring					х
Poaceae	Vulpia bromoides	brome fescue	Non	Gram	Pres	Early Spring	х				Х
Polemoniaceae	Navarretia squarrosa	skunkbush	Nat	Forb	Pres	May to July					х
Polygonaceae	Polygonum amphibium var.	colored smartweed	Nat	Forb	Pres	July to September				х	

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
	emersum										
Polygonaceae	Polygonum aviculare	prostrate knotweed	Non	Forb	Pres	All Year Long					Х
Polygonaceae	Polygonum cuspidatum	Japanese knotweed	Non	Forb, Sub	Pres	Summer		х			х
Polygonaceae	Polygonum hydropiper	annual smartweed	Non	Forb	Pres	Late Spring				х	
Polygonaceae	Polygonum hydropiperoides	swamp smartweed	Nat	Forb	Pres	Indeterminate				х	
Polygonaceae	Polygonum hydropiperoides hydropiperoides	waterpepper	Nat	Forb	Pres	June to September				х	
Polygonaceae	Polygonum paronychia	beach knotweed	Nat	Sub	Pres	All Spring and Summer		х			
Polygonaceae	Polygonum persicaria	ladysthumb smartweed	Non	Forb	Pres	Spring				х	х
Polygonaceae	Rumex acetosella	sheep sorrel	Non	Forb	Pres	All Summer		х			Х
Polygonaceae	Rumex aquaticus var. fenestratus	western dock	Nat	Forb	Pres	Summer		х		х	
Polygonaceae	Rumex conglomeratus	clustered dock	Non	Forb	Pres	April to June		х			х
Polygonaceae	Rumex crispus	Curley dock	Non	Forb	Pres	All Summer				х	х
Polygonaceae	Rumex maritimus	golden dock	Nat	Forb	Pres	Late Spring				х	
Polygonaceae	Rumex obtusifolius	bitter dock	Non	Forb	Pres	June to October					х
Polypodiaceae	Polypodium glycyrrhiza	licorice fern	Nat	Forb	Pres	Non- flowering			х		
Polypodiaceae	Polypodium scouleri	leathery polypody	Nat	Forb	Pres	Non- flowering			х		
Portulacaceae	Claytonia perfoliata	miner's lettuce	Nat	Forb	Pres	Mid Spring				х	
Portulacaceae	Claytonia sibirica	Siberian springbeauty	Nat	Forb	Pres	Mid Spring				х	
Portulacaceae	Montia fontana	annual water miner's lettuce	Nat	Forb	Pres	Early Spring				х	

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Portulacaceae	Montia parvifolia ssp. flagellaris	littleleaf minerslettuce	Nat	Forb	Pres	March to September	х				
Potamogeton- aceae	Potamogeton crispus	curly pondweed	Non	Forb	Pres	Mid Spring				x	
Potamogeton- aceae	Potamogeton foliosus	leafy pondweed	Nat	Forb	Pres	June to September				х	
Potamogeton- aceae	Potamogeton gramineus	grassy pondweed	Nat	Forb	Pres	Late Spring				х	
Potamogeton- aceae	Potamogeton zosteriformis	flat-stem pondweed	Nat	Forb	Pres	Mid Summer				х	
Primulaceae	Lysimachia terrestris	earth loosestrife	Non	Forb	Pres	June to September				х	
Primulaceae	Samolus valerandi ssp. parviflorus	water brookweed	Nat	Forb	Pres	April to October				х	
Pteridaceae	Adiantum aleuticum	maidenfern	Nat	Forb	Pres	Non- flowering			х		
Pyrolaceae	Moneses uniflora	single delight	Nat	Forb	Pres	Late Spring to Early Summer			x		
Ranunculaceae	Ranunculus acris	meadow buttercup	Non	Forb	Pres	Late Spring to Mid Summer		х		х	х
Ranunculaceae	Ranunculus ficaria	fig buttercup	Non	Forb	Pres	April to June					х
Ranunculaceae	Ranunculus flammula	greater creeping spearwort	Nat	Forb	Pres	Mid Summer		х		х	
Ranunculaceae	Ranunculus repens	creeping buttercup	Non	Forb	Pres	Mid Spring				х	Х
Ranunculaceae	Ranunculus sceleratus	celeryleaf buttercup	Nat	Forb	Pres	Late Spring		х		х	
Ranunculaceae	Ranunculus uncinatus	hooked buttercup	Nat	Forb	Pres	Early Summer			Х		
Rhamnaceae	Frangula purshiana	cascara buckthorn	Nat	Tree, Shr	Pres	Mid Spring		x	x		
Rosaceae	Amelanchier alnifolia	Saskatoon serviceberry	Nat	Tree, Shr	Pres	Early Summer			х		
Rosaceae	Aphanes microcarpa	slender parsley piert	Non	Forb	Pres	Spring					х

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Rosaceae	Argentina egedii ssp. egedii	Pacific silverweed	Nat	Forb	Pres	All Spring and Summer		х			
Rosaceae	Aruncus dioicus var. vulgaris	bride's feathers	Nat	Forb	Pres	April to June			х		
Rosaceae	Cotoneaster franchetii	orange cotoneaster	Non	Shr	Pres	June to July					х
Rosaceae	Cotoneaster horizontalis	rockspray cotoneaster	Non	Shr	Pres	Spring					х
Rosaceae	Crataegus douglasii	black hawthorn	Nat	Tree, Shr	Pres	Mid Spring			х		
Rosaceae	Crataegus monogyna	oneseed hawthorn	Non	Tree, Shr	Pres	Mid Spring			х		х
Rosaceae	Fragaria chiloensis	beach strawberry	Nat	Forb	Pres	Early Spring		х			
Rosaceae	Geum macrophyllum var. macrophyllum	large-leaf avens	Nat	Forb	Pres	Early May through Mid August			х		
Rosaceae	Malus fusca	Oregon crabapple	Nat	Tree, Shr	Pres	Mid Spring		х		х	
Rosaceae	Malus pumila	paradise apple	Non	Tree	Pres	April to May					Х
Rosaceae	Oemleria cerasiformis	Indian plum	Nat	Tree, Shr	Pres	Spring			х		
Rosaceae	Physocarpus capitatus	Pacific ninebark	Nat	Shr	Pres	Late Spring			х	х	
Rosaceae	Prunus avium	sweet cherry	Non	Tree	Pres	Late Winter to Early Spring					х
Rosaceae	Prunus cerasus	sour cherry	Non	Tree, Shr	Pres	Mid Spring					х
Rosaceae	Prunus domestica	European plum	Non	Tree	Pres	April					Х
Rosaceae	Rosa nutkana	Nootka rose	Nat	Sub	Pres	Late Spring		х	х	х	
Rosaceae	Rubus armeniacus	Himalaya blackberry	Non	Sub	Pres	Late Spring to Early Summer		х	x		X
Rosaceae	Rubus laciniatus	cut-leaved blackberry	Non	Vine, Sub	Pres	Early Summer			x		х

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Rosaceae	Rubus parviflorus	thimbleberry	Nat	Sub	Pres	Spring			х		
Rosaceae	Rubus spectabilis	salmonberry	Nat	Vine, Sub	Pres	Early Spring			х	х	
Rosaceae	Rubus ursinus	California blackberry	Nat	Sub	Pres	Early Spring			х		
Rosaceae	Sorbaria arborea	giant false spiraea	Non	Shr	Pres	Mid to Late Summer					х
Rosaceae	Sorbus aucuparia	European mountainash	Non	Tree, Shr	Pres	Late Spring			x		x
Rosaceae	Spiraea douglasii	rose spirea	Nat	Shr	Pres	Mid Summer				х	
Rubiaceae	Galium aparine	sticky-willy	Nat	Vine, Forb	Pres	Mid Spring			х		х
Rubiaceae	Galium trifidum	small bedstraw	Nat	Vine, Forb	Pres	Early Summer			х		
Rubiaceae	Galium trifidum ssp. columbianum	threepetal bedstraw	Nat	Vine, Forb	Pres	August			х		
Rubiaceae	Galium triflorum	fragrant bedstraw	Nat	Forb, Vine	Pres	May to September			х		
Salicaceae	Populus balsamifera ssp. trichocarpa	balsam poplar	Nat	Tree	Pres	Mid Spring			х	х	
Salicaceae	Salix alba	golden willow	Non	Tree	Pres	Early Spring				х	
Salicaceae	Salix hookeriana	dune willow	Nat	Tree, Shr	Pres	Winter				х	
Salicaceae	Salix lucida ssp. lasiandra	Pacific willow	Nat	Tree, Shr	Pres	Spring				х	
Salicaceae	Salix scouleriana	Scouler's willow	Nat	Tree	Pres	Early Spring			х		
Salicaceae	Salix sitchensis	Sitka willow	Nat	Tree, Shr	Pres	Spring				х	
Saxifragaceae	Boykinia occidentalis	coastal brookfoam	Nat	Forb	Pres	All Summer			х	х	
Saxifragaceae	Chrysosplenium glechomifolium	Pacific golden saxifrage	Nat	Forb	Pres	All Summer			х	х	
Saxifragaceae	Heuchera micrantha var. diversifolia	crevice alumroot	Nat	Forb	Pres	June to July	х		Х	х	
Saxifragaceae	Tellima grandiflora	bigflower tellima	Nat	Forb	Pres	Late Spring			х	х	

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Saxifragaceae	Tiarella trifoliata	threeleaf foamflower	Nat	Forb	Pres	Early Spring			х		
Saxifragaceae	Tiarella trifoliata var. trifoliata	threeleaf foamflower	Nat	Forb	Pres	Late Spring to Early Summer			x	x	
Saxifragaceae	Tolmiea menziesii	youth on age	Nat	Forb	Pres	Late Spring to Early Summer			x	х	
Scrophulariaceae	Castilleja affinis ssp. litoralis	Pacific paintbrush	Nat	Forb	Pres	Summer	х	х			
Scrophulariaceae	Castilleja ambigua ssp. ambigua	johnny-nip	Nat	Forb	Pres	All Year Long				х	
Scrophulariaceae	Cymbalaria muralis	Kenilworth ivy	Non	Forb	Pres	May to October					х
Scrophulariaceae	Digitalis purpurea	purple foxglove	Non	Forb	Pres	Summer		х			х
Scrophulariaceae	Mimulus dentatus	coastal monkeyflower	Nat	Forb	Pres	Mid Spring	Х				
Scrophulariaceae	Mimulus guttatus	yellow monkeyflower	Nat	Forb	Pres	Mid Spring	Х				
Scrophulariaceae	Parentucellia viscosa	yellow glandweed	Non	Forb	Pres	Late Spring		х			х
Scrophulariaceae	Scrophularia californica	California figwort	Nat	Forb	Pres	Early Spring to Late Summer			х		
Scrophulariaceae	Scrophularia californica ssp. californica	California figwort	Nat	Forb	Pres	Early Spring to Late Summer			х		
Scrophulariaceae	Triphysaria pusilla	dwarf owl's-clover	Nat	Forb	Pres	Mid Spring		х			Х
Scrophulariaceae	Veronica americana	American speedwell	Nat	Forb	Pres	Mid Summer		х		х	
Scrophulariaceae	Veronica arvensis	rock speedwell	Non	Forb	Pres	April to August					х
Scrophulariaceae	Veronica scutellata	grass-leaf speedwell	Nat	Forb	Pres	All Summer				х	
Scrophulariaceae	Veronica serpyllifolia ssp. serpyllifolia	thymeleaf speedwell	Non	Forb	Pres	April to June		х		х	

Family	Species name	Common name	Nat	Life form	Park stat	Flower time	HeadInd/ Sea cliff	Dune/ Mdw	Lowland Forest	Estry/ WtInd	Dist/ Dev
Selaginellaceae	Selaginella oregana	Oregon spikemoss	Nat	Forb	Pres	Non- flowering			х		
Solanaceae	Solanum dulcamara	woody nightshade	Non	Sub, Forb, Vine	Pres	Late Spring to Early Summer		х	х		Х
Sparganiaceae	Sparganium angustifolium	narrow leaf bur reed	Nat	Forb	Pres	Summer				х	
Sparganiaceae	Sparganium eurycarpum	broad fruit bur reed	Nat	Forb	Pres	Indeterminate				х	
Taxaceae	Taxus brevifolia	Pacific yew	Nat	Tree	Rep	Early Summer			х		
Thymelaeaceae	Daphne laureola	spurge laurel	Non	Tree, Shr	Pres	Spring			х		х
Typhaceae	Typha angustifolia	narrow-leaf cat-tail	Non	Forb	Pres	Late Spring				х	
Typhaceae	Typha latifolia	cattail	Nat	Forb	Pres	Late Spring				х	
Urticaceae	Urtica dioica ssp. gracilis	California nettle	Nat	Forb	Pres	May to August			Х	х	
Valerianaceae	Plectritis congesta ssp. brachystemon	shortspur seablush	Nat	Forb	Pres	Early Spring	х				
Valerianaceae	Valerianella locusta	Lewiston cornsalad	Non	Forb	Pres	Spring					х
Violaceae	Viola adunca	early blue violet	Nat	Forb	Pres	Mid Spring		х			
Violaceae	Viola glabella	pioneer violet	Nat	Forb	Pres	Mid Spring			Х		
Violaceae	Viola sempervirens	evergreen violet	Nat	Forb	Pres	Mid Spring			х		
Zannichelliaceae	Zannichellia palustris	horned-pondweed	Nat	Forb	Pres	March to November				х	

### Appendix E. Maps of rare community types by unit.

### Appendix F. Maps of rare species locations by unit.

# Appendix G. Maps of non-native species of interest by unit. Non-Native Plants, Cape Disappointment



Bull thistle Canada thistle Yellowflag iris 0 English ivy Herb robert Everlasting peavine 0 0 0 0.1250.25 English ivy European honeysuckle 0 Scots broom Miles English holly Purple loosestrife 0 0 Yellowflag iris

0.5



### Non-Native Plants, Dismal Nitch





Non-Native Plants, Fort Clatsop

#### Legend

- Canada thistle
- Herb robert
- English ivy
- English holly
- Yellowflag iris
- Everlasting peavine
- Parrot feather watermilfoil
- Common reed
- European mountain ash
- European honeysuckle
- Purple loosestrife
- Cutleaf blackberry

Scots broom





## Non-Native Plants, Fort Stevens

#### Legend

- Herb robert
- English ivy
- English holly
- Yellowflag iris
- European honeysuckle
- Purple loosestrife
- Common reed
- Giant knotweed
- Knotweed sp.
- 0.25 0.5 1 \_\_\_\_\_ Miles

0

## Non-Native Plants, Station Camp, Fort Columbia



### Legend

- English ivy
- English holly
- Yellowflag iris
- Purple loosestrife





Non-Native Plants, Sunset Beach/Yeon



- Canada thistle
- English ivy
- English holly
- European honeysuckle
- Parrot feather watermilfoil
- American white waterlily
- Spurge laurel



The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

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