Rare Plant and Vegetation Survey of Fort Simcoe State Park

Pacific Biodiversity Institute

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Executive Summary

Pacific Biodiversity Institute (PBI) conducted a rare plant and vegetation survey of Fort Simcoe State Park for the Washington State Parks and Recreation Commission (WSPRC). Fort Simcoe State Park is located entirely within the Yakama Indian Reservation in Yakima County, Washington.

Fort Simcoe State Park was mapped into 43 vegetation community polygons covered by 13 vegetation communities and 3 general land use types. Vegetation communities were in three predominant groups: Garry oak woodlands, shrub-steppe communities, and lithosol communities.

We identified approximately 213 taxa at the park and 61 non-native species, or approximately 29% of the total number of species observed.

Two state listed rare plants were found within Fort Simcoe State Park. We found a small population of American pillwort (*Pilularia Americana*) in a disturbed, weedy wetland dominated by Gairdner's yampah (*Perideridia gairdneri*). We also located and mapped the extent of two populations of Hoover's umbrellawort (*Tauschia hooveri*). The umbrellawort populations occurred in the thymeleaf buckwheat / Sandberg bluegrass association on lithosol at the northeast and southwest corners of the park.

Fort Simcoe State Park has a long history of human use predating its use as a Military fort and Indian agency. Disturbances have altered many of the native plant communities in this area and brought in noxious weeds. We found 11 state-listed noxious weeds at Fort Simcoe State Park. Seven of the noxious weeds were Class B weeds and four were Class C weeds.

The ecological condition of Fort Simcoe State Park varied from poor to excellent. The largest percentage of areas ranked in poor condition were classified as disturbed. Although these areas were not developed for recreation, they were sometimes so degraded that their original ecological condition could not be determined. The Garry oak woodlands were rated mostly in good and excellent condition. Some of the lithosol communities were also ranked in excellent condition. Fort Simcoe State Park contains many plant communities with a G1 or G2 global conservation status, indicating that they are critically imperiled or imperiled. Our recommendation is that management of the park should focus on protection of the imperiled plant communities and rare plant populations as one of the primary management goals.

During our visit, we observed several wild horses grazing at Fort Simcoe State Park. These horses appeared to be trapped inside the fence and could not easily be caught and taken out. Thousands of wild horses roam the Yakama Indian Reservation, and these are widely acknowledged to cause heavy damage to plant communities. Even a couple horses can result in damage to rare plants. These horses were observed to be causing damage to the habitat for one of the rare plants found in the park, American pillwort (*Pilularia americana*), which is in a small wetland east of the parking area.

We noted during our fieldwork that the actual fenced boundaries of the park are significantly different from the GIS boundary. We were told by the Park Ranger to stay within the fenced boundaries. There is a significant difference between the fenced boundary and the GIS boundary that needs resolution.

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Introduction

Fort Simcoe State Park is a 200-acre day-use park located on the Yakama Nation Indian Reservation, in Yakima County. Fort Simcoe State Park is located entirely within the Yakama Indian Reservation. A road goes through the middle of the park and two streams cross the park.

Fort Simcoe State Park is developed as an interpretive center for its history as an army fort, Indian agency, and Indian campground. The park is not on a main thoroughfare, and appears to be used largely by local visitors and history buffs. Fort Simcoe property lies at the boundary between Garry oak woodlands and shrub-grassland vegetation zones.

Fort Simcoe State Park was surveyed for rare plant occurrences, vegetation communities and characteristics, noxious weeds and ecological condition by PBI under contract with WSPRC. This report summarizes the activities and findings of the contracted work.

Survey Conditions and Survey Routes

Fort Simcoe State Park was visited on April 13, April 14, April 15, July 30, July 31, August 1 and August 7 by PBI botanists/ecologists and field assistants. The survey routes are shown in Figure 1.

The park is surrounded by a barbed wire fence that we were informed by the Ranger marked its administrative boundary. Under the Ranger's instruction, we did not visit areas that were outside the fence. These areas that were outside of the fence are mapped as "not surveyed" in our maps of the park.

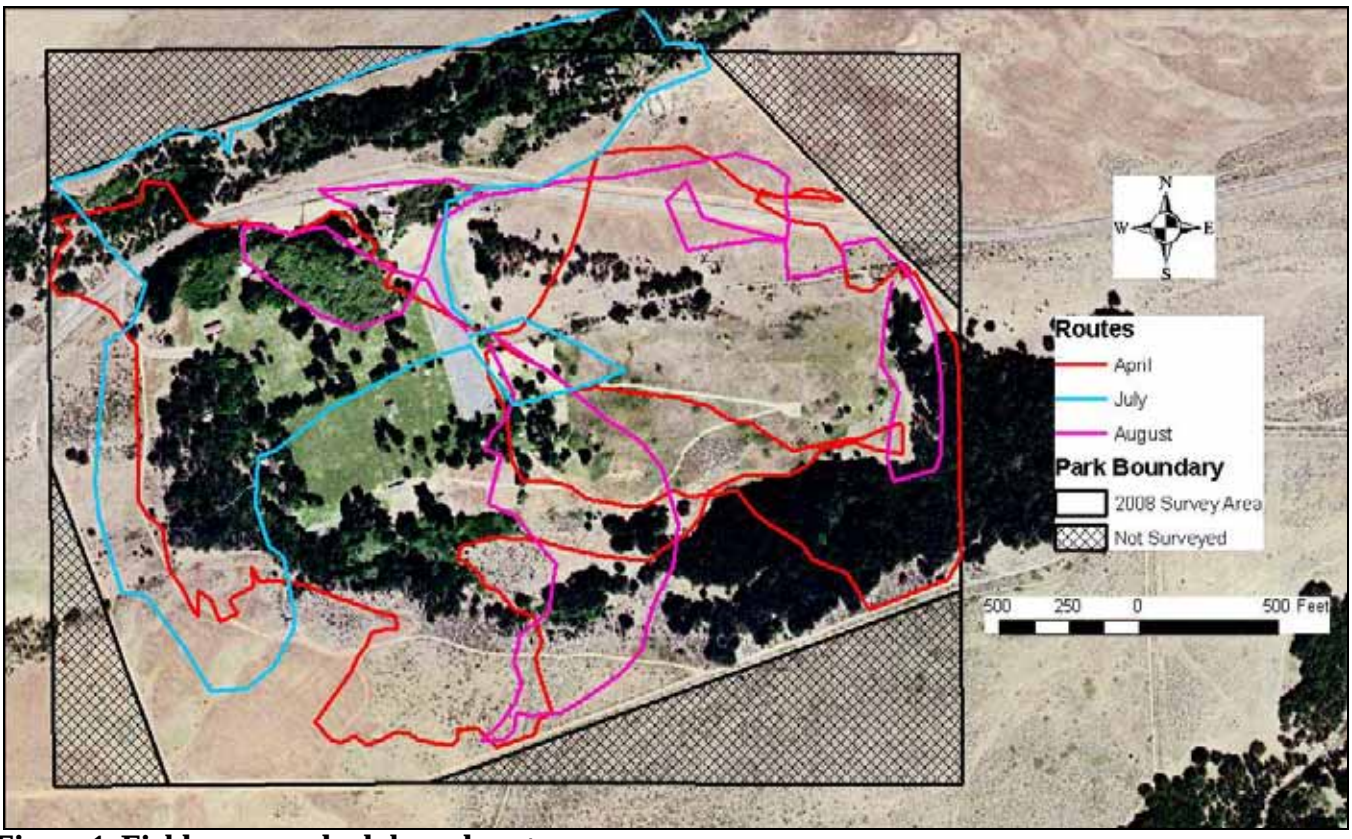

Figure 1. Field survey schedule and routes.

Vegetation Communities

Methods

The first step of this project was to assemble and review the existing data and literature available about Fort Simcoe State Park and its vegetation characteristics. Maps and remotely sensed data were assembled for each park and rare plant sightings were located on these maps. Initially, we used aerial photography and satellite imagery to digitize plant communities or mosaics of plant communities in a GIS environment. We reviewed orthorectified aerial photography and recent satellite images for discernable vegetation or landform patterns. Topographic maps and digital elevation models (DEMs) were also employed to assist the process of vegetation community delineation. Vegetation polygons were created by hand in a GIS by ocular assessment. The vegetation polygon data was edited and stored in an ESRI personal geodatabase. Vegetation polygons represent specific plant communities or unique mosaics of plant communities. They may also represent a significant variation in the ecological condition within a plant community.

The Fort Simcoe property was visited during both spring and summer of field season to assure observation of both early and late-blooming plant species. The first visit was primarily a reconnaissance of the area to create a basic plant list and conduct initial rare plant surveys. The later visit added more species to the plant list and vegetation polygon surveys were completed. Fieldwork concluded with an ecological assessment of the polygons delineated within the parks.

We visited each vegetation polygon at least once during the season to assure observation of both early and late-blooming plant species. The first visit was primarily a reconnaissance of the area to create a basic plant list and conduct initial rare plant surveys. Later visits included further rare plant surveys and vegetation polygon surveys. We assigned a vegetation community type (usually an established plant association name) and other vegetation attributes to each polygon. We also added more species to the plant list during each survey. Fieldwork concluded with an ecological assessment of the polygons delineated within the parks assigning each vegetation community within a polygon to an ecological condition rank (Appendix A).

Most polygons contained more than one plant community type; therefore, we often assigned a secondary or tertiary vegetation community type (again often a plant association name) to each polygon. We relied on plant association keys and descriptions from several recognized sources to make vegetation community assignments, including the Key to Sagebrush Alliances of the Western United States (Crawford, 1999), Classification and Management of Aquatic, Riparian and Wetland Sites on the National Forests of Eastern Washington (Kovalchik and Clausnitzer, 2004), Classification of Native Vegetation of Oregon (Kagan et al, 2000), A Preliminary Vegetation Classification of the Western United States (Bourgeron and Engelking, 1994), Field Guide for Forested Plant Associations of the Wenatchee National Forest (Lillybridge et al, 1995), Washington Natural Heritage Program (WANHP) unpublished data files). We also used the NatureServe 2008 website (www.natureserve.org) to evaluate existing plant community names and descriptions and compare them to the vegetation conditions we encountered in the field. In some cases, the vegetation community descriptions in existing studies were not adequate in describing distinctive vegetation associations in the project area. In these cases, new land cover type or plant association names and descriptions were created by PBI.

Survey personnel had printed and digital aerial imagery available during field visits. The latter was accessed in the field using ArcPad software (ESRI 2007) running on pocket PC, GPS enabled devices. This allowed us to view the data in the field, to evaluate our polygon delineations, and to make changes if necessary. It also allowed all survey routes to be mapped on a GPS while performing the vegetation

surveys. Data could be viewed and edited directly from field locations, resulting in a field-verified vegetation map.

Plant community data was recorded based on methods developed by WSPRC (Appendix B). Recorded data included a wide variety of information about vegetation, environmental characteristics, disturbance history and notes for each polygon. Each polygon was rated for its overall ecological condition.

Once gathered, the field data was edited and entered into a Microsoft Access database and linked to the vegetation polygon geodatabase. Further refinements and editing of the vegetation data stored in the personal geodatabase was made based on information collected in the field with ArcPad.

Historical Vegetation

The predominant plant communities at Fort Simcoe State Park are shrub-steppe, Garry Oak woodlands and lithosol communities (Taylor 1992). Most of the shrub-steppe and lithosol communities were in fair condition that might resemble historic conditions. On the other hand, the Garry oak woodlands were often ranked in poor condition, which probably indicates a great deal of departure from historic conditions found prior to European settlement.

Oak woodlands were burned frequently by Indians (Agee 1996). The shrub-steppe vegetation at Fort Simcoe State Park may have evolved with a frequent fire-return interval, based on its floristic similarity to ponderosa pine forests at moderately higher elevations that had a fire-return interval of 8-15 years (Ohlson 1996). However, there is considerable scientific debate on the presettlement fire frequency of the shrub-steppe. The relative abundance of fuels and their continuity in presettlement times is largely unknown. A more conservative estimate of the fire frequency suggests it was more variable than that of coniferous systems. Wyoming big sagebrush communities were found to have fire intervals ranging from 10 to 70 years (Vincent 1992 in Paysen and others 2000, page 142; Young and Evans 1991, *ibid*.). Presettlement conditions are believed to have had a higher percentage of grasses than in the same areas today (Griffiths 1910 in Paysen and others 2000, page 142; Leopold 1924, *ibid*.)

Based on this interpretation, it is reasonable to infer that fire suppression has influenced Fort Simcoe State Park, at least in the Garry oak woodlands. With more frequent fire in pre-settlement times, big sagebrush and other dominant shrubs would have been less abundant, while grasses, annuals and seral species would have been more abundant.

The pre-settlement condition of shrub-steppe habitats in the Columbia Plateau was influenced by the presence of cryptobiotic soil crusts that were later reduced by livestock grazing (Weddell 2001). Wild horses could have a similar impact on cryptobiotic soils.

Results

Vegetation Mapping

A total of 42 vegetation community polygons were mapped and surveyed in Fort Simcoe State Park (Figure 2). These polygons were categorized into 13 plant associations and 3 generalized land cover classes (Table 1). Table 2 gives additional reference and global conservation status information about the plant associations (see Appendix C for status codes). The communities were assigned to a primary, secondary or a tertiary community. Primary community types are the dominant or matrix vegetation community within a polygon, whereas secondary and tertiary community types are less abundant vegetation community types that occur within the same polygon and were not conducive to being mapped as a separate polygon due to the size, shape, or pattern of the community patches within the polygon.

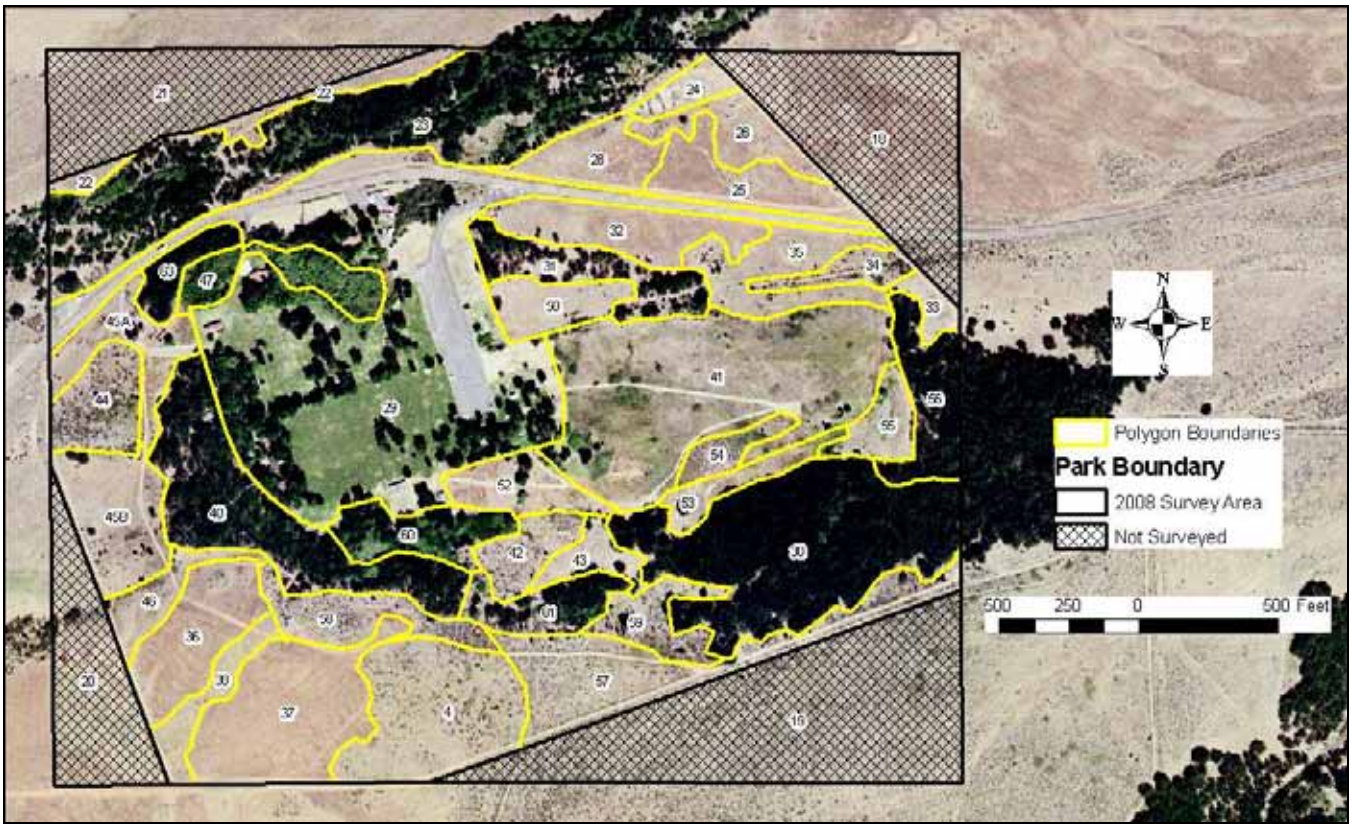

Figure 2. Map of Fort Simcoe State Park showing vegetation community polygons overlaid onto an aerial photo of the park.

Table 1. Plant communities and land cover types observed in Fort Simcoe State Park (asterisked records are plant associations only found as secondary communities)

Plant Association, Vegetation Community or Land Cover (Codes)	Existing Vegetation and Land Cover Observed (Codes)
Garry oak / golden currant / blue wildrye (QUGA4/RIAU/ELGL)	QUGA4/PRVI/MAST4; QUGA4/RIAU-SYAL/POBU-ELGL; QUGA4/RIAU/BRTE-ELGL-ELMU3; QUGA4/RIAU/ELGL; QUGA4/RIAU/ELGL; QUGA4/RIAU/ELGL; QUGA4/ROWO-RIAU-PRVI
Garry oak / snowberry	QUGA4/SYAL;

Plant Association, Vegetation Community or Land Cover (Codes)	Existing Vegetation and Land Cover Observed (Codes)
(QUGA4/SYAL)	QUGA4/SYAL/ELGL; QUGA4/SYAL-PHLE4-PRVI
Bitterbrush - big sagebrush / big squirreltail (PUTR2-ARTR2/ELMU3)	PUTR2-ARTR2/ELMU3-BRTE-EREL5-BACA3; ARTR2-PUTR2/BRTE-POBU-EREL5; ARTR2-PUTR2/ELMU3-POBU-ASLE5; ARTR2-PUTR2/POBU-BRTE-ELMU3; ARTR2/POBU-BRTE-ELMU3; PUTR2-ARTR2/POBU-BRTE-ELMU3; PUTR2-ROWO/POBU-EREL5-BACA3-LOTR2
Bitterbrush / tall woolly buckwheat - big squirreltail (PUTR2/EREL5-ELMU3)	PUTR2/EREL5-BRTE-POBU-ELMU3; PUTR2/EREL5-BRTE-POBU; PUTR2/EREL5-POBU-ELMU3; PUTR2/EREL5-POBU deep soil; PUTR2/POBU-EREL5; PUTR2/POBU-EREL5 disturbed
* Big sagebrush / basin wildrye (ARTR2/LECI4)	ARTR2/LECI4
Thymeleaf buckwheat / Sandberg bluegrass (ERTH4/POSE)	ERTH4/POSE-TAHO; ERTH4/POSE-BAHOL-TAHO; PUTR2-ERTH4/POSE-BAHOL-TAHO
Bebb willow (SABE2)	SABE2/JUARL; SABE2-ROWO
* Narrowleaf willow (SAEX)	SAEX; SAEX-SABE2
Redosier dogwood (COSE16)	COSE16
Tall woolly buckwheat - Carey's balsamroot (EREL5-BACA3)	POBU-EREL5-BACA3
* Cattail (TYLA)	TYLA
* Mountain rush (JUARL)	JUARL
Gairdner's yampah wetland (PEGA3)	BRSE-PEGA3-PIAM
Disturbed	developed; disturbed; disturbed meadow; disturbed meadow/old field; old field – POBU; very disturbed old field
Developed	Developed
Ownership issue	Ownership issue (not visited)

Table 2. Plant association reference table for Fort Simcoe State Park. (See Appendix C for status codes. Note that the "~" under Global Status represents the rank estimated by PBI.)

Code	Scientific Names	Authority	Global Status
QUGA4/RIAU/ELGL	*Quercus garryana / Ribes aureum / Elymus glaucus*	New phase of QUGA4/ELGL (Crawford 2003)	G2 (imperiled)
QUGA4/SYAL	*Quercus garryana / Symphoricarpos albus*	Crawford 2003	G2 (imperiled)
PUTR2-ARTR2/ELMU3	*Purshia tridentata – Artemisia tridentata / Elymus multisetus*	Undescribed	~G2 (imperiled)

Code	Scientific Names	Authority	Global Status
PUTR2/EREL5-ELMU3	*Purshia tridentata / Eriogonum elatum – Elymus multisetus*	Undescribed	~G2 (imperiled)
ARTR2/LECI4	*Artemisia tridentata / Leymus cinereus*	Crawford 1999	G2 (imperiled)
ERTH4/POSE	*Eriogonum thymoides / Poa secunda*	Daubenmire 1970	G2 (imperiled)
SABE2	*Salix bebbiana*	Crawford 2003	~G3 (vulnerable)
SAEX	*Salix exigua*	Bourgeron and Engelking 1994; Crawford 2003	G5 (secure)
COSE16	*Cornus sericea*	Crawford 2003	~G3 (vulnerable)
EREL5-BACA3	*Eriogonum elatum – Balsamorhiza careyana*	Undescribed	~G2 (imperiled)
TYLA	*Typha latifolia*	Crawford 2003	G5 (secure)
JUARL	*Juncus arcticus ssp. littoralis*	Crawford 2003	G5 (secure)
PEGA3 wetland	*Bromus secalinus - Perideridia gairdneri - Pilularia Americana*	Undescribed	~G1 (critically imperiled)

Figure 3 shows a map of Fort Simcoe State Park classified into the primary land cover types attributed to each polygon. The GIS database created for this project can be queried and displayed to show the more complex mixtures of vegetation communities that occur in many polygons. Appendix D lists the attributes for each polygon in the project area.

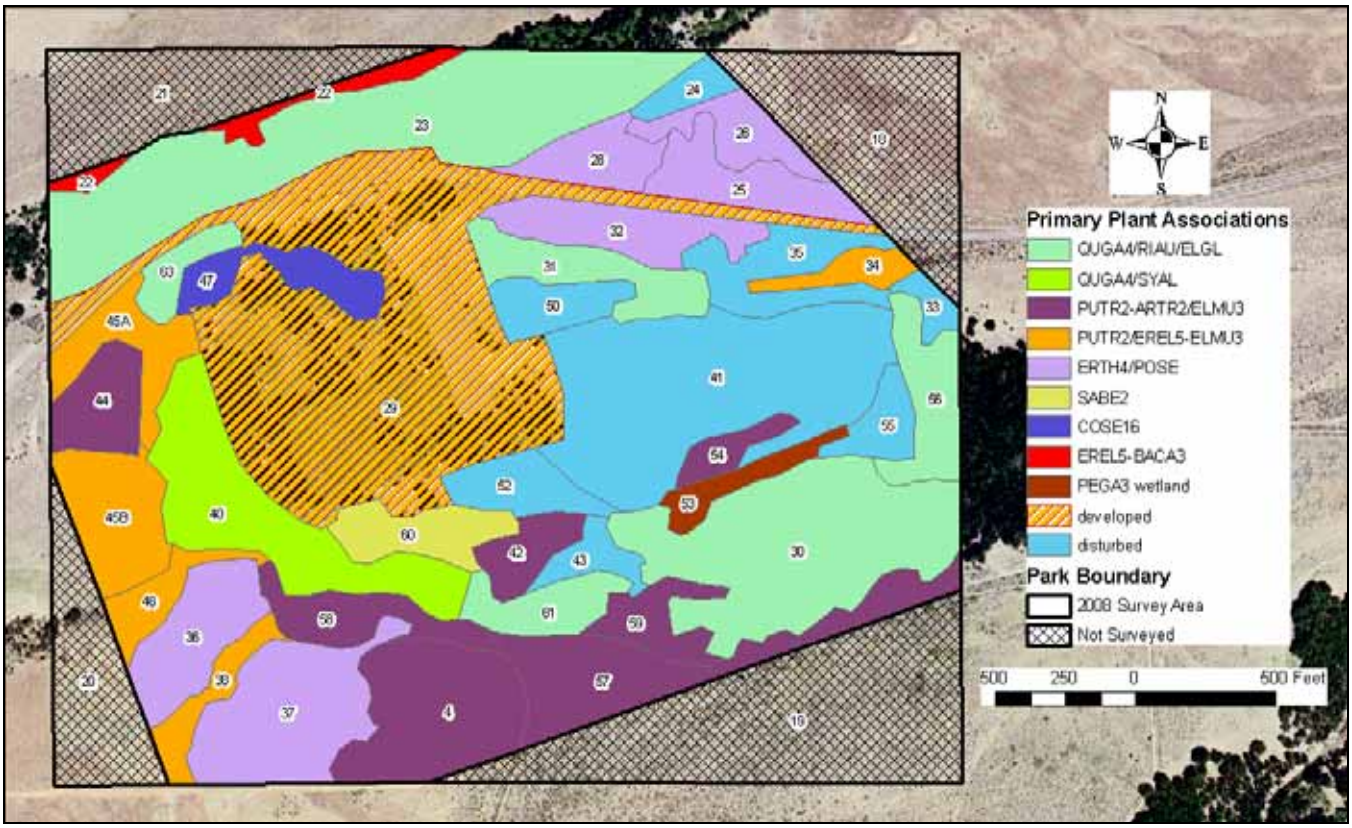

Figure 3. Primary vegetation communities and land cover types attributed to each vegetation polygon

Vegetation Community and Land Cover Types

Garry oak / golden currant / blue wildrye (QUGA4/RIAU/ELGL) G2, imperiled

Figure 4. An example of the Garry oak / golden currant / blue wildrye plant association at Fort Simcoe State Park.

At Fort Simcoe State Park, the Garry oak / golden currant / blue wildrye association occurs along intermittent streams along the north and south boundaries of the park (Figure 4). This association is similar to one described by Crawford (2003) without golden currant. That association was ranked G2, imperiled. It is mapped as a rare plant association in the Washington Natural Heritage database. It is possible that the plant association we describe here at Ft. Simcoe, which includes golden currant, is much rarer and should be ranked G1 (critically imperiled).

This is a deciduous woodland association with a deciduous shrub undergrowth. The description by Crawford (2003) did not include golden currant, but this shrub was so constant that its inclusion as part of the association appears to be warranted. Typically, this community is associated with streams near lower timberline in the eastern Cascades in south-central Washington. Golden currant is more common than snowberry (*Symphoricarpos albus*) and the herbaceous layer is represented by blue wildrye (*Elymus glaucus*). Outside of the park, this community has been heavily grazed and degraded by invasion by curveseed butterwort (*Ceratocephala testiculata*).

Garry oak / snowberry (QUGA4/SYAL) G2, imperiled

Figure 5. An example of the Garry oak / snowberry plant association at Fort Simcoe State Park.

At Fort Simcoe State Park, the Garry oak / snowberry association occurs along an intermittent stream along the west boundary of the park (Figure 5). This association was described by Crawford (2003). It is ranked G2, imperiled.

This is a deciduous woodland association with a deciduous shrub undergrowth. The description by Crawford (2003) did not include golden currant, but this shrub was so constant that its inclusion as part of the association appears to be warranted. Typically, this community is associated with streams near lower timberline in the eastern Cascades in south-central Washington. Snowberry is more common than golden currant and the herbaceous layer is typically represented by blue wildrye (*Elymus glaucus*).

Outside of the park, this community has been heavily grazed and degraded by invasion by curveseed butterwort (*Ceratocephala testiculata*). NatureServe (2008) notes that this is a relatively rare community with few remaining sites in good or fair condition.

Bitterbrush - big sagebrush / big squirreltail (PUTR2-ARTR2/ELMU3) ~G2 imperiled

Figure 6. An example of the bitterbrush – big sagebrush / big squirreltail plant association at Fort Simcoe State Park.

At Fort Simcoe State Park, the bitterbrush / big sagebrush / big squirreltail association occurs in the south part of the park in dry shrub-steppe areas where there is deeper soil than in the bitterbrush / tall wooly buckwheat / big squirreltail or lithosol communities (Figure 6). This association is undescribed. It was tentatively assigned a rank of G2, imperiled, based on its apparent rarity.

The bitterbrush / big sagebrush / big squirreltail plant association differs from nearby lithosol communities and the bitterbrush / tall woolly buckwheat / big squirreltail association by having deeper soils that allows the establishment of big sagebrush (*Artemisia tridentata*). It is similar to the bitterbrush / tall woolly buckwheat / big squirreltail association in having bitterbrush in the overstory and big squirreltail in the understory.

Bitterbrush / tall woolly buckwheat - big squirreltail (PUTR2/EREL5-ELMU3) ~G2 imperiled

Figure 7. An example of the bitterbrush / tall woolly buckwheat - big squirreltail plant association at Fort Simcoe State Park.

At Fort Simcoe State Park, the bitterbrush / tall woolly buckwheat / big squirreltail association occurs primarily in the west part of the park in dry shrub-steppe areas where there is slightly deeper soil than in adjacent lithosol communities, but less deep than in the bitterbrush – big sagebrush / big squirreltail association (Figure 7). This association is undescribed. It was assigned a rank of G2, imperiled, based on its apparent rarity.

The bitterbrush / tall woolly buckwheat / big squirreltail plant association has soils with a depth that is intermediate between nearby lithosol communities and the bitterbrush – big sagebrush / big squirreltail association. It is similar to the bitterbrush / big sagebrush / big squirreltail association in having bitterbrush in the overstory and big squirreltail in the understory.

Big sagebrush / basin wildrye (ARTR2/LECI4) G2, imperiled

At Fort Simcoe State Park, the big sagebrush / basin wildrye association occurs as a secondary plant association with the bitterbrush / tall woolly buckwheat - big squirreltail association (Figure 7). This association was described by Crawford (1999). It is ranked G2, imperiled.

The big sagebrush / basin wildrye plant association has an overstory dominated by big sagebrush and an understory dominated by basin wildrye. This association often occurs on calcareous soils. At Fort Simcoe State Park, it borders a disturbed wetland dominated by Gairdner's yampah and rye brome (*Bromus secalinus*).

Because of its rarity, the big sagebrush / basin wildrye plant association should be carefully managed. Conservation measures should avoid permanent hydrologic changes to the sites and avoid disturbances that will increase the cover of noxious weeds.

Thymeleaf buckwheat / Sandberg bluegrass (ERTH4/POSE) G2, imperiled

Figure 8. An example of the thymeleaf buckwheat / Sandberg bluegrass plant association at Fort Simcoe State Park.

At Fort Simcoe State Park, the thymeleaf buckwheat / Sandberg bluegrass association occurs on lithosol at the northeast and southwest corners of the park (Figure 8). This association was described by Daubenmire (1970). It is ranked G2, imperiled.

The thymeleaf buckwheat / Sandberg bluegrass association occurs as a dwarf shrub community on frost-cracked, exposed basalt (lithosol). At Fort Simcoe State Park, this association was unusual in the absence of scabland sagebrush (*Artemisia rigida*) that is frequently found on lithosol communities. Instead, this association here has a high constancy of the stated listed plant Hoover's umbrellawort (*Tauschia hooveri*). This high constancy may warrant designation as a special phase of this association. Relatively few high quality stands of this regionally endemic plant association are known from southeastern Washington and west-central Idaho. Because of the presence of Hoover's umbrellawort and the already limited distribution of this association, the rank may warrant a G1 rating of critically imperiled.

Bebb willow (SABE2) ~G3, vulnerable

Figure 9. An example of the Bebb willow vegetation type at Fort Simcoe State Park.

At Fort Simcoe State Park, the Bebb willow vegetation type occurs south of the picnic area parking lot in area that receives runoff from the facilities (Figure 9). This association was described by Crawford (2003). It is ranked G3, vulnerable.

The Bebb willow plant community is dominated by Bebb willow. It typically occurs in seasonally flooded wetlands. This riparian willow shrubland is found in montane regions and western plains of the United States. At Fort Simcoe State Park, secondary plant associations in this polygon were the cattail vegetation type and the mountain rush vegetation type. The Bebb willow community type was also found in an adjacent polygon dominated by the Garry oak / golden currant / blue wildrye community.

Narrowleaf willow (SAEX) G5, secure

Figure 10. An example of the narrowleaf willow vegetation type at Fort Simcoe State Park.

At Fort Simcoe State Park, the narrowleaf willow plant association occurs in a densely vegetated wetland just north of the headquarters beside the access road. It occurs as a secondary association in a polygon dominated by the redosier dogwood vegetation type (Figure 10). It also occurs as a secondary association with Garry oak woodlands growing along the stream in the north part of the park. The narrowleaf willow association was described by Crawford (2003) and by Bourgeron and Engelking (1994). It is ranked G5, secure.

The narrowleaf willow plant community is dominated by narrowleaf willow. It typically occurs in seasonally flooded wetlands, however the source of the water at this site appears to be runoff from park facilities. Other examples of this association are found in montane regions and western plains of the United States.

Redosier dogwood (COSE16) ~G3, vulnerable

Figure 11. An example of the redosier dogwood vegetation type at Fort Simcoe State Park.

At Fort Simcoe State Park, the redosier dogwood vegetation type occurs in a densely vegetated wetland just north of the headquarters beside the access road. (Figure 11). This association was described by Crawford (2003). It was not ranked by NatureServe (2008) but was assigned a rank of G3, vulnerable, based on its moderately common occurrence.

The redosier dogwood vegetation type is characterized by vegetation dominated by redosier dogwood. In mountains of eastern Washington, this community occurs typically occurs along streams and near lakes and ponds. In the Columbia Basin, it typically occurs in wide, low gradient valleys. Soils are usually fine-textured and well-drained. At Fort Simcoe State Park, the redosier dogwood vegetation type appears to be supported by an artificial source of runoff water, and may not be a natural type.

Tall woolly buckwheat - Carey's balsamroot (EREL5-BACA3) ~G2 Imperiled

Figure 12. An example of the tall woolly buckwheat - Carey's balsamroot plant association at Fort Simcoe State Park.

At Fort Simcoe State Park, the woolly buckwheat - Carey's balsamroot association occurs in a dry meadow above the Garry Oak woodland along the north part of the park (Figure 12). This association is undescribed. It is characterized by vegetation dominated by woolly buckwheat and Carey's balsamroot. It was ranked G2, imperiled, based on its apparent rarity.

At Fort Simcoe State Park, the woolly buckwheat - Carey's balsamroot association occupied a narrow strip between the Garry oak woodlands and the drier big sagebrush habitats to the north and outside the park. No other examples of this community are known and this one is relatively limited. It can be distinguished from other shrub-steppe types by the lack of sagebrush and bitterbrush.

Cattails (TYLA) G5, secure

At Fort Simcoe State Park, the cattail association occurs as a secondary association in a polygon south of the picnic area in area that receives runoff from the facilities (Figure 9). The primary association in that polygon is the Bebb willow vegetation type. The cattail association was described by Crawford (2003). It is ranked G5, secure.

The cattail plant community is dominated by cattails. Cattails are common in ponds and wetlands of the Columbia Basin, however the source of the water at this site appears to be runoff from park facilities.

Baltic rush (JUARL) G5, secure

At Fort Simcoe State Park, the Baltic rush association occurs as a secondary association in a polygon south of the picnic area (Figure 9). The primary association in that polygon is the Bebb willow vegetation type. The Baltic rush association was described by Crawford (2003). It is ranked G5, secure.

The dominant species of this community is Baltic rush (*Juncus arcticus* ssp. *littoralis*). Baltic rush communities are commonly found in seasonally wet areas in the Columbia Basin, however the source of the water at this site appears to be runoff from park facilities.

Gairdner's yampah vernal pool (PEGA3) ~G1 (critically imperiled)

Figure 13. An example of Gairdner's yampah wetland at Fort Simcoe State Park in mid-April (foreground). Dark marks in the soils are hoof prints from wild horses. A stand of big sagebrush / basin wildrye is in the background.

At Fort Simcoe State Park, a disturbed wetland supporting Gairdner's yampah occurs in a swale alongside the Garry oak woodland in the south part of the park (Figures 13, 14). This community is undescribed by NatureServe (2008). We have assigned it a rank of G1, critically imperiled, based on its rarity in the Columbia Basin and on the presence of the state listed plant species, American pillwort (*Pilularia americana*). This community may be better described as a vernal pool, but more information is needed on the hydrology and phenology of the species through the season.

At Fort Simcoe State Park, the Gairdner's yampah wetland is dominated by Gairdner's yampah and an annual brome identified as rye brome (*Bromus secalinus*). Other prominent species are Wood's rose (*Rosa woodsii*), bristly mousetail (*Myosurus apetalus*), narrowleaf miner's lettuce (*Montia linearis*), grassy tarweed (*Madia gracilis*) and Burke's larkspur (*Delphinium* x*burkei*). It was not possible to identify a species of clover (*Trifolium* sp.), a species of *Scirpus* or *Eleocharis*, and a species of rush (*Juncus*, possibly *J. bufonius*).

A number of plants of the American pillwort were found in the center of the area pictured in Figure 13 (see the rare plants section of this document for a discussion).

The Gairdner's yampah wetland has a high cover of invasive species. Two noxious weeds are chicory (*Cichorium intybus*) and field bindweed (*Convolvulus arvensis*). Old metal scraps indicate this could once have been farmed. It was being grazed by wild horses that were trapped inside the fence in 2008.

Figure 14. An example of Gairdner's yampah wetland later in the season (July 30) at Fort Simcoe State Park.

Other Land Cover Types

Fort Simcoe State Park had a number of unclassified areas and general land cover types including the following:

- **Disturbed areas**. Disturbed areas included a number of vegetation communities including developed; disturbed; disturbed meadow; disturbed meadow/old field; old field – POBU and very disturbed old field
- **Developed areas**. This includes campgrounds, roads, parking areas, roads, lawns and park facilities.

Rare Plant Surveys

Methods

We visited the project area of the Fort Simcoe State Park several times during the 2008 field season to conduct rare plant surveys. We used the Washington Department of Natural Resources Natural Heritage Program's (DNR NHP) rare plant list to determine the conservation status of vascular plants encountered in the field. We brought a portable plant identification lab with us to the state park, complete with microscopes and other of plant identification tools. We collected plant specimens for later identification when needed. We used a wide range of floras and other plant identification references (e.g. Flora of North America 1993+, Hitchcock and Cronquist 1973, Hitchcock et al 1955, Hickman 1993, University of Washington Burke Museum Herbarium Vascular Plant Collection, USDA 2008, Washington Natural Heritage Program 2008, Washington Natural Heritage Program. no date, Whitson et al 2000).

Fort Simcoe State Park was visited on April 13, April 14, April 15, July 30, July 31, August 1 and August 7 by PBI botanists and interns. The survey routes are shown in Figure 1. We looked for rare plants in habitats previously identified as being likely occurrence sites based on DNR NHP rare plant lists and maps of previous sightings in the surrounding area. So as not to miss a rare plant, all vascular plant species encountered during the inventory were identified on site, at base camp in the portable laboratory, or back at our office.

Survey routes were determined based on the desire to cover efficiently a large proportion of the park's area throughout the field season. We surveyed areas of the park more intensively where rare plants are more likely to occur. This method is referred to as the intuitive-controlled method of rare plant surveys (Whiteaker et al. 1998). Survey routes for the rare plant inventory, as well as rare plant locations were recorded either as GPS waypoints and trackpoints, which were later compiled into a single GIS data layer, depicted in Figure 1.

Results

We found two state Threatened species at Fort Simcoe State Park, American pillwort (*Pilularia americana* A. Braun) and Hoover's umbrellawort (*Tauschia hooveri* Mathias & Constance). These are listed in Table 3 along with their state and global rank. The rare plant sighting forms for these plants are in Appendix E. A Map of their location is shown in Figure 15.

Table 3. Rare plants found at Fort Simcoe State Park.

Symbol	Scientific Name with Author	National Common Name	Family	Global Rank	State Rank	State Status
PIAM	*Pilularia americana* A. Braun	American pillwort	Marsileaceae	G5	S1S2	T
TAHO	*Tauschia hooveri* Mathias & Constance	Hoover's umbrellawort	Apiaceae	G2	S2	T

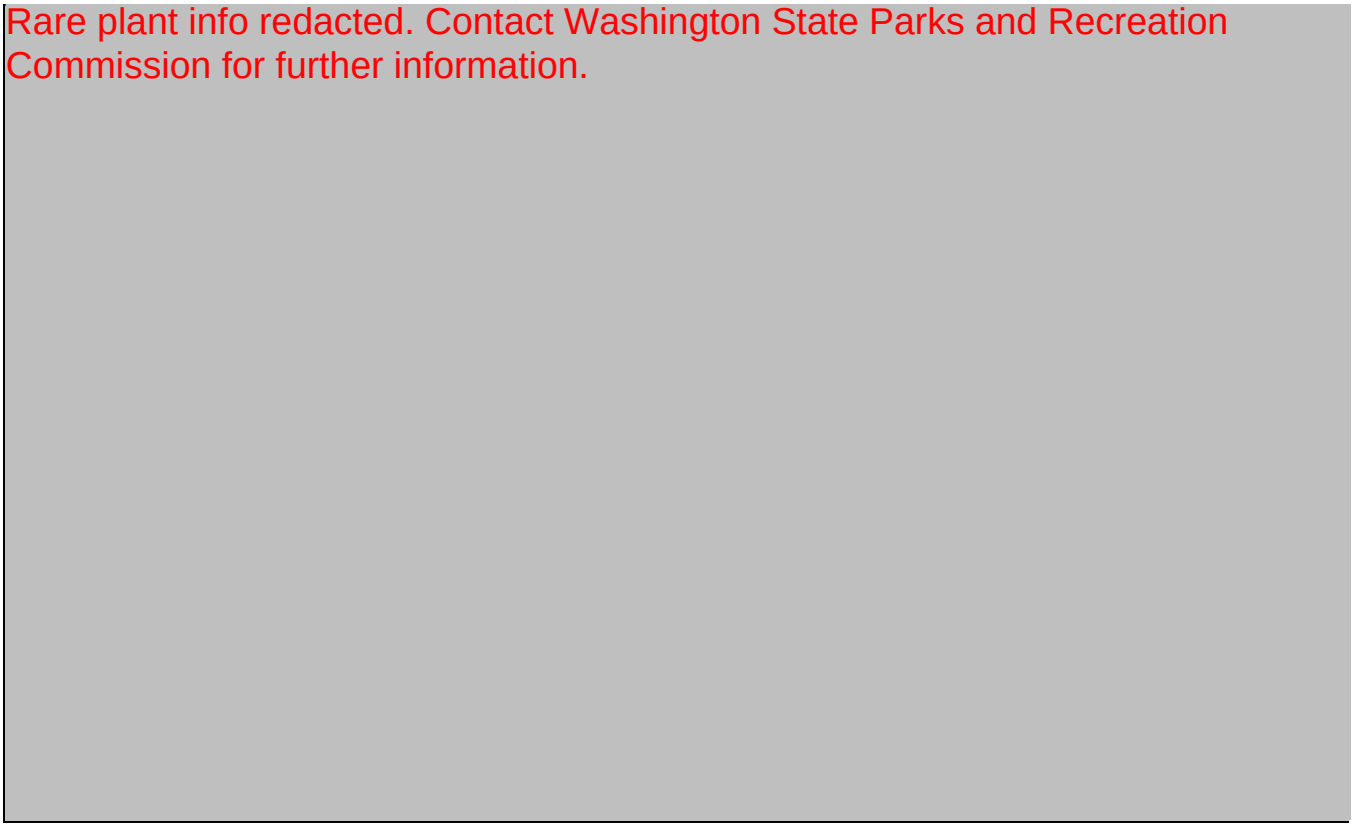

Figure 15. Maps of rare plants found at Fort Simcoe State Park in 2008.

Figure 16. American pillwort specimens collected at Fort Simcoe State Park.

American pillwort (Figure 16) was found in the Gairdner's yampah wetland, within a small area of approximately 3 meters by 10 meters. It was estimated that there were between 10 and 50 plants. The number could not be counted exactly because each clump can have up to ten or fifteen stems, and the clumps are rhizomatous. They are difficult to recognize amongst other graminoids.

American pillwort was previously unknown from west of the Columbia River in Washington. Four historic sightings are recorded by the Washington Natural Heritage program from Adams, Spokane and Lincoln counties.

American pillwort typically occurs in vernal pools. At Fort Simcoe State Park the Gairdner's yampah wetland is probably a set of one or more vernal pools and associated zonal wetlands. This wetland was dominated by Gairdner's yampah (*Perideridia gairdneri*) and an annual brome identified as rye brome (*Bromus secalinus*). Other prominent species found were Wood's rose (*Rosa woodsii*), bristly mousetail (*Myosurus apetalus*) narrowleaf miner's lettuce (*Montia linearis*), grassy tarweed (*Madia gracilis*) and Burke's larkspur (*Delphinium* x*burkei*). It was not possible to identify a species of clover (*Trifolium* sp.) a species of *Scirpus* or *Eleocharis*, and a species of rush (*Juncus*, possibly *J. bufonius*).

No other populations of American pillwort in Washington have been found in grazed areas. The absence of this species in grazed areas adjacent to occupied habitats suggests that it is sensitive to grazing. We observed wild horses grazing in the immediate habitat of the pillwort plants (Figure 13 and 19). Since there is no other habitat for this species to occupy within the park, its existence may depend on more effective exclosure of horses from the wetland.

Figure 17. Hoover's umbrellawort in Fort Simcoe State Park.

Hoover's umbrellawort (Figure 17) was previously recorded at Fort Simcoe State Park by the Washington Natural Heritage program. This species is known from Yakima and Kittitas counties. It is limited to basalt lithosol habitats. At Fort Simcoe State Park, it grows in the thymeleaf buckwheat / Sandberg bluegrass plant association.

We observed wild horses grazing in this habitat. The impacts from these horses were relatively minor since the plants were partly protected by growing in crevices and the horses were not foraging directly on the plants. A greater threat is caused by road building and road use through the habitat.

Vascular Plant List for the 2008 Project Area

There were 205 taxa identified to the rank of species during surveys of Fort Simcoe State Park (Table 4). An additional 15 genera were observed that were only identifiable to the rank of genus. Of the genera, eight are definitely taxa, while seven could be duplicates of other species. Therefore the total number of taxa observed is approximately 213, but could be as high as 220. Table 4 also identifies 61 non-native species identified within the park, or approximately 29% of the total number of species observed.

There were some taxa listed in Table 4 with questionable identifications as follows: (1) an onion identified only to species has a bulb resembling tapertip onion (*Allium acuminatum*). (2) Geyer's onion (*Allium geyeri*)was identified based only on the bulb coating. (3) Purple cushion fleabane (*Erigeron poliospermus*) did not match typical descriptions of this taxon, but no taxon could be found that matched its morphology. In comparison to typical material, these specimens had deeper blue flowers; shorter, narrower leaves; mixed wavy and straight pubescence; no stem leaves; overall shorter height and woody stem bases. (4) Woodland beardtongue (*Nothochelone nemorosa*) was not in flower and could not be positively identified.

Table 4. Vascular Plant Species of Fort Simcoe State Park. The column "Symbol" represents the plant code used on the USDA PLANTS database.

Symbol	Scientific Name with Author	National Common Name	Family	Exotic
ACMI2	Achillea millefolium L.	common yarrow	Asteraceae	
ACOC3	Achnatherum occidentale (Thurb.) Barkworth	western needlegrass	Poaceae	
ACRE3	Acroptilon repens (L.) DC.	hardheads	Asteraceae	yes
AGHE2	Agoseris heterophylla (Nutt.) Greene	annual agoseris	Asteraceae	
AGCRP8	Agropyron cristatum (L.) Gaertn. ssp. pectinatum (M. Bieb.) Tzvelev	crested wheatgrass	Poaceae	yes
ALGE	Allium geyeri S. Watson	Geyer's onion	Liliaceae	
ALLIU	Allium L.	onion	Liliaceae	
ALRO	Allium robinsonii L.F. Hend.	Robinson's onion	Liliaceae	
AMBL	Amaranthus blitoides S. Watson	mat amaranth	Amaranthaceae	yes
AMME12	Amsinckia menziesii (Lehm.) A. Nelson & J.F. Macbr. var. intermedia (Fisch. & C.A. Mey.) Ganders	common fiddleneck	Boraginaceae	
AMMEM2	Amsinckia menziesii (Lehm.) A. Nelson & J.F. Macbr. var. menziesii	Menzies' fiddleneck	Boraginaceae	
ANDI2	Antennaria dimorpha (Nutt.) Torr. & A. Gray	low pussytoes	Asteraceae	
APAN2	Apocynum androsaemifolium L.	spreading dogbane	Apocynaceae	
ARSP	Arabis sparsiflora Nutt.	sicklepod rockcress	Brassicaceae	
ARMI2	Arctium minus Bernh.	lesser burdock	Asteraceae	yes
ARDO3	Artemisia douglasiana Besser	Douglas' sagewort	Asteraceae	
ARLU	Artemisia ludoviciana Nutt.	white sagebrush	Asteraceae	
ARTR2	Artemisia tridentata Nutt.	big sagebrush	Asteraceae	
ARTR4	Artemisia tripartita Rydb.	threetip sagebrush	Asteraceae	
ASFA	Asclepias fascicularis Decne.	Mexican whorled milkweed	Asclepiadaceae	
ASCLE	Asclepias L.	milkweed	Asclepiadaceae	
ASLE5	Astragalus leibergii M.E. Jones	Leiberg's milkvetch	Fabaceae	
BACA3	Balsamorhiza careyana A. Gray	Carey's balsamroot	Asteraceae	
BAHOL	Balsamorhiza hookeri (Hook.) Nutt. var.	rabbithead balsamroot	Asteraceae	

Symbol	Scientific Name with Author	National Common Name	Family	Exotic
	lagocephala (Sharp) Cronquist			
BASC5	Bassia scoparia (L.) A.J. Scott	burningbush	Chenopodiaceae	
BETH	Berberis thunbergii DC.	Japanese barberry	Berberidaceae	yes
BRAR5	Bromus arvensis L.	field brome	Poaceae	yes
BRIN2	Bromus inermis Leyss.	smooth brome	Poaceae	yes
BROMU	Bromus L.	brome	Poaceae	
BRRA2	Bromus racemosus L.	bald brome	Poaceae	yes
BRSE	Bromus secalinus L.	rye brome	Poaceae	yes
BRTE	Bromus tectorum L.	cheatgrass	Poaceae	yes
BUAR3	Buglossoides arvensis (L.) I.M. Johnst.	corn gromwell	Boraginaceae	yes
CAST	Callitriche stagnalis Scop.	pond water-starwort	Callitrichaceae	
CAQU2	Camassia quamash (Pursh) Greene	small camas	Liliaceae	
CAMI2	Camelina microcarpa Andrz. ex DC.	littlepod false flax	Liliaceae	yes
CANU17	Cardamine nuttallii Greene	Nuttall's toothwort	Brassicaceae	
CADR	Cardaria draba (L.) Desv.	whitetop	Brassicaceae	yes
CAAM10	Carex amplifolia Boott	bigleaf sedge	Cyperaceae	
CAREX	Carex L.	sedge	Cyperaceae	
CEDI3	Centaurea diffusa Lam.	diffuse knapweed	Asteraceae	yes
CESO3	Centaurea solstitialis L.	yellow star-thistle	Asteraceae	yes
CESTM	Centaurea stoebe L. ssp. micranthos (Gugler) Hayek	spotted knapweed	Asteraceae	yes
CETE5	Ceratocephala testiculata (Crantz) Roth	curveseed butterwort	Ranunculaceae	yes
CHDO	Chaenactis douglasii (Hook.) Hook. & Arn.	Douglas' dustymaiden	Asteraceae	
CHBO2	Chenopodium botrys L.	Jerusalem oak goosefoot	Chenopodiaceae	yes
CHTE2	Chorispora tenella (Pall.) DC.	crossflower	Brassicaceae	yes
CHVI8	Chrysothamnus viscidiflorus (Hook.) Nutt.	yellow rabbitbrush	Asteraceae	
CIIN	Cichorium intybus L.	chicory	Asteraceae	yes
CIAR4	Cirsium arvense (L.) Scop.	Canada thistle	Asteraceae	yes
CIVU	Cirsium vulgare (Savi) Ten.	bull thistle	Asteraceae	yes
CLRH	Clarkia rhomboidea Douglas ex Hook.	diamond clarkia	Onagraceae	
CLPE	Claytonia perfoliata Donn ex Willd.	miner's lettuce	Portulacaceae	
CLLI2	Clematis ligusticifolia Nutt.	western white clematis	Ranunculaceae	
COPA3	Collinsia parviflora Lindl.	maiden blue eyed Mary	Scrophulariaceae	
COGR4	Collomia grandiflora Douglas ex Lindl.	grand collomia	Polemoniaceae	
COLI2	Collomia linearis Nutt.	tiny trumpet	Polemoniaceae	
COUM	Comandra umbellata (L.) Nutt.	bastard toadflax	Santalaceae	
COAR4	Convolvulus arvensis L.	field bindweed	Convolvulaceae	yes
COST19	Corallorhiza striata Lindl.	hooded coralroot	Orchidaceae	
COSE16	Cornus sericea L.	redosier dogwood	Cornaceae	
COCO6	Corylus cornuta Marsh.	beaked hazelnut	Betulaceae	
CRDO2	Crataegus douglasii Lindl.	black hawthorn	Rosaceae	
CRATA	Crataegus L.	hawthorn	Rosaceae	yes
CRMO4	Crepis modocensis Greene	Modoc hawksbeard	Asteraceae	
CRMU	Crocidium multicaule Hook.	common spring-gold	Asteraceae	
CUSCU	Cuscuta L.	dodder	Cuscutaceae	
CYOF	Cynoglossum officinale L.	gypsyflower	Boraginaceae	yes
DENU2	Delphinium nuttallianum Pritz. ex Walp.	twolobe larkspur	Ranunculaceae	
DEBU	Delphinium X burkei Greene (pro sp.) [depauperatum X nuttallianum]		Ranunculaceae	

Symbol	Scientific Name with Author	National Common Name	Family	Exotic
DEPI	Descurainia pinnata (Walter) Britton	western tansymustard	Brassicaceae	
DESCU	Descurainia Webb & Bethel.	tansymustard	Brassicaceae	
DRVE2	Draba verna L.	spring draba	Brassicaceae	yes
ELELE	Elymus elymoides (Raf.) Swezey ssp. elymoides	squirreltail	Poaceae	
ELGL	Elymus glaucus Buckley	blue wildrye	Poaceae	
ELMU3	Elymus multisetus M.E. Jones	big squirreltail	Poaceae	
ELRE4	Elymus repens (L.) Gould	quackgrass	Poaceae	yes
EPCI	Epilobium ciliatum Raf.	fringed willowherb	Onagraceae	
EPMI	Epilobium minutum Lindl. ex Lehm.	chaparral willowherb	Onagraceae	
ERBL2	Ericameria bloomeri (A. Gray) J.F. Macbr.	rabbitbush	Asteraceae	
ERNAN4	Ericameria nauseosa (Pall. ex Pursh) G.L. Nesom & Baird ssp. nauseosa var. nana (Cronquist) G.L. Nesom & Baird	rubber rabbitbrush	Asteraceae	
ERNAS2	Ericameria nauseosa (Pall. ex Pursh) G.L. Nesom & Baird ssp. nauseosa var. speciosa (Nutt.) G.L. Nesom & Baird	rubber rabbitbrush	Asteraceae	
ERRE8	Ericameria resinosa Nutt.	Columbian goldenbush	Asteraceae	
ERLE5	Erigeron leibergii Piper	Leiberg's fleabane	Asteraceae	
ERPO2	Erigeron poliospermus A. Gray	purple cushion fleabane	Asteraceae	
ERCO12	Eriogonum compositum Douglas ex Benth.	arrowleaf buckwheat	Polygonaceae	
ERDOS	Eriogonum douglasii Benth. var. sublineare (S. Stokes) Reveal	Douglas' buckwheat	Polygonaceae	
EREL5	Eriogonum elatum Douglas ex Benth.	tall woolly buckwheat	Polygonaceae	
ERNI2	Eriogonum niveum Douglas ex Benth.	snow buckwheat	Polygonaceae	
ERTH4	Eriogonum thymoides Benth.	thymeleaf buckwheat	Polygonaceae	
ERUM	Eriogonum umbellatum Torr.	sulphur-flower buckwheat	Polygonaceae	
ERVI5	Eriogonum vimineum Douglas ex Benth.	wickerstem buckwheat	Polygonaceae	
ERCI6	Erodium cicutarium (L.) L'Hér. ex Aiton	redstem stork's bill	Geraniaceae	yes
FERU2	Festuca rubra L.	red fescue	Poaceae	
FRAL2	Frasera albicaulis Douglas ex Griseb.	whitestem frasera	Gentianaceae	
FRPU2	Fritillaria pudica (Pursh) Spreng.	yellow fritillary	Liliaceae	
GAAR	Gaillardia aristata Pursh	common gaillardia	Asteraceae	
GAAP2	Galium aparine L.	stickywilly, cleavers	Rubiaceae	yes
GAYOP	Gayophytum A. Juss.	groundsmoke	Onagraceae	
HISC2	Hieracium scouleri Hook.	Scouler's woollyweed	Asteraceae	
HOUM	Holosteum umbellatum L.	jagged chickweed	Caryophyllaceae	yes
HULU	Humulus lupulus L.	common hop	Cannabaceae	yes
HYCAC	Hydrophyllum capitatum Douglas ex Benth. var. capitatum	ballhead waterleaf	Hydrophyllaceae	
IDSC	Idahoa scapigera (Hook.) A. Nelson & J.F. Macbr.	oldstem idahoa	Brassicaceae	
JUARL	Juncus arcticus Willd. ssp. littoralis (Engelm.) Hultén	mountain rush	Juncaceae	
LASE	Lactuca serriola L.	prickly lettuce	Asteraceae	yes
LEMI3	Lemna minor L.	common duckweed	Lemnaceae	
LELA2	Lepidium latifolium L.	broadleaved pepperweed	Brassicaceae	yes
LERE7	Lewisia rediviva Pursh	bitter root	Portulacaceae	
LECI4	Leymus cinereus (Scribn. & Merr.) A. Löve	basin wildrye	Poaceae	

Symbol	Scientific Name with Author	National Common Name	Family	Exotic
LIGL2	Lithophragma glabrum Nutt.	bulbous woodland-star	Saxifragaceae	
LIPA5	Lithophragma parviflorum (Hook.) Nutt. ex Torr. & A. Gray	smallflower woodland-star	Saxifragaceae	
LIRU4	Lithospermum ruderale Douglas ex Lehm.	western stoneseed, puccoon	Boraginaceae	
LOAM	Lomatium ambiguum (Nutt.) J.M. Coult. & Rose	Wyeth biscuitroot	Apiaceae	
LOGE2	Lomatium geyeri (S. Watson) J.M. Coult. & Rose	Geyer's biscuitroot	Apiaceae	
LOGO	Lomatium gormanii (Howell) J.M. Coult. & Rose	Gorman's biscuitroot	Apiaceae	
LOGR	Lomatium grayi (J.M. Coult. & Rose) J.M. Coult. & Rose	Gray's biscuitroot	Apiaceae	
LOMA3	Lomatium macrocarpum (Nutt. ex Torr. & A. Gray) J.M. Coult. & Rose	bigseed biscuitroot	Apiaceae	
LONU2	Lomatium nudicaule (Pursh) J.M. Coult. & Rose	barestem biscuitroot	Apiaceae	
LOTR2	Lomatium triternatum (Pursh) J.M. Coult. & Rose	nineleaf biscuitroot	Apiaceae	
LOUNU	Lotus unifoliolatus (Hook.) Benth. var. unifoliolatus	American bird's-foot trefoil	Fabaceae	
LUARL5	Lupinus argenteus Pursh ssp. argenteus var. laxiflorus (Douglas ex Lindl.) Dorn	silvery lupine	Fabaceae	
LUPIN	Lupinus L.	lupine	Fabaceae	
LULE3	Lupinus leucophyllus Douglas ex Lindl.	velvet lupine	Fabaceae	
LUSE4	Lupinus sericeus Pursh	silky lupine	Fabaceae	
MAPO	Maclura pomifera (Raf.) C.K. Schneid.	osage orange	Moraceae	yes
MAGR3	Madia gracilis (Sm.) D.D. Keck	grassy tarweed	Asteraceae	
MAAQ2	Mahonia aquifolium (Pursh) Nutt.	hollyleaved barberry	Berberidaceae	
MARE11	Mahonia repens (Lindl.) G. Don	creeping barberry, low Oregon-grape	Berberidaceae	
MARA7	Maianthemum racemosum (L.) Link	feathery false lily of the valley	Liliaceae	
MAST4	Maianthemum stellatum (L.) Link	starry false lily of the valley	Liliaceae	
MAPU	Malus pumila Mill.	paradise apple	Rosaceae	yes
MAOR3	Marah oreganus (Torr. ex S. Watson) Howell	coastal manroot	Cucurbitaceae	
MESA	Medicago sativa L.	alfalfa	Fabaceae	yes
MEOF	Melilotus officinalis (L.) Lam.	yellow sweetclover	Fabaceae	yes
MILI5	Microseris lindleyi (DC.) A. Gray	Lindley's silverpuffs	Asteraceae	
MIGRH	Microsteris gracilis (Hook.) Greene var. humilior (Hook.) Cronquist	slender phlox	Polemoniaceae	
MIGU	Mimulus guttatus DC.	seep monkeyflower	Scrophulariaceae	
MOFO	Montia fontana L.	annual water minerslettuce	Portulacaceae	
MOLI4	Montia linearis (Douglas ex Hook.) Greene	narrowleaf minerslettuce	Portulacaceae	
MYAPB	Myosurus apetalus C. Gay var. borealis Whittemore	bristly mousetail	Ranunculaceae	
MYOSU	Myosurus L.	mousetail	Ranunculaceae	
NEBR	Nemophila breviflora A. Gray	basin nemophila	Hydrophyllaceae	
NEPA	Nemophila parviflora Douglas ex Benth.	smallflower nemophila	Hydrophyllaceae	
NECA2	Nepeta cataria L.	catnip	Lamiaceae	yes

Symbol	Scientific Name with Author	National Common Name	Family	Exotic
NOTR2	Nothocalais troximoides (A. Gray) Greene	sagebrush false dandelion	Asteraceae	
NONE3	Nothochelone nemorosa (Douglas ex Lindl.) Straw	woodland beardtongue	Scrophulariaceae	
OLDOD	Olsynium douglasii (A. Dietr.) E.P. Bicknell var. douglasii	Douglas' grasswidow	Iridaceae	
OLDOI	Olsynium douglasii (A. Dietr.) E.P. Bicknell var. inflatum (Suksd.) Cholewa & Douglass M. Hend.	inflated grasswidow	Iridaceae	
PEGA3	Perideridia gairdneri (Hook. & Arn.) Mathias	Gairdner's yampah	Apiaceae	
PHHE2	Phacelia heterophylla Pursh	varileaf phacelia	Hydrophyllaceae	
PHLI	Phacelia linearis (Pursh) Holz.	threadleaf phacelia	Hydrophyllaceae	
PHLE4	Philadelphus lewisii Pursh	Lewis' mock orange	Hydrangeaceae	
PHLO2	Phlox longifolia Nutt.	longleaf phlox	Polemoniaceae	
PHVI3	Phlox viscida E.E. Nelson	sticky phlox	Polemoniaceae	
PHCA11	Physocarpus capitatus (Pursh) Kuntze	Pacific ninebark	Rosaceae	
PIAM	Pilularia americana A. Braun	American pillwort	Marsileaceae	
PLTE	Plagiobothrys tenellus (Nutt. ex Hook.) A. Gray	Pacific popcornflower	Boraginaceae	
PLMA2	Plantago major L.	common plantain	Plantaginaceae	yes
PLMA4	Plectritis macrocera Torr. & A. Gray	longhorn plectritis	Valerianaceae	
POBU	Poa bulbosa L.	bulbous bluegrass	Poaceae	yes
POPR	Poa pratensis L.	Kentucky bluegrass	Poaceae	yes
POSE	Poa secunda J. Presl	Sandberg bluegrass	Poaceae	
POMI	Polemonium micranthum Benth.	annual polemonium	Polemoniaceae	
PODO4	Polygonum douglasii Greene	Douglas' knotweed	Polygonaceae	
POLYG4	Polygonum L.	knotweed	Polygonaceae	
POBAT	Populus balsamifera L. ssp. trichocarpa (Torr. & A. Gray ex Hook.) Brayshaw	black cottonwood	Salicaceae	
POTEN	Potentilla L.	cinquefoil	Rosaceae	
PRVU	Prunella vulgaris L.	common selfheal	Lamiaceae	
PRAV	Prunus avium (L.) L.	sweet cherry	Rosaceae	yes
PRDO	Prunus domestica L.	European plum	Rosaceae	yes
PREM	Prunus emarginata (Douglas ex Hook.) D. Dietr.	bitter cherry	Rosaceae	
PRVI	Prunus virginiana L.	chokecherry	Rosaceae	
PSSP6	Pseudoroegneria spicata (Pursh) A. Löve	bluebunch wheatgrass	Poaceae	
PUTR2	Purshia tridentata (Pursh) DC.	antelope bitterbrush	Rosaceae	
PYCO	Pyrus communis L.	common pear	Rosaceae	yes
QUGA4	Quercus garryana Douglas ex Hook.	Oregon white oak	Fagaceae	
QURO2	Quercus robur L.	English oak	Fagaceae	yes
RARE3	Ranunculus repens L.	creeping buttercup	Ranunculaceae	yes
RHGL	Rhus glabra L.	smooth sumac	Anacardiaceae	
RIAU	Ribes aureum Pursh	golden currant	Grossulariaceae	
ROPS	Robinia pseudoacacia L.	black locust	Fabaceae	yes
ROSA5	Rosa L.	rose	Rosaceae	
ROWO	Rosa woodsii Lindl.	Woods' rose	Rosaceae	
RUCR	Rumex crispus L.	curly dock	Polygonaceae	yes
RUMEX	Rumex L.	dock	Polygonaceae	
SABE2	Salix bebbiana Sarg.	Bebb willow	Salicaceae	
SAEX	Salix exigua Nutt.	narrowleaf willow	Salicaceae	

Symbol	Scientific Name with Author	National Common Name	Family	Exotic
SALIX	Salix L.	willow	Salicaceae	
SAKA	Salsola kali L.	Russian thistle	Chenopodiaceae	yes
SANIC5	Sambucus nigra L. ssp. cerulea (Raf.) R. Bolli	blue elderberry	Caprifoliaceae	
SAIN4	Saxifraga integrifolia Hook.	wholeleaf saxifrage	Saxifragaceae	
MALE3	Malvella leprosa (Ortega) Krapov.	alkali mallow	Malvaceae	
SIAL2	Sisymbrium altissimum L.	tall tumblemustard	Brassicaceae	yes
SILO3	Sisymbrium loeselii L.	small tumbleweed mustard	Brassicaceae	yes
SOCA6	Solidago canadensis L.	Canada goldenrod	Asteraceae	
SPAN2	Sparganium angustifolium Michx.	narrowleaf bur-reed	Sparganiaceae	
SPEM2	Sparganium emersum Rehmann	European bur-reed	Sparganiaceae	
STNI	Stellaria nitens Nutt.	shiny chickweed	Caryophyllaceae	
STEPH	Stephanomeria Nutt.	wirelettuce	Asteraceae	
SYAL	Symphoricarpos albus (L.) S.F. Blake	common snowberry	Caprifoliaceae	
SYVU	Syringa vulgaris L.	lilac	Oleaceae	yes
TAOF	Taraxacum officinale F.H. Wigg.	common dandelion	Asteraceae	yes
TAHO	Tauschia hooveri Mathias & Constance	Hoover's umbrellawort	Apiaceae	
THIN6	Thinopyrum intermedium (Host) Barkworth & D.R. Dewey	intermediate wheatgrass	Poaceae	yes
THCU	Thysanocarpus curvipes Hook.	sand fringepod	Brassicaceae	
TRDU	Tragopogon dubius Scop.	yellow salsify	Asteraceae	yes
TRIFO	Trifolium L.	clover	Fabaceae	
TRMA3	Trifolium macrocephalum (Pursh) Poir.	largehead clover	Fabaceae	
TRGR7	Triteleia grandiflora Lindl.	largeflower triteleia	Liliaceae	
TRHY3	Triteleia hyacinthina (Lindl.) Greene	white brodiaea	Liliaceae	
TYLA	Typha latifolia L.	broadleaf cattail	Typhaceae	
VEDU	Ventenata dubia (Leers) Coss.	North Africa grass	Poaceae	yes
VEBL	Verbascum blattaria L.	moth mullein	Scrophulariaceae	yes
VETH	Verbascum thapsus L.	common mullein	Scrophulariaceae	yes
VEOF	Verbena officinalis L.	herb of the cross	Verbenaceae	yes
VITR3	Viola trinervata (Howell) Howell ex A. Gray	Rainier violet	Violaceae	
VUBR	Vulpia bromoides (L.) Gray	brome fescue	Poaceae	yes
VUMY	Vulpia myuros (L.) C.C. Gmel.	rat-tail fescue	Poaceae	yes
ZIVE	Zigadenus venenosus S. Watson	meadow deathcamas	Liliaceae	

Discussion and Recommendations

Noxious Weeds

There are significant occurrences of noxious weeds in Fort Simcoe State Park. The noxious weeds that we observed in each vegetation community polygon are recorded in the corresponding record in the vegetation polygon database for the park, which is included in this report as Appendix D.

A list of the noxious weeds observed in Fort Simcoe State Park is presented in Table 5. We found seven Class B weeds and four Class C weeds.

Table 5. State listed noxious weeds found at Fort Simcoe State Park.

Symbol	Scientific Name with Author	National Common Name	State Weed Status
ACRE3	Acroptilon repens (L.) DC.	hardheads	B
BASC5	Bassia scoparia (L.) A.J. Scott	burningbush	B
CEDI3	Centaurea diffusa Lam.	diffuse knapweed	B
CESO3	Centaurea solstitialis L.	yellow star-thistle	B
CESTM	Centaurea stoebe L. ssp. micranthos (Gugler) Hayek	spotted knapweed	B
CYOF	Cynoglossum officinale L.	gypsyflower	B
LELA2	Lepidium latifolium L.	broadleaved pepperweed	B
CADR	Cardaria draba (L.) Desv.	whitetop	C
CIAR4	Cirsium arvense (L.) Scop.	Canada thistle	C
CIVU	Cirsium vulgare (Savi) Ten.	bull thistle	C
COAR4	Convolvulus arvensis L.	field bindweed	C

High priority should be placed on controlling and preventing further expansion of noxious weeds at Fort Simcoe State Park. There are effective biological controls for diffuse and spotted knapweed, and these should be introduced, if not already present. Biological controls for the other noxious weeds should be explored and considered, as these will be the best, most cost-effective long-term control measures. Bull thistle is occasional, and not a serious threat at this time. The others all have the potential to dominate plant communities and exclude native plants.

Ecological Condition

The ecological condition of Fort Simcoe State Park varies from excellent to poor. Conditions also included developed and disturbed areas (see Appendix A for definitions). A map of the overall ecological condition is presented in Figure 18. The long history of the use of this park as a fort and later as an Indian Agency has brought in a number of invasive species that contribute to poor ecological conditions. Past practices that contributed to the invasion are agricultural uses and introduction of ornamental species. For example, the park is notable in being the only area west of the Mississippi that supports a healthy population of osage orange (*Maclura pomifera*), which is likely to have been introduced as a novelty. In addition, there is ongoing grazing by horses that may have aided in the spread of non-native plants and degradation of native communities.

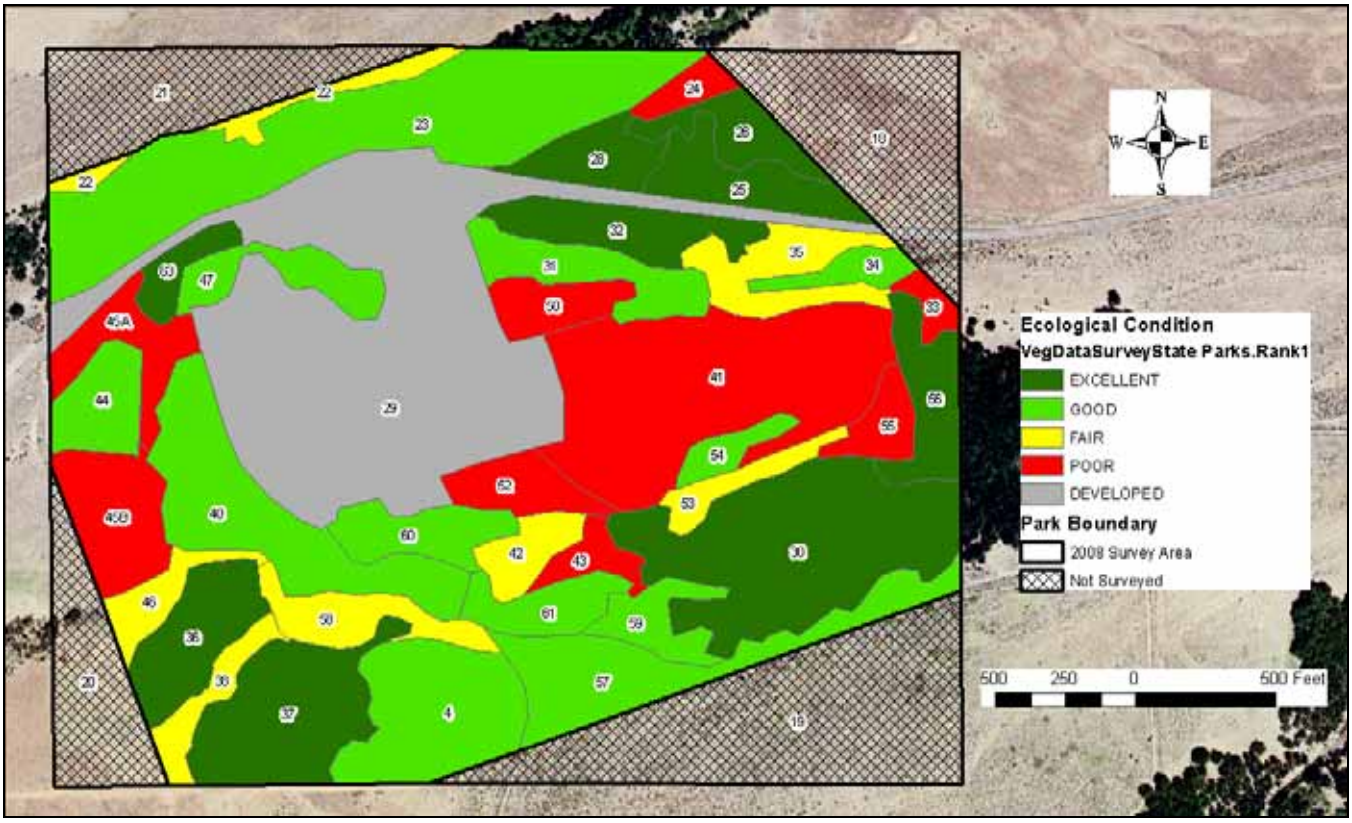

Figure 18. Ecological condition ranks of vegetation polygons.

The largest percentage of areas ranked in poor condition were classified as disturbed. Although these areas were not developed for recreation, they were sometimes so degraded that their original ecological condition could not be determined.

The Garry oak woodlands were rated mostly in good and excellent condition. Some of the lithosol communities were also rated in excellent condition. These areas partly owe their state of preservation to their lack of palatable forage for horses. Plants in the lithosol communities are protected from disturbance by their life forms. They are low-growing sub-shrubs and ephemeral species that are dormant most of the year. Furthermore, the rocky substrates in these areas are less prone to weed invasions.

Most of the plant species found in the park are native to Washington State. We did find 61 non-native species out of 213 taxa, or approximately 29% of the total number of species observed.

An additional species causing damage to plant communities is curveseed butterwort (*Ceratocephala testiculata*). Parts of the Garry oak woodlands have become covered with a continuous understory cover of this species, which has sharp spines rendering it unpalatable to wildlife. The most serious part of this infestation is at the east end of the park and extending outside of the park boundary.

During our visit, we observed several wild horses grazing at Fort Simcoe State Park. These horses had gotten caught inside the fence and couldn't easily be caught and taken out. Thousands of wild horses roam the Yakama Indian Reservation and they are capable of causing damage to native plant communities. Even a couple horses could result in damage to rare plants. These horses were observed to be causing damage to the habitat for one of the rare plants found in the park, American pillwort (*Pilularia americana*), which is in a small wetland east of the parking area.

The presettlement condition of shrub-steppe habitats in the Columbia Plateau was influenced by the presence of cryptobiotic soil crusts that were later reduced by livestock grazing (Weddell 2001). Wild horses could be having a similar impact on cryptobiotic soils at this park.

Restoration Opportunities

There are many restoration opportunities at Fort Simcoe. The need for restoration is high, since this area has a long history of cultural importance to natives and because it lies within the Yakama Indian Reservation. Furthermore, this park has a number of new and rare plant communities that are considered globally imperiled. Focus on restoration of these plant communities and communities adjacent to imperiled communities should be a primary focus.

Fort Simcoe State Park has been heavily affected by past development and human activities. Some of these activities may have occurred during the 1800s, since some of the signs of the disturbances have become faint. Scraps of metal in the Gairdner's yampah wetland indicate it may have had use as an agricultural field. A historic graveyard now used as an interpretive trail occurs close by. Introduced species such as chicory and hops (*Humulus lupulus*) may trace their origin to intentional agricultural introduction. It may be possible to develop a restoration framework centered around the historic perspective. This could possibly involve setting aside areas with important cultural species as well as homestead gardens.

The generally good to excellent condition of the Garry oak woodlands should be actively maintained. From observing the adjacent properties, it is apparent that these woodlands could be lost to invasive species or fire suppression if not managed properly.

It should be a priority to protect Fort Simcoe from overgrazing by wild horses (Figure 19). There are plenty of wild horses on the reservation and outside of the park, so there is no wildlife viewing advantage in having them in the park. Although the park actively discourages these animals, it requires diligence. It may not be possible to exclude them from the park boundary 100% of the time. In order to protect habitat for the American pillwort, an interior fence should be built to exclude horses from the Gairdner's yampah wetland.

Figure 19. Wild horses grazing in Garry oak woodlands at Fort Simcoe State Park.

Other Recommendations

Fort Simcoe State Park contains many plant communities with a G1 or G2 global conservation status, indicating that they are imperiled or critically imperiled. Our recommendation is that management of the park should focus on protection of the imperiled plant communities and rare plant populations as one of the primary management goals.

The GIS boundary of Fort Simcoe State Park is in need of serious revision. The actual fenced boundaries of the park deviate significantly from the GIS boundary. In addition, the area estimate for Fort Simcoe needs to be reduced significantly to reflect the actual area within the park.

GIS Products Produced

Associated with this report are polygon layers created by PBI depicting the vegetation community types mapped in the project area of within Fort Simcoe State Park. The datasets have been converted into ESRI shapefile formats and provided to WSPRC. The spatial datasets are complete with metadata meeting FGDC standards. Refer to the associated metadata for descriptions and attribute definitions for each spatial dataset.

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Appendix A – Ecological Condition Ranking System

Ecological Condition Ranks

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

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

- **Excellent Ecological Condition**

Areas in this class have very few non-native plants. The composition and structure of native vegetation in this condition class correspond to the natural range of variation characteristic to this habitat type. Old-growth conditions often exist. Species diversity of native plants and animals is often high relative to the natural community under consideration. Wildlife habitat conditions are optimal for species of conservation concern. Soil compaction, accelerated erosion and hydrologic alteration are absent. Direct signs of human-induced ecological stress are absent. Many rare plant and animal species may only exist within this condition class.

- **Good Ecological Condition**

Areas in this class have few non-native plants. The composition and structure of native vegetation in this condition class correspond to the natural range of variation characteristic to this habitat type. Old-growth conditions may exist, but have been subject to some human-induced stress. Species diversity of native plants and animals is moderately high relative to the natural community under consideration. Wildlife habitat conditions are adequate for species of conservation concern. Soil compaction, accelerated erosion and hydrologic alteration do not significantly influence the area. Direct signs of human-induced ecological stress are infrequent. Some rare plant and animal species may exist within this condition class.

- **Marginal Ecological Condition**

Areas in this class often have both native and non-native plants. The composition and structure of native vegetation in this condition class is altered from the natural range of variation characteristic to this habitat type. Old-growth conditions are absent. Species diversity of native plants and animals is lower than the two high condition classes. Wildlife habitat conditions may be adequate for some species of conservation concern, but not adequate for many. Soil compaction, accelerated erosion and hydrologic alteration may impact the area. Direct signs of human-induced ecological stress are frequent. Most rare plant and animal species are only infrequently encountered within this condition class.

- **Poor Ecological Condition**

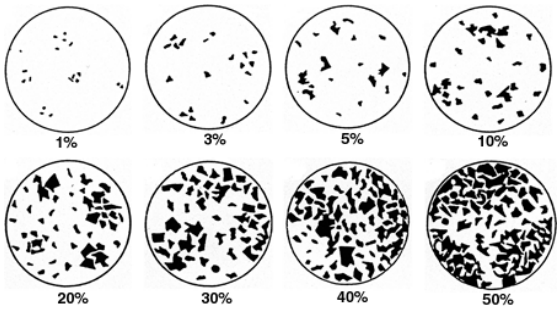
Areas in this class are often dominated by non-native plants. The composition and structure of native vegetation in this condition class is often dramatically altered from the natural range of variation characteristic to this habitat type. Old-growth conditions are absent. Species diversity of native plants and animals is often low. Wildlife habitat conditions are not adequate for most species of conservation concern. Soil compaction, accelerated erosion and hydrologic alteration often influence the area. Direct signs of human-induced ecological stress are frequent. Rare plant and animal species are seldom encountered within this condition class.

Appendix B – Vegetation Survey Codes and Instructions

Site = name of locality of map project **Name/Date** = your name / day-month-year completed polygon survey
Polygon # = number you put on map
Survey intensity
1 = walked or could see most of polygon (high confidence in survey data)
2 = walked or could see part of polygon interior (moderate confidence)
3 = walked perimeter or could see part of polygon interior (low confidence)
4 = photo interpretation or other remote survey

TOTAL VEGETATION COVER includes all vascular plants, mosses, lichens and foliose lichens (crustose lichens excluded they are considered rock); this never exceeds 100%. Space between leaves/branches is included in "cover".

Code	**Cover (%)**	Cover mid-pt
0	0	0
1	<1	0.5
2	1-5	3
3	5-25	15
4	25-60	43
5	60-90	75
6	>90	95



TREES, SHRUBS, GRAMINOIDS, FORBS, EXOTICS cover includes the space between leaves/branches. Each Life form category canopy cover must be 0-100%. Therefore, the sum of all life forms (layers) can exceed 100%. List most abundant species in each life form category; when trees are cored, note DBH, species, length of core, number of rings counted.

EXOTICS = primary species observed; secondary species observed (please pay special attention to noxious weeds). Also, note the relative abundance of exotics in each polygon, using the 1-6 cover codes noted above.

SUBSTRATES estimate to nearest **%** the following, the sum of the categories adds to 100%. Describe in comments if there is wide variation in any category; note % standing water if it is persistent or characteristic of site.
Water = exposed standing or flowing water
Rock Outcrop = exposed bedrock including detached boulders over 1m across
Talus = exposed large, loose rocks
Gravel/Cobble = large fragments between sand and boulder
Bare Ground = exposed mineral soil
Mosses/Lichens = nonvascular plant cover on soil
Litter = includes logs, branches, and basal area of plants
Caves = area covered by caves
Mines = area covered by mines

LAND USE - put 0 (zero) if not applicable to site.
Logging
1 = unlogged, no evidence of past logging or occasional cut stumps not part of systematic harvest of trees, no or very little impact on stand composition
2 = selectively logged: frequent cut stumps but origin of dominant or co-dominant cohort appears to be natural disturbance
3 = heavy logging disturbance with natural regeneration: many cut stumps that predate the dominant or co-dominant cohort with no tree planting
4 = tree plantation: dominant cohort appears to be planted after clearcutting
Stand Age
1 = very young 0-40 yr
2 = young 40-90 yr
3 = mature 90-200 yr
4 = old-growth 200+ yr
5 = young with scattered old trees (2-10 old trees per acre)
6 = mature with scattered old trees
Fire
Note presence of fire (i.e. charcoal, fire scars, etc.) and, if present , estimate time of fire.
Agriculture
1 = active annual cropping
2 = active perennial herbaceous cropping
3 = active woody plant cultivation
4 = fallow, plowed no crops this yr
5 = Federal CRP
6 = other
Livestock
1 = active heavy grazing (most forage used, soil compaction or churning)
2 = active moderate grazing (25-75% forage used)
3 = active light grazing (lots of last yr's litter left)
4 = no current, heavy past grazing
5 = no current, light past grazing
6 = no obvious sign of grazing
Development

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

Wildlife

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

Recreation Use Severity

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

Recreation Use Primary Type

1 = wheeled
2 = hoofed
3 = pedestrian
4 = combination of above
5 = other

Hydrology

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

Descriptions of Plant Communities

PLANT ASSOCIATION (PA) = list all PAs encountered in polygon survey, in comments list source of name if not on provided key. NOTE: Contractor is required to consult with the WNHP to obtain the most current classification and condition ranking information available.

Existing Vegetation Community – Write down the major tree/shrub/grass-forb-fern community type. Pay attention to indicator species. Alien species may be included in community description.

Ecological Condition Rank of PA in key or estimate. (The condition of each plant vegetation community polygon shall be rated using the codes listed in Appendix A.)

% of Polygon = your estimate of % of polygon covered by this plant community. (PA1 is the matrix and a greater % than PA2, if there is a PA2; PA2 is a greater % than PA3, if there is a PA3.)

Pattern = how PA is distributed in stand

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

Appendix C – Definitions of Vegetation Community Conservation Status and Ranks

The following table defines the ranking system for plants and plant communities used by the Washington State Natural Heritage Program.

Code	Definition
G1	Critically imperiled throughout its range; extremely rare with five or fewer occurrences or very few remaining acres.
G2	Imperiled throughout its range; rare with six to 20 occurrences or few remaining acres.
G3	Either very rare and local throughout its range or found locally in a restricted range; uncommon with 21 to 100 occurrences.
G4	Apparently secure throughout its range, though it may be quite rare in some parts of its range, especially at the periphery; many occurrences.
G5	Demonstrably secure in its range, though it may be quite rare in some parts of its range, especially at the periphery; ineradicable under present conditions.
S1	Critically imperiled in Oregon; extremely rare with five or fewer occurrences or very few remaining acres.
S2	Imperiled in Oregon; rare with six to 20 occurrences or few remaining acres.
S3	Either very rare and local in Oregon or found locally in a restricted range; uncommon with 21 to 100 occurrences.
S4	Apparently secure in Oregon, though it may be quite rare in some parts; many occurrences.
S5	Demonstrably secure in Oregon, though it may be quite rare in some parts; ineradicable under present conditions.
U	Unknown
NA	Natural Heritage Rank not available
NR	Not Ranked

Appendix D – Vegetation Survey Polygon Data

Polygon Number 18 ParkName:

Survey Intensity **Ft. Simcoe**

Observer
Date

Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	0
Rock Outcrop	0
Gravel	0

Logging
Fire:
Stand Age
Agriculture
Livestock
Development
Wildlife
Recreation Severity
Recreation Type
Hydrology

Exotic Species

Noxious Exotic Plants

Other Exotic Plants

Water:	0
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	0
Moss Lichen:	0
Litter:	0

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	Yakama tribal land?	100	Matrix	OWNERS
Veg Community1:	ownership issue			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 19

ParkName:
Ft. Simcoe

Survey Intensity
Observer
Date

Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	0
Rock Outcrop	0
Gravel	0

Logging
Fire:
Stand Age
Agriculture
Livestock
Development
Wildlife
Recreation Severity
Recreation Type
Hydrology

Exotic Species

Noxious Exotic Plants

Other Exotic Plants

Water:	0
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	0
Moss Lichen:	0
Litter:	0

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	Yakama tribal land?	100	Matrix	OWNERS
Veg Community1:	ownership issue			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 20

ParkName:
Ft. Simcoe

Survey Intensity
Observer
Date

Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	0
Rock Outcrop	0
Gravel	0

Logging
Fire:
Stand Age
Agriculture
Livestock
Development
Wildlife
Recreation Severity
Recreation Type
Hydrology

Exotic Species

Noxious Exotic Plants

Other Exotic Plants

Water:	0
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	0
Moss Lichen:	0
Litter:	0

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	Yakama tribal land?	100	Matrix	OWNERS
Veg Community1:	ownership issue			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 21

ParkName:
Ft. Simcoe

Survey Intensity
Observer
Date

Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	0
Rock Outcrop	0
Gravel	0

Logging
Fire:
Stand Age
Agriculture
Livestock
Development
Wildlife
Recreation Severity
Recreation Type
Hydrology

Exotic Species

Noxious Exotic Plants

Other Exotic Plants

Water:	0
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	0
Moss Lichen:	0
Litter:	0

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	Yakama tribal land?	100	Matrix	OWNERS
Veg Community1:	ownership issue			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 22

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	7/31/2008
Total Vegetation	4
Trees Total	1
Dominant Trees	QUGA4
emergent	0
maincanopy	1
subcanopy	1
Shrubs Total	1
Dominant Shrubs	PHLE4, PUTR2
> 1.5' tall	1
< 1.5' tall	1
Graminoids Total	3
Dominant Graminoids	POBU, BRTE
Graminoids Perennial	3
Graminoids Annual	1
Forbs Total	3
Dominant Forbs	EREL5, BACA3, LOTR2, COGR4
Forbs Perennial	3
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	1
Water	0
Rock Outcrop	0
Gravel	20
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	
Wildlife	2
Recreation Severity	3
Recreation Type	
Hydrology	1

Exotic Species

Noxious Exotic Plants

Other Exotic Plants
POBU, BRTE

Water:	0
Rock:	0
Talus:	2
Gravel:	20
Bare Ground:	20
Moss Lichen:	2
Litter:	56

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	POBU-EREL5-BACA3	100	Matrix	FAIR
Veg Community1:	EREL5-BACA3			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: MOST OF THIS POLYGON IS ON THE OTHER SIDE OF THE FENCE

Polygon Number 23

ParkName:
Ft. Simcoe

Survey Intensity	2
Observer	PM
Date	7/31/2008
Total Vegetation	6
Trees Total	5
Dominant Trees	QUGA4, POBAT
emergent	2
maincanopy	5
subcanopy	3
Shrubs Total	4
Dominant Shrubs	PHLE4, RIAU, PRVI, SAEX, SABE2, SYAL, ROWO
> 1.5' tall	3
< 1.5' tall	2
Graminoids Total	3
Dominant Graminoids	POBU, ELGL, BRTE
Graminoids Perennial	3
Graminoids Annual	2
Forbs Total	3
Dominant Forbs	ACMI2, EPMI, COLI2, MAOR
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	2
Water	0
Rock Outcrop	0
Gravel	5
Logging	1
Fire:	0
Stand Age	2
Agriculture	0
Livestock	0
Development	2
Wildlife	2
Recreation Severity	3
Recreation Type	ORV, FOOT
Hydrology	1

Exotic Species

Noxious Exotic Plants
VETH, LASE, SAKA
Other Exotic Plants
TRDU, POBU, BRTE

Water:	0
Rock:	0
Talus:	3
Gravel:	5
Bare Ground:	5
Moss Lichen:	1
Litter:	86

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	QUGA4/RIAU-SYAL/POBU-ELGL	50	Matrix	GOOD
Veg Community1:	QUGA4/RIAU/ELGL			
Existing Veg2:	QUGA4/SYAL-PHLE4-PRVI	48	Large patch	EXCELLE
Veg Community3:	QUGA4/SYAL			
Existing Veg3:	SAEX-SABE2	2	linear	EXCELLE
Veg Community3:	SAEX			

Notes: OAK WOODLAND AND FOREST ALONG INTERMITTENT CREEK - FLOWING IN APRIL, DRY AT END OF JULY

Polygon Number 24

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	7/31/2008
Total Vegetation	3
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	1
Dominant Shrubs	PUTR2
> 1.5' tall	1
< 1.5' tall	0
Graminoids Total	3
Dominant Graminoids	BRTE, ELMU3, POBU
Graminoids Perennial	2
Graminoids Annual	3
Forbs Total	3
Dominant Forbs	SAKA, LELA2
Forbs Perennial	3
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	3
Water	0
Rock Outcrop	0
Gravel	30
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	DUMP SITE,
Wildlife	3
Recreation Severity	1
Recreation Type	MULTIPLE
Hydrology	1

Exotic Species

Noxious Exotic Plants
LELA2, SAKA
Other Exotic Plants
SIAL2, BRTE, POBU

Water:	0
Rock:	0
Talus:	3
Gravel:	30
Bare Ground:	25
Moss Lichen:	0
Litter:	42

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	disturbed	100	Matrix	POOR
Veg Community1:	disturbed			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: LOTS OF SAKA AND CEPI; MOSTLY WEEDY LITTLE NATIVE

Polygon Number 25

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/7/2008
Total Vegetation	4
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	3
Dominant Shrubs	PUTR2, ERTH4
> 1.5' tall	2
< 1.5' tall	3
Graminoids Total	3
Dominant Graminoids	POSE, POBU, ELMU3, BRTE, VUMY
Graminoids Perennial	3
Graminoids Annual	2
Forbs Total	3
Dominant Forbs	BAHOL, TAHO, ERPOP
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	1
Water	0
Rock Outcrop	0
Gravel	15
Logging	1
Fire:	0
Stand Age	1
Agriculture	1
Livestock	0
Development	2
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants

Other Exotic Plants
BRTE, POBU

Water:	0
Rock:	0
Talus:	4
Gravel:	15
Bare Ground:	30
Moss Lichen:	10
Litter:	41

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PUTR2-ERTH4/POSE-BAHOL-TAHO	100	Matrix	EXCELLE
Veg Community1:	ERTH4/POSE			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: RECENTLY BULDOVED NOTH OF HIGHWAY; WHY?

Polygon Number 26

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/7/2008
Total Vegetation	4
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	3
Dominant Shrubs	PUTR2, ARTR2
> 1.5' tall	2
< 1.5' tall	2
Graminoids Total	3
Dominant Graminoids	BRTE, POBU
Graminoids Perennial	3
Graminoids Annual	3
Forbs Total	3
Dominant Forbs	EREL5, ERDOS, ACMI2, BACA3, FRPU2, OLDO
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	2
Water	0
Rock Outcrop	0
Gravel	15
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	6
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants

Other Exotic Plants
BRTE, POBU

Water:	0
Rock:	0
Talus:	2
Gravel:	15
Bare Ground:	35
Moss Lichen:	8
Litter:	40

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PUTR2-ERTH4/POSE-BAHOL-TAHO	65	Matrix	EXCELLE
Veg Community1:	ERTH4/POSE			
Existing Veg2:	PUTR2/EREL5-POBU deep soil	35	Small patch	GOOD
Veg Community3:	PUTR2/EREL5-ELMU3			
Existing Veg3:		0		
Veg Community3:				

Notes: LIKE POLY 25 EXCEPT CONTAINS DEEPSOIL , A LITTLE MORE DISTURBED

Polygon Number 28

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/7/2008
Total Vegetation	4
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	2
Dominant Shrubs	ERTH4
> 1.5' tall	0
< 1.5' tall	2
Graminoids Total	3
Dominant Graminoids	POSE, POBU, BRTE, VUMY, ELMU3
Graminoids Perennial	3
Graminoids Annual	2
Forbs Total	3
Dominant Forbs	BAHOL, TAHO, ERPOP
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	2
Exotics Annual	2
Water	0
Rock Outcrop	0
Gravel	15
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	6
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
SAKA, COAR4
Other Exotic Plants
BRTE, POBU

Water:	0
Rock:	0
Talus:	1
Gravel:	15
Bare Ground:	30
Moss Lichen:	10
Litter:	44

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PUTR2-ERTH4/POSE-BAHOL-TAHO	100	Matrix	EXCELLE
Veg Community1:	ERTH4/POSE			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: MERGE THIS WITH MORE DISTURBED WESTERN PART OF 25; LOTS OF OLD TRASH, METAL, TERAMIC FRAGMENTS ON SOIL SURFACE.

Polygon Number 29

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	7/31/2008
Total Vegetation	0
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	0
Dominant Shrubs	
> 1.5' tall	0
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	0
Rock Outcrop	0
Gravel	0
Logging	
Fire:	
Stand Age	
Agriculture	
Livestock	
Development	
Wildlife	
Recreation Severity	
Recreation Type	
Hydrology	1

Exotic Species

Noxious Exotic Plants

Other Exotic Plants

Water:	0
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	0
Moss Lichen:	0
Litter:	0

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	developed	100	Matrix	DEVELO
Veg Community1:	developed			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 30

ParkName:
Ft. Simcoe

Survey Intensity	2
Observer	PM
Date	7/30/2008
Total Vegetation	6
Trees Total	5
Dominant Trees	QUGA4
emergent	0
maincanopy	5
subcanopy	3
Shrubs Total	4
Dominant Shrubs	SYAL, PRVI, RIAU, PHLE4
> 1.5' tall	4
< 1.5' tall	2
Graminoids Total	3
Dominant Graminoids	ELGL
Graminoids Perennial	3
Graminoids Annual	0
Forbs Total	3
Dominant Forbs	MAST4, MARA7
Forbs Perennial	3
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	0
Rock Outcrop	0
Gravel	0
Logging	1
Fire:	0
Stand Age	2
Agriculture	0
Livestock	0
Development	0
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants

Other Exotic Plants

Water:	0
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	3
Moss Lichen:	0
Litter:	97

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	QUGA4/RIAU/ELGL	60	Matrix	EXCELLE
Veg Community1:	QUGA4/RIAU/ELGL			
Existing Veg2:	QUGA4/PRVI/MAST4	40	Large patch	EXCELLE
Veg Community3:	QUGA4/RIAU/ELGL			
Existing Veg3:		0		
Veg Community3:				

Notes: QUGA4 FOREST SOME PARTS VERY GRASSY WITH ELGL AND SOME PARTS LOTS FO PRVI, SYAL AND MAST4 AND MARA7

Polygon Number 31

ParkName:
Ft. Simcoe

Survey Intensity	2
Observer	PM
Date	7/30/2008
Total Vegetation	5
Trees Total	4
Dominant Trees	QUGA4
emergent	0
maincanopy	4
subcanopy	2
Shrubs Total	2
Dominant Shrubs	RIAU, ROWO, PUTR2
> 1.5' tall	2
< 1.5' tall	1
Graminoids Total	4
Dominant Graminoids	BRTE, ELGL, ELMU3, POBU
Graminoids Perennial	3
Graminoids Annual	3
Forbs Total	2
Dominant Forbs	HILO, ACMI2, EREL5
Forbs Perennial	2
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	3
Water	0
Rock Outcrop	0
Gravel	5
Logging	1
Fire:	0
Stand Age	2
Agriculture	0
Livestock	0
Development	
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
SAKA, CEDI3
Other Exotic Plants
BRTE, POBU

Water:	0
Rock:	0
Talus:	0
Gravel:	5
Bare Ground:	8
Moss Lichen:	0
Litter:	87

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	QUGA4/RIAU/BRTE-ELGL-ELMU3	100	Matrix	GOOD
Veg Community1:	QUGA4/RIAU/ELGL			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: OPEN WOODLAND

Polygon Number 32

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/7/2008
Total Vegetation	4
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	2
Dominant Shrubs	PUTR2, ERTH4
> 1.5' tall	1
< 1.5' tall	2
Graminoids Total	3
Dominant Graminoids	POSE, VUMY, BRTE
Graminoids Perennial	3
Graminoids Annual	2
Forbs Total	3
Dominant Forbs	BAHOL, ERDOS, IDSC, UNK2, ERPOP, EPMI
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	0
Exotics Annual	1
Water	0
Rock Outcrop	0
Gravel	15
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	2
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants

Other Exotic Plants
BRTE

Water:	0
Rock:	0
Talus:	8
Gravel:	15
Bare Ground:	30
Moss Lichen:	12
Litter:	35

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	ERTH4/POSE-BAHOL-TAHO	100	Matrix	EXCELLE
Veg Community1:	ERTH4/POSE			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 33

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/7/2008
Total Vegetation	4
Trees Total	1
Dominant Trees	QUGA4
emergent	0
maincanopy	0
subcanopy	1
Shrubs Total	2
Dominant Shrubs	ARTR2, PUTR2
> 1.5' tall	2
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	BRTE, ELMU3, POBU, ACOC3
Graminoids Perennial	3
Graminoids Annual	4
Forbs Total	3
Dominant Forbs	SIAL2, EREL5, COAR4, CHDO, COLI2, ASFA, ACMI2
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	3
Water	0
Rock Outcrop	0
Gravel	1
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	2
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
SAKA, COAR4
Other Exotic Plants
SIAL2, POBU, BRTE

Water:	0
Rock:	0
Talus:	0
Gravel:	1
Bare Ground:	25
Moss Lichen:	0
Litter:	74

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	disturbed meadow	100	Matrix	POOR
Veg Community1:	disturbed			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: DISTURBED(CLEARED?) AREA WITH LOTS FO SXOTICS, SOME TRASH

Polygon Number 34

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/7/2008
Total Vegetation	4
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	3
Dominant Shrubs	PUTR2, RHGL, ARTR2, SANIC5, ERNA, ROWO
> 1.5' tall	3
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	POBU, ELMU3, BRTE, AGCRP8
Graminoids Perennial	3
Graminoids Annual	2
Forbs Total	4
Dominant Forbs	EREL5, BACA3, LONU2, LUPIN, LOTR2, ASFA, LIRU4
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	3
Water	0
Rock Outcrop	0
Gravel	5
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	6
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
SAKA, CESTM
Other Exotic Plants
POBU, BRTE, AGCRP8, SIAL2

Water:	0
Rock:	0
Talus:	0
Gravel:	5
Bare Ground:	30
Moss Lichen:	3
Litter:	62

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PUTR2/EREL5-POBU-ELMU3	100	Matrix	GOOD
Veg Community1:	PUTR2/EREL5-ELMU3			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: ELECTRICAL LIKE AND ROAD TROUGH, LIKE 35 BUT MORE SHRUBS DEEPER SOIL THAN 35. Eco condition borders on FAIR.

Polygon Number 35

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/7/2008
Total Vegetation	4
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	2
Dominant Shrubs	PUTR2
> 1.5' tall	2
< 1.5' tall	1
Graminoids Total	3
Dominant Graminoids	ELMU3, AGCRP8, POBU, BRTE
Graminoids Perennial	3
Graminoids Annual	3
Forbs Total	3
Dominant Forbs	ACMI2, MEOF, MAGR3, EPMI, BACA3, BAHOL, ERPOP, Unk2,
Forbs Perennial	3
Forbs Annual	3
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	3
Water	0
Rock Outcrop	0
Gravel	15
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	2
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
COAR4, SAKA, CESO3
Other Exotic Plants
BRTE

Water:	0
Rock:	0
Talus:	1
Gravel:	15
Bare Ground:	20
Moss Lichen:	3
Litter:	61

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	disturbed meadow/old field	100	Matrix	FAIR
Veg Community1:	disturbed			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 36

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	7/31/2008
Total Vegetation	4
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	3
Dominant Shrubs	ERTH4
> 1.5' tall	0
< 1.5' tall	3
Graminoids Total	3
Dominant Graminoids	POSE
Graminoids Perennial	3
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TAHO, ERPOP, ERPO2, EPMI
Forbs Perennial	2
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	0
Rock Outcrop	0
Gravel	20
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	2
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants

Other Exotic Plants

Water:	0
Rock:	0
Talus:	10
Gravel:	20
Bare Ground:	15
Moss Lichen:	20
Litter:	35

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	ERTH4/POSE-TAHO	100	Matrix	EXCELLE
Veg Community1:	ERTH4/POSE			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: LITHOSOL

Polygon Number 37

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	7/31/2008
Total Vegetation	4
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	3
Dominant Shrubs	ERTH4
> 1.5' tall	0
< 1.5' tall	3
Graminoids Total	3
Dominant Graminoids	POSE
Graminoids Perennial	3
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	TAHO, ERPOP, ERPO2, EPMI
Forbs Perennial	2
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	0
Rock Outcrop	0
Gravel	20
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	2
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants

Other Exotic Plants

Water:	0
Rock:	0
Talus:	10
Gravel:	20
Bare Ground:	15
Moss Lichen:	20
Litter:	35

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	ERTH4/POSE-TAHO	100	Matrix	EXCELLE
Veg Community1:	ERTH4/POSE			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: LITHOSOL

Polygon Number 38

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	7/31/2008
Total Vegetation	5
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	2
Dominant Shrubs	PUTR2
> 1.5' tall	2
< 1.5' tall	1
Graminoids Total	4
Dominant Graminoids	BRTE, POBU
Graminoids Perennial	3
Graminoids Annual	4
Forbs Total	4
Dominant Forbs	EREL5, ERCO12, BACA3, AMME12
Forbs Perennial	4
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	4
Exotics Perennial	3
Exotics Annual	4
Water	0
Rock Outcrop	0
Gravel	2
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	0
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants

Other Exotic Plants
BRTE, POBU

Water:	0
Rock:	0
Talus:	0
Gravel:	2
Bare Ground:	15
Moss Lichen:	2
Litter:	81

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PUTR2/EREL5-BRTE-POBU-ELMU3	100	Matrix	FAIR
Veg Community1:	PUTR2/EREL5-ELMU3			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: AREA OF DEEPER SOILS BETWEEN LITHOSOLS

Polygon Number 4

ParkName:
Ft. Simcoe

Survey Intensity	2
Observer	PM
Date	8/1/2008
Total Vegetation	5
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	4
Dominant Shrubs	PUTR2, ARTR2, SANIC5, CHVI8
> 1.5' tall	4
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	BRTE, POBU, ELMU3, grasses collected
Graminoids Perennial	3
Graminoids Annual	3
Forbs Total	3
Dominant Forbs	EREL5, BACA3, ASLE5, TRDU, PHVI3, LIRU4
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	2
Exotics Annual	3
Water	0
Rock Outcrop	0
Gravel	3
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	SOME GRAZING
Development	4
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Noxious Exotic Plants

Other Exotic Plants
BRTE, POBU, TRDU

Water:	0
Rock:	0
Talus:	1
Gravel:	3
Bare Ground:	20
Moss Lichen:	4
Litter:	72

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PUTR2-ARTR2/ELMU3-BRTE-EREL5-BACA3	100	Matrix	GOOD
Veg Community1:	PUTR2-ARTR2/ELMU3			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 40

ParkName:
Ft. Simcoe

Survey Intensity	2
Observer	PM
Date	7/31/2008
Total Vegetation	6
Trees Total	5
Dominant Trees	QUGA4
emergent	0
maincanopy	5
subcanopy	3
Shrubs Total	4
Dominant Shrubs	ROWO, SYAL, CRDO2
> 1.5' tall	3
< 1.5' tall	3
Graminoids Total	4
Dominant Graminoids	ELGL, ELMU3, POBU, BRTE
Graminoids Perennial	4
Graminoids Annual	2
Forbs Total	2
Dominant Forbs	RUCR
Forbs Perennial	2
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	2
Water	0
Rock Outcrop	0
Gravel	0
Logging	1
Fire:	0
Stand Age	3
Agriculture	0
Livestock	0
Development	4
Wildlife	3
Recreation Severity	2
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants

Other Exotic Plants
BRTE, POBU

Water:	0
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	5
Moss Lichen:	0
Litter:	95

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	QUGA4/SYAL/ELGL	100	Matrix	GOOD
Veg Community1:	QUGA4/SYAL			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: OPEN QUGA4 FOREST

Polygon Number 41

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	7/30/2008
Total Vegetation	5
Trees Total	2
Dominant Trees	QUGA4
emergent	0
maincanopy	2
subcanopy	2
Shrubs Total	2
Dominant Shrubs	CRDO2, ROWO
> 1.5' tall	2
< 1.5' tall	1
Graminoids Total	5
Dominant Graminoids	AGCRP8, ELRE4, PRDO, ELMU3, POBU, BRTE
Graminoids Perennial	5
Graminoids Annual	1
Forbs Total	2
Dominant Forbs	RUCR, CHDO, EREL5
Forbs Perennial	2
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	5
Exotics Perennial	5
Exotics Annual	2
Water	0
Rock Outcrop	0
Gravel	1
Logging	1
Fire:	0
Stand Age	1
Agriculture	OLD FIELD
Livestock	0
Development	4
Wildlife	2
Recreation Severity	2
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
COAR4, LELA2, CIIN
Other Exotic Plants
POBU, BRTE, grasses

Water:	0
Rock:	0
Talus:	0
Gravel:	1
Bare Ground:	10
Moss Lichen:	0
Litter:	89

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	old field	100	Matrix	POOR
Veg Community1:	disturbed			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: THIS IS AN OLD FIELD, DOMINATED BY CRESTED WEAT GRASS, BUT SIGNIFICANT SUCCESSION OF NATIVE HERBS AND GRASSES

Polygon Number 42

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/1/2008
Total Vegetation	5
Trees Total	2
Dominant Trees	QUGA4
emergent	0
maincanopy	2
subcanopy	0
Shrubs Total	4
Dominant Shrubs	ARTR2, PUTR2, ERHE2, CHVI8
> 1.5' tall	4
< 1.5' tall	3
Graminoids Total	4
Dominant Graminoids	POBU, BRTE, ELMU3
Graminoids Perennial	3
Graminoids Annual	3
Forbs Total	2
Dominant Forbs	LOGR, EREL5, LOGR, CHBO2
Forbs Perennial	2
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	3
Water	0
Rock Outcrop	0
Gravel	3
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	0
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
CHBO2
Other Exotic Plants
POBU, BRTE

Water:	0
Rock:	0
Talus:	0
Gravel:	3
Bare Ground:	35
Moss Lichen:	3
Litter:	59

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	ARTR2-PUTR2/POBU-BRTE-ELMU3	100	Matrix	FAIR
Veg Community1:	PUTR2-ARTR2/ELMU3			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 43

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/1/2008
Total Vegetation	4
Trees Total	2
Dominant Trees	QUGA4
emergent	0
maincanopy	2
subcanopy	1
Shrubs Total	2
Dominant Shrubs	ARTR2, PUTR2
> 1.5' tall	2
< 1.5' tall	0
Graminoids Total	4
Dominant Graminoids	POBU, BRTE, PSSP6, BROMU
Graminoids Perennial	3
Graminoids Annual	4
Forbs Total	3
Dominant Forbs	COAR4, ACMI2, EREL5, SIAL2, LELA2, ASFA
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	4
Exotics Perennial	4
Exotics Annual	4
Water	0
Rock Outcrop	0
Gravel	1
Logging	1
Fire:	0
Stand Age	1
Agriculture	OLD FIELD
Livestock	0
Development	0
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
LELA2, COAR4
Other Exotic Plants
BRTE, POBU

Water:	0
Rock:	0
Talus:	0
Gravel:	1
Bare Ground:	20
Moss Lichen:	0
Litter:	79

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	old field	100	Matrix	POOR
Veg Community1:	disturbed			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 44

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	7/31/2008
Total Vegetation	5
Trees Total	1
Dominant Trees	QUGA4
emergent	0
maincanopy	1
subcanopy	1
Shrubs Total	4
Dominant Shrubs	PUTR2, ROWO, CRDO2, ARTR2, CHVI8
> 1.5' tall	4
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	POBU, BRTE, ELMU3, LECI4
Graminoids Perennial	3
Graminoids Annual	2
Forbs Total	3
Dominant Forbs	EREL5, LOTR2, BACA3, SIAL2, COUM
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	2
Water	0
Rock Outcrop	0
Gravel	15
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	0
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
CEDI3
Other Exotic Plants
POBU, BRTE, SIAL2

Water:	0
Rock:	0
Talus:	1
Gravel:	15
Bare Ground:	15
Moss Lichen:	2
Litter:	67

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PUTR2-ROWO/POBU-EREL5-BACA3-LOTR2	100	Matrix	GOOD
Veg Community1:	PUTR2-ARTR2/ELMU3			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: LIKE 45A BUT MORE SHRUBS, LESS DISTURBED

Polygon Number 45A

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	7/31/2008
Total Vegetation	4
Trees Total	2
Dominant Trees	QUGA4
emergent	0
maincanopy	2
subcanopy	1
Shrubs Total	3
Dominant Shrubs	PUTR2, ROWO
> 1.5' tall	3
< 1.5' tall	1
Graminoids Total	4
Dominant Graminoids	POBU, BRTE, ELMU3
Graminoids Perennial	4
Graminoids Annual	2
Forbs Total	3
Dominant Forbs	EREL5, ACMI2, LOTR2, EPMI, TRDU
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	4
Exotics Perennial	4
Exotics Annual	2
Water	0
Rock Outcrop	0
Gravel	5
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
CEDI3, SAKA
Other Exotic Plants
POBU, BRTE, TRDU

Water:	0
Rock:	0
Talus:	0
Gravel:	5
Bare Ground:	15
Moss Lichen:	0
Litter:	80

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PUTR2/POBU-EREL5 disturbed	100	Matrix	POOR
Veg Community1:	PUTR2/EREL5-ELMU3			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: DISTURBED SITE

Polygon Number 45B

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	7/31/2008
Total Vegetation	4
Trees Total	2
Dominant Trees	QUGA4
emergent	0
maincanopy	2
subcanopy	1
Shrubs Total	2
Dominant Shrubs	PUTR2, ROWO
> 1.5' tall	2
< 1.5' tall	1
Graminoids Total	4
Dominant Graminoids	POBU, ELMU3, BRTE
Graminoids Perennial	4
Graminoids Annual	2
Forbs Total	3
Dominant Forbs	LASE, LONU2, ACMI2, EREL5, TRDU, EPMI
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	2
Water	0
Rock Outcrop	0
Gravel	12
Logging	1
Fire:	0
Stand Age	1
Agriculture	OLD FIELD
Livestock	0
Development	0
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
LASE, CEDI3, SAKA
Other Exotic Plants
POBU, TRDU, BRTE, MESA

Water:	0
Rock:	0
Talus:	3
Gravel:	12
Bare Ground:	20
Moss Lichen:	1
Litter:	64

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PUTR2/POBU-EREL5	100	Matrix	POOR
Veg Community1:	PUTR2/EREL5-ELMU3			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 46

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	7/31/2008
Total Vegetation	4
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	3
Dominant Shrubs	PUTR2
> 1.5' tall	3
< 1.5' tall	1
Graminoids Total	4
Dominant Graminoids	BRTE, POBU, ELMU3, BRRA2
Graminoids Perennial	3
Graminoids Annual	3
Forbs Total	3
Dominant Forbs	EREL5, BACA3, ACMI2, LOTR2, COLI2, ERCO12, ERDOS, LONU2,
Forbs Perennial	3
Forbs Annual	3
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	2
Exotics Annual	3
Water	0
Rock Outcrop	0
Gravel	30
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
LASE, TRDU
Other Exotic Plants
POBU, BRTE, SIAL2

Water:	0
Rock:	0
Talus:	2
Gravel:	30
Bare Ground:	20
Moss Lichen:	5
Litter:	43

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PUTR2/EREL5-BRTE-POBU	100	Matrix	FAIR
Veg Community1:	PUTR2/EREL5-ELMU3			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 47

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/7/2008
Total Vegetation	6
Trees Total	3
Dominant Trees	QUGA4, MAPU, PRAV, SALIX, exotic trees
emergent	0
maincanopy	3
subcanopy	2
Shrubs Total	5
Dominant Shrubs	SAEX, RIAU, SANIC5, SYAL, RHGL, ROWO, COSE, CLLI2, PRVI,
> 1.5' tall	5
< 1.5' tall	2
Graminoids Total	2
Dominant Graminoids	BROMU, CAREX
Graminoids Perennial	2
Graminoids Annual	2
Forbs Total	3
Dominant Forbs	CEDI3, NECA2, RUCR, LASE, SOCA6, ARMI2, MAOR, LEMI3,
Forbs Perennial	3
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	1
Water	1
Rock Outcrop	0
Gravel	1
Logging	1
Fire:	0
Stand Age	2
Agriculture	0
Livestock	0
Development	
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Noxious Exotic Plants
CEDI3, CIAR4, ARMI2
Other Exotic Plants
NECA2, LASE

Water:	1
Rock:	0
Talus:	0
Gravel:	1
Bare Ground:	4
Moss Lichen:	1
Litter:	93

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	COSE16	60	Matrix	GOOD
Veg Community1:	COSE16			
Existing Veg2:	SAEX	30	Large patch	GOOD
Veg Community3:	SAEX			
Existing Veg3:	QUGA4/SYAL	10	Small patch	GOOD
Veg Community3:	QUGA4/SYAL			

Notes: WETLAND AREA, MIXED VEG WITH A AMALL QUGA4/SYAL DEVELOPED WETLAND OVER THE YEARS? FOREST ON NW SIDE.

Polygon Number 50

ParkName:
Ft. Simcoe

Survey Intensity	2
Observer	PM
Date	7/31/2008
Total Vegetation	4
Trees Total	2
Dominant Trees	QUGA4
emergent	0
maincanopy	0
subcanopy	2
Shrubs Total	2
Dominant Shrubs	ROWO
> 1.5' tall	1
< 1.5' tall	1
Graminoids Total	4
Dominant Graminoids	POBU, ELMU3, BRTE
Graminoids Perennial	3
Graminoids Annual	2
Forbs Total	3
Dominant Forbs	EPMI, ERUM, COAR4, EREL5
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	2
Water	0
Rock Outcrop	0
Gravel	3
Logging	1
Fire:	0
Stand Age	1
Agriculture	OLD FIELD
Livestock	0
Development	4
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
COAR4, LELA2
Other Exotic Plants
POBU, BRTE

Water:	0
Rock:	0
Talus:	0
Gravel:	3
Bare Ground:	25
Moss Lichen:	0
Litter:	72

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	old field - POBU	100	Matrix	POOR
Veg Community1:	disturbed			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 52

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/1/2008
Total Vegetation	5
Trees Total	2
Dominant Trees	QUGA4
emergent	2
maincanopy	1
subcanopy	1
Shrubs Total	3
Dominant Shrubs	SAEX, RHGL, SANIC5, RIAU
> 1.5' tall	3
< 1.5' tall	1
Graminoids Total	5
Dominant Graminoids	BRTE, ELRE4, LECI4, POBU
Graminoids Perennial	3
Graminoids Annual	5
Forbs Total	3
Dominant Forbs	see weeds
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	5
Exotics Perennial	4
Exotics Annual	4
Water	1
Rock Outcrop	0
Gravel	1
Logging	1
Fire:	0
Stand Age	1
Agriculture	OLD FIELD
Livestock	0
Development	TRAILS
Wildlife	3
Recreation Severity	2
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
CESO3, CEDI3, CIAR4, COAR4, SAKA,
Other Exotic Plants
BRTE, SIAL2, MEOF

Water:	1
Rock:	0
Talus:	0
Gravel:	1
Bare Ground:	10
Moss Lichen:	0
Litter:	88

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	VERY DISTURBED OLD FIELD	100	Matrix	POOR
Veg Community1:	disturbed			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: THIS ENTIRE POLYGON IS VERY WEEDY; WETLAND AREAS IN POLYGON
RECOMMEND PLOW DISK 4-5 TIMES ONE SUMMER, THEN AGAIN NEXT YEAR THEN

Polygon Number 53

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	7/30/2008
Total Vegetation	5
Trees Total	2
Dominant Trees	QUGA4
emergent	0
maincanopy	2
subcanopy	1
Shrubs Total	2
Dominant Shrubs	ROWO
> 1.5' tall	2
< 1.5' tall	1
Graminoids Total	4
Dominant Graminoids	POBU, LECI4
Graminoids Perennial	3
Graminoids Annual	4
Forbs Total	3
Dominant Forbs	RUCR, PODO4, PEGA3, PIAM, ZIVE, MAGR3, DEBU, small
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	4
Exotics Perennial	3
Exotics Annual	4
Water	0
Rock Outcrop	0
Gravel	1
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	0
Wildlife	1
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
COAR4, CIIN
Other Exotic Plants
POBU, BRTE

Water:	0
Rock:	0
Talus:	0
Gravel:	1
Bare Ground:	10
Moss Lichen:	0
Litter:	89

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	BRSE-PEGA3-PIAM	100	Matrix	FAIR
Veg Community1:	PEGA3 wetland			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: LOTS OF ELK, A DIVERSE GRASS COMMUNITY, DRY IN JULY BUT WET IN APRIL,

Polygon Number 54

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	7/30/2008
Total Vegetation	5
Trees Total	0
Dominant Trees	
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	4
Dominant Shrubs	ARTR2, ERHE2
> 1.5' tall	4
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	POBU, BRTE, ELMU3, LECI4
Graminoids Perennial	3
Graminoids Annual	3
Forbs Total	3
Dominant Forbs	TRDU, PODO4, ACMI2, LONU2
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	3
Water	0
Rock Outcrop	0
Gravel	2
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	0
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants

Other Exotic Plants
BRTE, POBU

Water:	0
Rock:	0
Talus:	0
Gravel:	2
Bare Ground:	20
Moss Lichen:	5
Litter:	73

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	ARTR2/POBU-BRTE-ELMU3	60	Matrix	GOOD
Veg Community1:	PUTR2-ARTR2/ELMU3			
Existing Veg2:	ARTR2/LECI4	40	Large patch	GOOD
Veg Community3:	ARTR2/LECI4			
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 55

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/7/2008
Total Vegetation	4
Trees Total	1
Dominant Trees	QUGA4
emergent	0
maincanopy	1
subcanopy	1
Shrubs Total	2
Dominant Shrubs	PHLE4, ROWO, SYAL, CLLI2
> 1.5' tall	2
< 1.5' tall	1
Graminoids Total	4
Dominant Graminoids	PSSP6, POBU, LECI4, BRTE, JUARL
Graminoids Perennial	3
Graminoids Annual	4
Forbs Total	3
Dominant Forbs	ACMI2, EPMI, EREL5, RUCR, SIAL2
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	4
Exotics Perennial	3
Exotics Annual	3
Water	0
Rock Outcrop	0
Gravel	0
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Noxious Exotic Plants
LELA2, VEBL, CEDI3, COAR4, CADR
Other Exotic Plants
POBU, SIAL2

Water:	0
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	35
Moss Lichen:	0
Litter:	65

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	disturbed	100	Matrix	POOR
Veg Community1:	disturbed			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: THIS IS A DEPRESSION AND SURROUNDING FAIR BARE SIDE, NATURAL? OR EXCAVATED. BOTTOM OF DEPRESSION IS ABOUT 6 FEET BELOW SIDES LOTS FO

Polygon Number 56

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/7/2008
Total Vegetation	5
Trees Total	4
Dominant Trees	QUGA4
emergent	0
maincanopy	4
subcanopy	3
Shrubs Total	2
Dominant Shrubs	RIAU, ROWO
> 1.5' tall	2
< 1.5' tall	1
Graminoids Total	4
Dominant Graminoids	ELGL, BRTE, POBU
Graminoids Perennial	4
Graminoids Annual	1
Forbs Total	1
Dominant Forbs	GAAP2
Forbs Perennial	1
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	1
Exotics Perennial	1
Exotics Annual	1
Water	0
Rock Outcrop	0
Gravel	0
Logging	1
Fire:	0
Stand Age	2
Agriculture	0
Livestock	0
Development	2
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants

Other Exotic Plants
POBU, BRTE

Water:	0
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	5
Moss Lichen:	0
Litter:	95

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	QUGA4/RIAU/ELGL	100	Matrix	EXCELLE
Veg Community1:	QUGA4/RIAU/ELGL			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: OPEN QUGA4/RIAU/ELGL WOODLAND - NICE AREA THIS IS MORE OPEN, HIGHER GROUND THAN 30.

Polygon Number 57

ParkName:
Ft. Simcoe

Survey Intensity	2
Observer	PM
Date	8/1/2008
Total Vegetation	5
Trees Total	1
Dominant Trees	QUGA4
emergent	0
maincanopy	1
subcanopy	1
Shrubs Total	4
Dominant Shrubs	ARTR2, PUTR2
> 1.5' tall	4
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	ELMU3, BRTE, POBU, PSSP6
Graminoids Perennial	3
Graminoids Annual	3
Forbs Total	3
Dominant Forbs	ASLE5, EPMI, CHDO, EREL5, ACRE3
Forbs Perennial	2
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	3
Water	0
Rock Outcrop	0
Gravel	2
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	2
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
CEDI3, COAR4, ACRE3
Other Exotic Plants
BRTE, POBU, TRDU

Water:	0
Rock:	0
Talus:	0
Gravel:	2
Bare Ground:	20
Moss Lichen:	5
Litter:	73

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	ARTR2-PUTR2/ELMU3-POBU-ASLE5	100	Matrix	GOOD
Veg Community1:	PUTR2-ARTR2/ELMU3			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: OLD, TALL ARTR2-PUTR2

Polygon Number 58

ParkName:
Ft. Simcoe

Survey Intensity	2
Observer	PM
Date	7/31/2008
Total Vegetation	5
Trees Total	2
Dominant Trees	QUGA4
emergent	0
maincanopy	2
subcanopy	0
Shrubs Total	4
Dominant Shrubs	ARTR2, PUTR2
> 1.5' tall	4
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	BRTE, POBU, LECI4, ELMU3
Graminoids Perennial	3
Graminoids Annual	3
Forbs Total	3
Dominant Forbs	SIAL2, LASE, CEDI3, EREL5
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	3
Water	0
Rock Outcrop	0
Gravel	1
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	4
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
CEDI3
Other Exotic Plants
POBU, BRTE

Water:	0
Rock:	0
Talus:	0
Gravel:	1
Bare Ground:	10
Moss Lichen:	1
Litter:	88

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	ARTR2-PUTR2/BRTE-POBU-EREL5	100	Matrix	FAIR
Veg Community1:	PUTR2-ARTR2/ELMU3			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 59

ParkName:
Ft. Simcoe

Survey Intensity	1
Observer	PM
Date	8/1/2008
Total Vegetation	4
Trees Total	3
Dominant Trees	QUGA4
emergent	2
maincanopy	3
subcanopy	2
Shrubs Total	4
Dominant Shrubs	PUTR2, ARTR2, ROWO, SABE2, RIAU, ERNI2
> 1.5' tall	3
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	POBU, ELMU3, BRTE, LECI4
Graminoids Perennial	3
Graminoids Annual	4
Forbs Total	3
Dominant Forbs	ASLE5, COAR4, PHLI, ACRE3, ARLU, EPMI
Forbs Perennial	3
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	3
Water	0
Rock Outcrop	0
Gravel	2
Logging	1
Fire:	0
Stand Age	3
Agriculture	0
Livestock	0
Development	0
Wildlife	1
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
COAR4, ACRE3
Other Exotic Plants
POBU, BRTE

Water:	0
Rock:	0
Talus:	1
Gravel:	2
Bare Ground:	30
Moss Lichen:	10
Litter:	57

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PUTR2-ARTR2/POBU-BRTE-ELMU3	75	Matrix	GOOD
Veg Community1:	PUTR2-ARTR2/ELMU3			
Existing Veg2:	QUGA4/RIAU/ELGL	25	Small patch	EXCELLE
Veg Community3:	QUGA4/RIAU/ELGL			
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 60

ParkName:
Ft. Simcoe

Survey Intensity	2
Observer	PM
Date	8/1/2008
Total Vegetation	6
Trees Total	4
Dominant Trees	QUGA4, MAPU
emergent	2
maincanopy	4
subcanopy	2
Shrubs Total	5
Dominant Shrubs	SABE2, ROWO, RIAU
> 1.5' tall	5
< 1.5' tall	1
Graminoids Total	2
Dominant Graminoids	JUARL
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	3
Dominant Forbs	CIAR4, TYLA, RUCR
Forbs Perennial	3
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	0
Water	1
Rock Outcrop	0
Gravel	0
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	0
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Noxious Exotic Plants
CIAR4
Other Exotic Plants

Water:	1
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	2
Moss Lichen:	0
Litter:	97

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	SABE2-ROWO	87	Matrix	GOOD
Veg Community1:	SABE2			
Existing Veg2:	TYLA	10	Small patch	GOOD
Veg Community3:	TYLA			
Existing Veg3:	JUARL	3	Small patch	GOOD
Veg Community3:	JUARL			

Notes: Mixed patch of wetland shrubs and some trees, polygon gets drier to the west and blends into QUGA forest. Difficult to describe all the variation. Split into two

Polygon Number 61

ParkName:
Ft. Simcoe

Survey Intensity	2
Observer	PM
Date	8/1/2008
Total Vegetation	5
Trees Total	4
Dominant Trees	QUGA4
emergent	2
maincanopy	4
subcanopy	3
Shrubs Total	3
Dominant Shrubs	SABE2, RIAU, SYAL
> 1.5' tall	3
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	ELGL, BRTE, POBU, JUARL
Graminoids Perennial	4
Graminoids Annual	2
Forbs Total	3
Dominant Forbs	RUCR
Forbs Perennial	3
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	2
Exotics Annual	2
Water	0
Rock Outcrop	0
Gravel	1
Logging	1
Fire:	0
Stand Age	3
Agriculture	0
Livestock	0
Development	0
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants

Other Exotic Plants
POBU, BRTE

Water:	0
Rock:	0
Talus:	0
Gravel:	1
Bare Ground:	10
Moss Lichen:	0
Litter:	89

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	QUGA4/RIAU/ELGL	70	Matrix	GOOD
Veg Community1:	QUGA4/RIAU/ELGL			
Existing Veg2:	QUGA4/SYAL	20	Large patch	EXCELLE
Veg Community3:	QUGA4/SYAL			
Existing Veg3:	SABE2/JUARL	10	Small patch	EXCELLE
Veg Community3:	SABE2			

Notes: QUGA4 WOODLAND/FOREST, MIXED WITH SABE2 PATCHES AND JUARL - SOME WETLAND PATCHES, MORE OPEN AREAS.

Polygon Number 63

ParkName:
Ft. Simcoe

Survey Intensity	2
Observer	PM
Date	7/31/2008
Total Vegetation	6
Trees Total	5
Dominant Trees	QUGA4
emergent	0
maincanopy	5
subcanopy	1
Shrubs Total	5
Dominant Shrubs	ROWO, PRVI, RIAU, PHLE4
> 1.5' tall	5
< 1.5' tall	1
Graminoids Total	2
Dominant Graminoids	ELGL, POBU
Graminoids Perennial	2
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	MAOR
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	2
Exotics Perennial	0
Exotics Annual	2
Water	0
Rock Outcrop	0
Gravel	0
Logging	1
Fire:	0
Stand Age	2
Agriculture	0
Livestock	0
Development	2
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	1

Exotic Species

Noxious Exotic Plants
CEDI3
Other Exotic Plants
POBU

Water:	0
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	1
Moss Lichen:	0
Litter:	99

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	QUGA4/ROWO-RIAU-PRVI	100	Matrix	EXCELLE
Veg Community1:	QUGA4/RIAU/ELGL			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: VEG THICK ROWO UNDER QUGA4 OVERSTORY

Appendix E – Washington Natural Heritage Program Rare Plant Sighting Forms

Taxon Name: *Tauschia hooveri* (TAHO)
EO #:
Are you confident of the identification? yes no Explain:

Survey Site Name: Fort Simcoe State Park
Surveyor's Name/Phone/Email: Hans Smith, 509-996-2490, hans@pacificbio.org; George Wooten, 509-996-2490, georgewooten@pacificbio.org; Peter Morrison, 509-996-2490, pm@pacificbio.org
Survey Date: 2008 April 13-15 and 2008 August 1-7 (yr-mo-day)
County: Yakima
Quad Name: Fort Simcoe
Township: 10 Range: 16 Section(s): 20

Directions to site: Drive to Ft. Simcoe State Park from Yakima. The first TAHO

Please answer the following:
1. I used GPS to map the population: No (skip to #2) Yes (complete #1 & #3)
Coordinates are in electronic file (see ESRI shapefile provided)
Coordinates written below or attached. Description of what coordinates represent: One population location – many more exist in park (see maps and GIS data layer)

GPS accuracy: Uncorrected
GPS datum: NAD 83 Zone 10
GPS coordinates:
2. I used a topographic map to map the population:
Yes (complete #2) no (provide detailed directions & description above, and skip to #3)
I am confident I have accurately located and mapped the population at map scale:
Yes (skip to #3)
On the same map, use a highlighter to identify the outer boundary of the area where the population could be, given the uncertainties about your exact location.
3. I used the following features on the map to identify my location (stream, shoreline, bridge, road, cliff, etc.
To the best of my knowledge, I mapped the entire extent of this population
yes

Ownership (if known): The Confederated Tribes and Bands of the Yakama Nation

Population Size (# of individuals or ramets) or estimate: Over 20,000 individuals, possibly 60,000.

Population (EO) Data (include population vigor, microhabitat, phenology, etc.): Population appears large and robust where it occurs. Some nearby potential habitat sites lacking species occurrence. Occurs exclusively on lithosols. Specimens fruiting at time of observation (April 2008)

Plant Association: ERTH4/POSE dwarf-shrub herbaceous vegetation (Daubenmire)

Associated Species (include % cover by layer and by individual species for dominants in each layer):
Lichen/moss layer:
Herb layer: POSE, LOGO, LOGE2, LOMA3, LONU2
Shrub layer: ERTH4

General Description (include description of landscape, surrounding plant communities, land forms, land use, etc.): Historically disturbed sites (by military fort activities) with little to no recent disturbances except localized road cuts and occasional wild horse trampling. By August, there was evidence of significant elk trampling during muddy periods. Flat to gentle slopes, classic lithosol soils with large gravel and interspersed fine sediment deposits.

Elevation (ft.):1370
Size (acres): 20.4 acres, **Aspect:** flat
Photos taken? yes

Management Comments (exotics, roads, shape/size, position in landscape, hydrology, adjacent land use, cumulative effects, etc.): Limit any driving on non-paved roads around lithosols. Do not create more roads and/or trails in lithosol areas. Prevent wild horse access from park. Monitor existing populations. Monitor elk population to and its effect on TAHO population. Elk trampling during wet season appears to be a very significant disturbance.

Protection Comments (legal actions/steps/strategies needed to secure protection for the site): Stop all road construction or soil disturbance activities in the mapped TAHO areas. There have been recent bulldozer activities, which eliminated part of the population. Remove and prevent wild horses from accessing the site. Monitor elk population to and its effect on TAHO population. Elk trampling during wet season appears to be a very significant disturbance.

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

Taxon Name: *Pilularia americana*

EO #:
Are you confident of the identification? yes no Explain:

Survey Site Name: Fort Simcoe State Park
Surveyor's Name/Phone/Email: George Wooten, 509-996-2490, george.wooten@gmail.com
Survey Date: 2008-04-14 (yr-mo-day)
County: Yakima
Quad Name: Fort Simcoe
Township: 10 Range: 16 Section(s): 20

Directions to site: Drive to Ft. Simcoe SP from Yakima. Site is in a seasonal wetland south of the main entrance road.

Please answer the following:
1. I used GPS to map the population: No (skip to #2) Yes (complete #1 & #3)
Coordinates are in electronic file on diskette (preferred)
GPS accuracy: Uncorrected
GPS datum: NAD 83 Zone 10
GPS coordinates:
2. I used a topographic map to map the population:
Yes (complete #2) no (provide detailed directions & description above, and skip to #3)
I am confident I have accurately located and mapped the population at map scale:
Yes (skip to #3) no, but I am confident the population is within the general area indicated on the map as follows:
On the same map, use a highlighter to identify the outer boundary of the area where the population could be, given the uncertainties about your exact location.
3. I used the following features on the map to identify my location (stream, shoreline, bridge, road, cliff, etc.
To the best of my knowledge, I mapped the entire extent of this population
yes no unknown If no or unknown, explain: Difficult access – could be more in other hard to reach areas. Plant is small and difficult to see – especially in surrounding vegetation
Is a revisit needed? no yes - if yes, why?:
Ownership (if known): The Confederated Tribes and Bands of the Yakama Nation

Population Size (# of individuals or ramets) or estimate: Approximately 100 individuals

Population (EO) Data (include population vigor, microhabitat, phenology, etc.): Early emergents in wet ground in humic soil (depth of mulch unknown).

Plant Association: *Bromus secalinus - Perideridia gairdneri - Pilularia Americana*

Associated Species (include % cover by layer and by individual species for dominants in each layer):
Lichen/moss layer:
Herb layer: BRSE, PEGA3

General Description (include description of landscape, surrounding plant communities, land forms, land use, etc.): Ephemeral wet meadow with short stature graminoids, adjacent to disturbed shrub-steppe and mature oak woodland. Gently sloping wide valley bottom alluvial landform at the base of basalt mountain foothills.

Elevation (ft.):1380
Size (acres): 1/100 Aspect: flat
Photo taken? yes

Management Comments (exotics, roads, shape/size, position in landscape, hydrology, adjacent land use, cumulative effects, etc.): Exotic grasses/forbs may be competing for space – Grazing by wild horses and elk this year caused >10% of ground to become trampled. Grazing will likely become more severe as season progresses.

Protection Comments (legal actions/steps/strategies needed to secure protection for the site): Remove and prevent wild horses from accessing the site, monitor weeds and monitor elk populations to see that they do not cause extensive damage.

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