Rare Plant and Vegetation Survey of Conconully State Park

Pacific Biodiversity Institute

Rare Plant and Vegetation Survey of the Conconully State Park

George Wooten
georgewooten@pacificbio.org

and

Peter H. Morrison
pm@pacificbio.org

December 2008

Pacific Biodiversity Institute
P.O. Box 298
Winthrop, Washington 98862
509-996-2490

Recommended Citation

Wooten G. and P.H. Morrison, 2008. Rare Plant and Vegetation Survey of the Conconully State Park. Pacific Biodiversity Institute, Winthrop, Washington. 54 p.

Acknowledgements

Juliet Rhodes, Diana Hackenburg, and Alexis Monetta assisted with entering the data we collected into databases. Juliet Rhodes checked the data for errors and edited this report. The photographs in this report were taken by Peter Morrison and George Wooten.

Project Funding

This project was funded by the Washington State Parks and Recreation Commission.

Executive Summary

Pacific Biodiversity Institute (PBI) conducted a rare plant and vegetation survey of Conconully State Park for the Washington State Parks and Recreation Commission (WSPRC) in 2008. Conconully State Park covers about 98.9 acres. The park lies between the town of Conconully and Conconully Lake, which is actually a reservoir. Conconully State Park is a popular camping and boating area with most campsites located in a large grassy area near the lake.

Conconully State Park was visited on May 16, June 10 and July 13 by two botanists from PBI. Conconully State Park was mapped into 16 polygons covered by 10 primary plant associations and two land cover classes.

No rare plants listed by the State of Washington were found in Conconully State Park. A historic report of the state sensitive many-headed sedge, *Carex sychnocephala*, was mapped within the park, but this was not located despite diligent searching. It is possible that the historic location did not occur within the park, but the accuracy of the mapped location was not sufficient to determine this. It is also possible that many-headed sedge was extirpated since the initial report, since there have been many ecological changes at the park. Changes include increased spread of reed canary grass along the lakeshore, fluctuating water levels of the reservoir, and impacts from recreation. Another possibility is that the original identification of many-headed sedge was in error. The slenderbeak sedge, *Carex athrostachya*, was identified on a trail turnpike near the inlet stream to the reservoir. This is an uncommon sedge that bears a very close resemblance to many-headed sedge.

During our surveys of Conconully State Park we found two Class B noxious weeds and six Class C weeds. The most widespread noxious weed found in wet areas was reed canary grass (*Phalaris arundinacea*). The most widespread weeds found in dry areas were (*Centaurea diffusa*) and common St. John's wort (*Hypericum perforatum*). Both of these benefit from soil disturbance such as roadsides.

The ecological condition at Conconully State Park ranged from Poor to Excellent. Of these areas, polygons in fair condition were most common. About 30% of the park was rated as Developed. Only one polygon was deemed in Excellent condition. This was a shrub-steppe area in the northeast part of the park. Several polygons were rated in Poor ecological condition. Two of these were wetlands. One of the wetlands was a monoclone of reed canary grass, and the other was along the inlet stream, where many non-native species had become established. Non-native plant abundance contributed significantly to low ecological ratings.

Some recommendations were made concerning flooding and fluctuating water levels of Conconully Lake. During our visit, lake levels were changing rapidly and dangerously as sediment-laden spring snowmelt surged into the lake via the inlet, eroding the previous year's sand bars within hours. One recommendation that may help would be to designate a desired ecological condition for Park lands. This would help prioritize restoration efforts into maintenance, passive protection or active restoration. In cases where restoration would be unlikely to attain a desired condition, funds could be prioritized elsewhere.

Table of Contents

Introduction

Conconully State Park is located in Okanogan County between the town of Conconully and Conconully Lake, which is actually a reservoir. The park has a large grassy campground and adjacent boating facilities. The park consists of five parcels of land. The smallest of these parcels is more than one mile to the northeast of the main body of the park.

Survey Conditions and Survey Routes

Conconully State Park was initially visited by one botanist/ecologist on May 16. A brief second visit was made on June 10 for a plant collection. A third visit was conducted by two botanist/ecologists on July 13. The survey routes are shown in Figure 1.

Access to the lakeshore communities was only possible on the May 16 visit. On that day, the reservoir was filling with silty spring snowmelt. The water was rising so rapidly that the shoreline could be seen rising, and the banks and sandbars on the inlet stream were caving into the stream. During the June and July visits, the water level in the lake was so high that vegetation communities on the lakeshore were inundated and largely inaccessible.

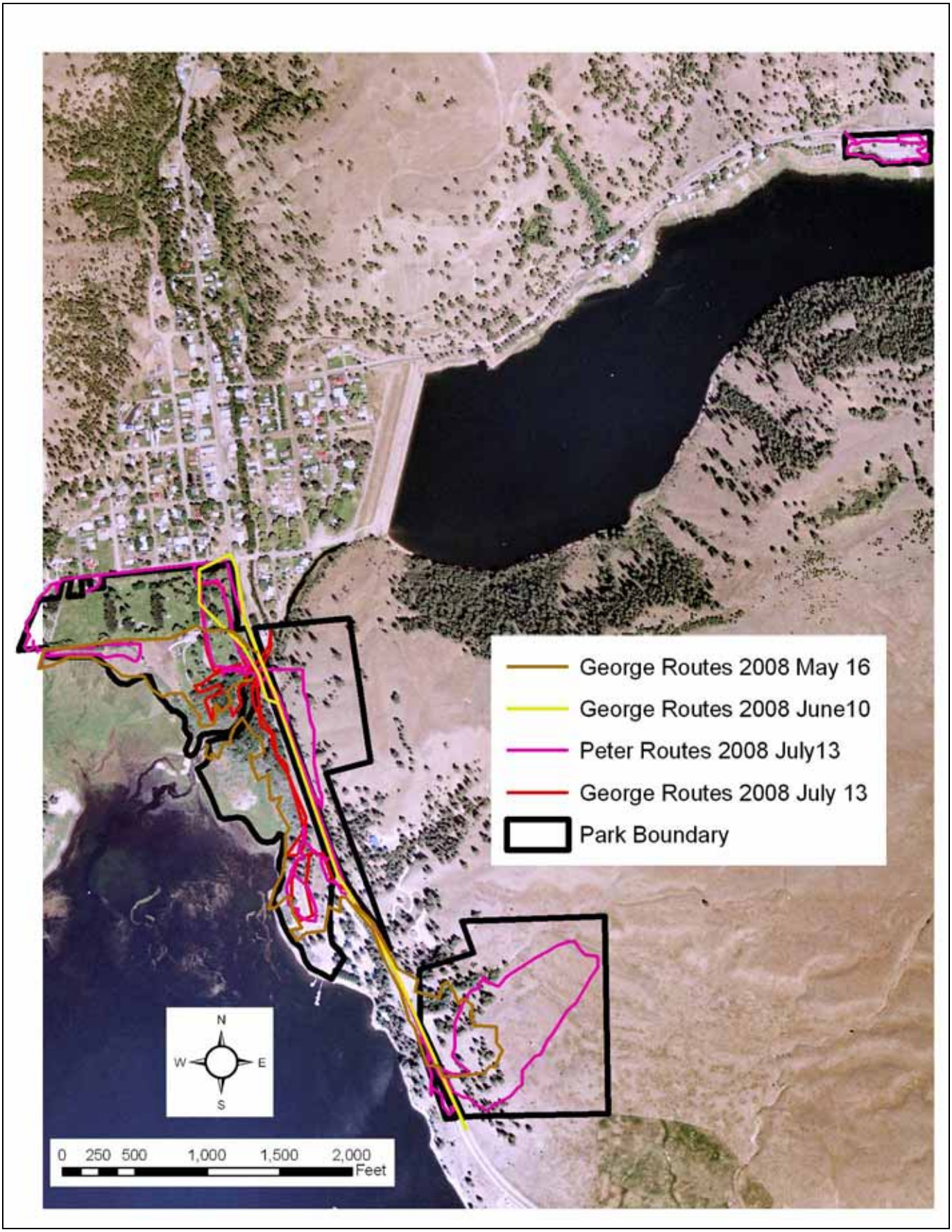


Figure 1. Field survey schedule and routes.

Vegetation Communities

Methods

Pre-field reviews of literature, GIS data, and remote sensing data were conducted early in the season. Maps, GIS data, and remotely-sensed data were assembled together into an ArcMap GIS project covering the project area. Topographic maps and digital elevation models (DEMs) were also assembled. Using the gathered spatial data resources, discrete vegetation polygons meant to represent specific plant communities or mosaics of plant communities were manually delineated by staff ecologists as polygon features in an ESRI shapefile format.

Parks were then visited several times during the field season to assure observation of both early and late-blooming plant species. The first visit was primarily a reconnaissance of the project area, meant to create a basic plant list for the park and to conduct initial rare plant surveys for early bloomers. Later visits focused on collecting field data for the vegetation polygon map and adding more species to the plant list during different times of the season. Before the field season was complete, all vegetation polygons that could be accessed safely were visited and field data was collected.

Plant community data was recorded on a form initially developed by the WSPRC (Appendix A). Recorded data included a wide variety of information about the vegetation composition, environmental characteristics, disturbance history and other notes for each polygon. Each polygon was rated for its overall ecological condition according to a simple ranking system (Appendix B). Vegetation community and land cover classifications were assigned using information and keys from standard literature sources cited in the Reference section of this document.

During field visits survey personnel had printed and digital maps available that included high resolution aerial imagery. Digital maps were accessed in the field using ArcPad software (ESRI 2007) running on pocket PC, GPS enabled devices. Use of ArcPad allowed all survey routes to be mapped on a GPS recorder in real time, and allowed for viewing and editing data directly from field locations, resulting in field-verified attributes for the vegetation polygons.

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

Most of the historical vegetation at Conconully State Park has been converted to the formation of the Conconully Lake Reservoir and the park facilities. Today these are lakes and lawns. Even the inlet stream has been heavily modified with water control structures and introduced species.

Conconully State Park lies in the foothills of the Okanogan Range, in the rain shadow of the North Cascades. The park lies along the shores of Conconully Lake, which is fed by Salmon Creek. The original lakeshore no longer exists, and today a dam maintains the level of the lake at a higher level so that the water can be used for agriculture as well as recreation at the park.

Conconully State Park is dominated by three main vegetative communities: lower elevation coniferous forest, non-forested shrub-steppe, and lakeshore willow and cottonwood communities. The only communities that retain some of their original character are the ponderosa pine and shrub-steppe communities. The flatter portions of the shrub-steppe stands have been used as agricultural fields and these are now fallow.

During pre-settlement times, low-severity fires burned through the area every 5-15 years, maintaining widely scattered ponderosa pines (*Pinus ponderosa*) in an open shrub-steppe setting (Ohlson 1996). Fire was started both by lightning and by the native Indians, who used fire to improve forage for wildlife and cultural plants. Under historic fire regimes, annual species and grasslands would have been more predominant than they are today. Conconully State Park has been spared from the overstocking that sometimes results from fire suppression. This may be due to the dryness of the south-facing shrub-steppe habitats, which are too dry to support large stands of ponderosa pines.

Results

Vegetation Community Mapping

A total of 16 vegetation community polygons were mapped and surveyed in Conconully State Park (Figure 2). These polygons were categorized into 10 plant associations and 2 land cover classes (Table 1). Table 2 gives additional reference information about the plant associations. The communities were assigned to either a primary, secondary or 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.

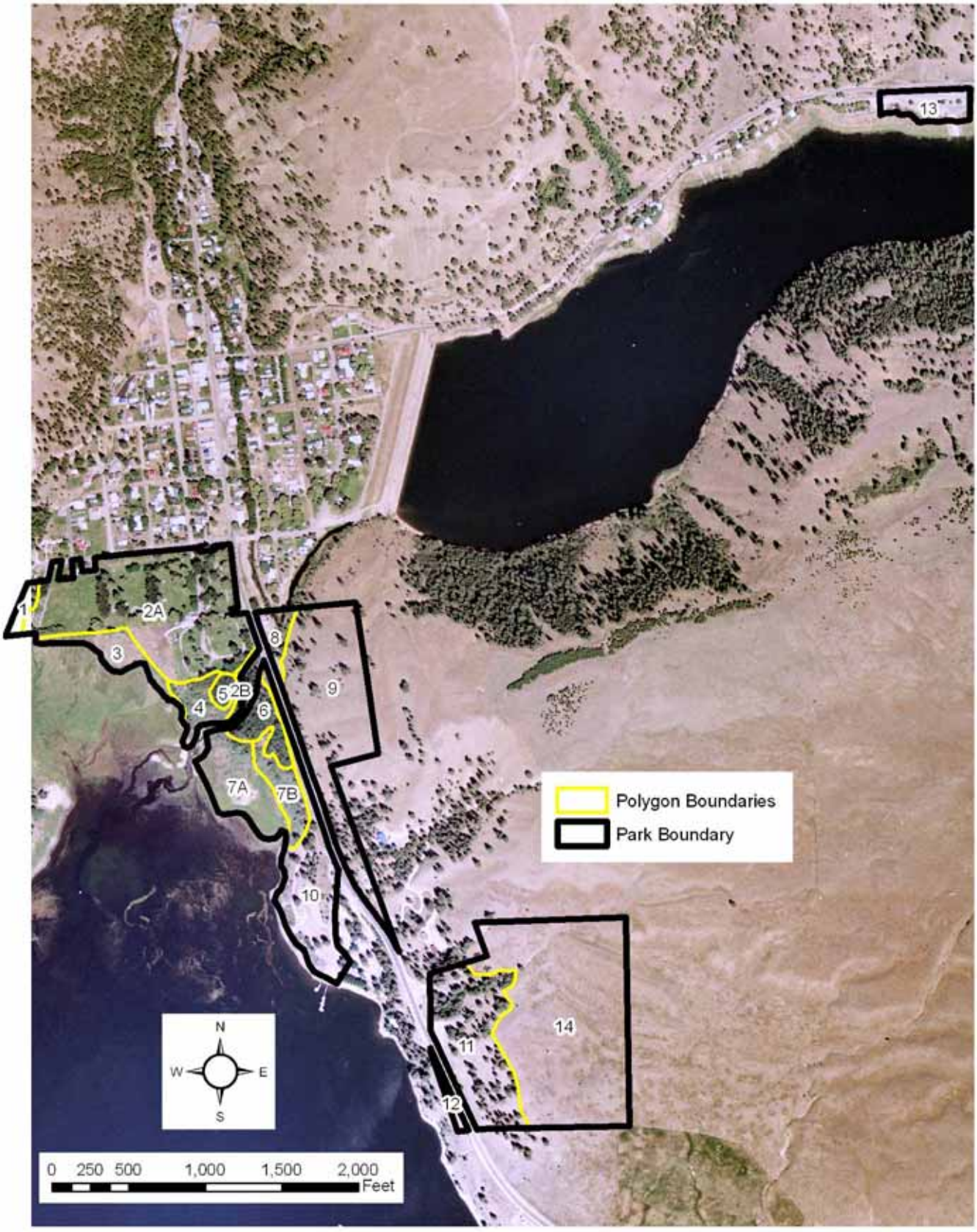


Figure 2. Map of Conconully State Park showing vegetation community polygons overlaid onto an aerial photo of the park.

Table 1. Plant communities observed in Conconully State Park.

Plant Association, Vegetation Community or Land Cover (Codes)	Plant Communities and Land Cover Observed (Codes)
Ponderosa pine / bluebunch wheatgrass (PIPO/PSSP6)	PIPO/PSSP6-BASA3-LUSE4
Ponderosa pine / snowberry (PIPO/SYAL)	PIPO/SYAL
Cottonwood / mountain alder (POBAT/ALIN2)	POBAT-ALIN2/SYAL/PHAR3-ELRE4
Cottonwood / red-osier dogwood (POBAT/COSE16)	POBAT/ROWO-COSE16/CABE2-PHAR3-POPR
Cottonwood / narrowleaf willow (POBAT/SAEX)	SAEX/PHAR3; SALIX/SAEX/PHAR3; SALIX-POBAT-ULPU/PHAR3
Cottonwood / snowberry (POBAT/SYAL)	POBAT/ROWO-SYAL/POPR-PHAR3
Aspen / snowberry (POTR5/SYAL)	POTR5-PIPO-PSME/AMAL2-SYAL/mixed grasses
Narrowleaf willow (SAEX)	SAEX; SAEX/PHAR3
Bluebunch wheatgrass - Arrowleaf balsamroot (PSSP6–BASA3)	ERHE2/PSSP6-BASA3-GYPA; ERHE2/ERNI2/ACOC3-PSSP6-ARDR4; PSSP6-BASA3-LUSE4
Reed canary grass (PHAR3)	PHAR3
Developed	Developed campground areas
Disturbed	Disturbed road shoulder

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

Code	Scientific Names	Authority	Global Status
PIPO/PSSP6	*Pinus ponderosa / Pseudoroegneria spicata*	Daubenmire and Daubenmire 1984	G4 (apparently secure)
PIPO/SYAL	*Pinus ponderosa / Symphoricarpos albus*	Daubenmire and Daubenmire 1984	G4 (apparently secure)
POBAT/ALIN2	*Populus balsamifera ssp. trichocarpa / Alnus incana*	Kovalchik and Clausnitzer 2004	G3 (vulnerable)
POBAT/COSE16	*Populus trichocarpa / Cornus sericea*	Kovalchik and Clausnitzer 2004	G3 (vulnerable)
POBAT/SAEX	*Populus balsamifera ssp. trichocarpa / Salix exigua*	Crawford 2003; Kagan 2000	G1 (critically imperiled)
POBAT/SYAL	*Populus balsamifera ssp. trichocarpa / Symphoricarpos albus*	Kovalchik and Clausnitzer 2004	~G3 (vulnerable)
POTR5/SYAL	*Populus tremuloides / Symphoricarpos albus*	Kovalchik and Clausnitzer 2004	G3 (vulnerable)
SAEX	*Salix exigua*	Bourgeron and Engelking 1994	G5 (secure)
PSSP6-BASA3	*Pseudoroegneria spicata / Balsamorhiza sagittata*	Visalli and Morrison 2006	~G2 (globally imperiled)
PHAR3	*Phalaris arundinacea*	Crawford 2003	G5 (secure)

Each vegetation community polygon has at least one primary vegetation community/land cover class assigned to it, and up to 2 additional classes. Figure 3 shows a map depicting the primary vegetation community/land cover class for each polygon within the park. Appendix D describes the attributes described for each polygon mapped within the project area.

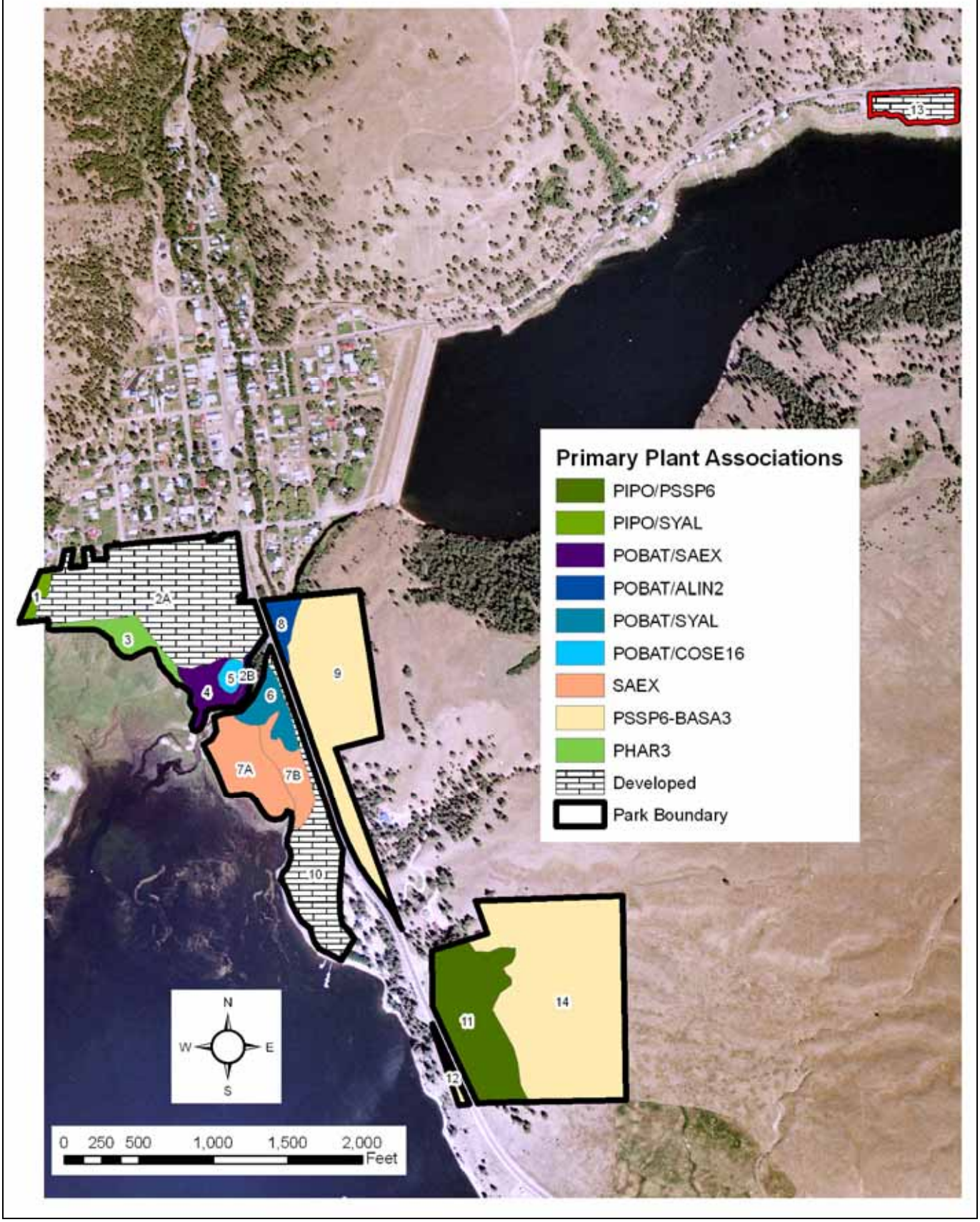


Figure 3. Map of the primary plant communities attributed to each vegetation polygon.

Vegetation Community and Land Cover Types

Ponderosa pine / bluebunch wheatgrass (PIPO/PSSP6) G4

Figure 4. An example of the ponderosa pine / bluebunch wheatgrass plant association at Conconully State Park.

The ponderosa pine / bluebunch wheatgrass plant association has an overstory of ponderosa pine and a forb layer dominated by bluebunch wheatgrass (*Pseudoroegneria spicata*; PSSP6) (Figure 4). It was described by Daubenmire and Daubenmire (1984). It has a G4 ranking which implies that it is globally secure.

The ponderosa pine / bluebunch wheatgrass association occurs primarily on south aspects at Conconully State Park. The south slopes and dry climate create a harsh environment for ponderosa pines, so that this association forms an ecotone with adjacent shrub-steppe communities. It is difficult for pines to establish, so that they tend to be situated in shady microsites. Figure 4 shows how pines are scattered as individuals and patches throughout the openings that are vegetated with the bluebunch wheatgrass – arrowleaf balsamroot association. The harsh growing conditions help keep stands in an open condition, free of overcrowding that can result from fire suppression.

The ponderosa pine / bluebunch wheatgrass association is fire-adapted. In pre-settlement times, fires would burn through this community every 5 to 15 years (Ohlson 1996). Both the bluebunch wheatgrass

and the litter from ponderosa pines are highly flammable and carry fire readily. The pines can survive fire very well.

Ponderosa pine / snowberry (PIPO/SYAL) G4

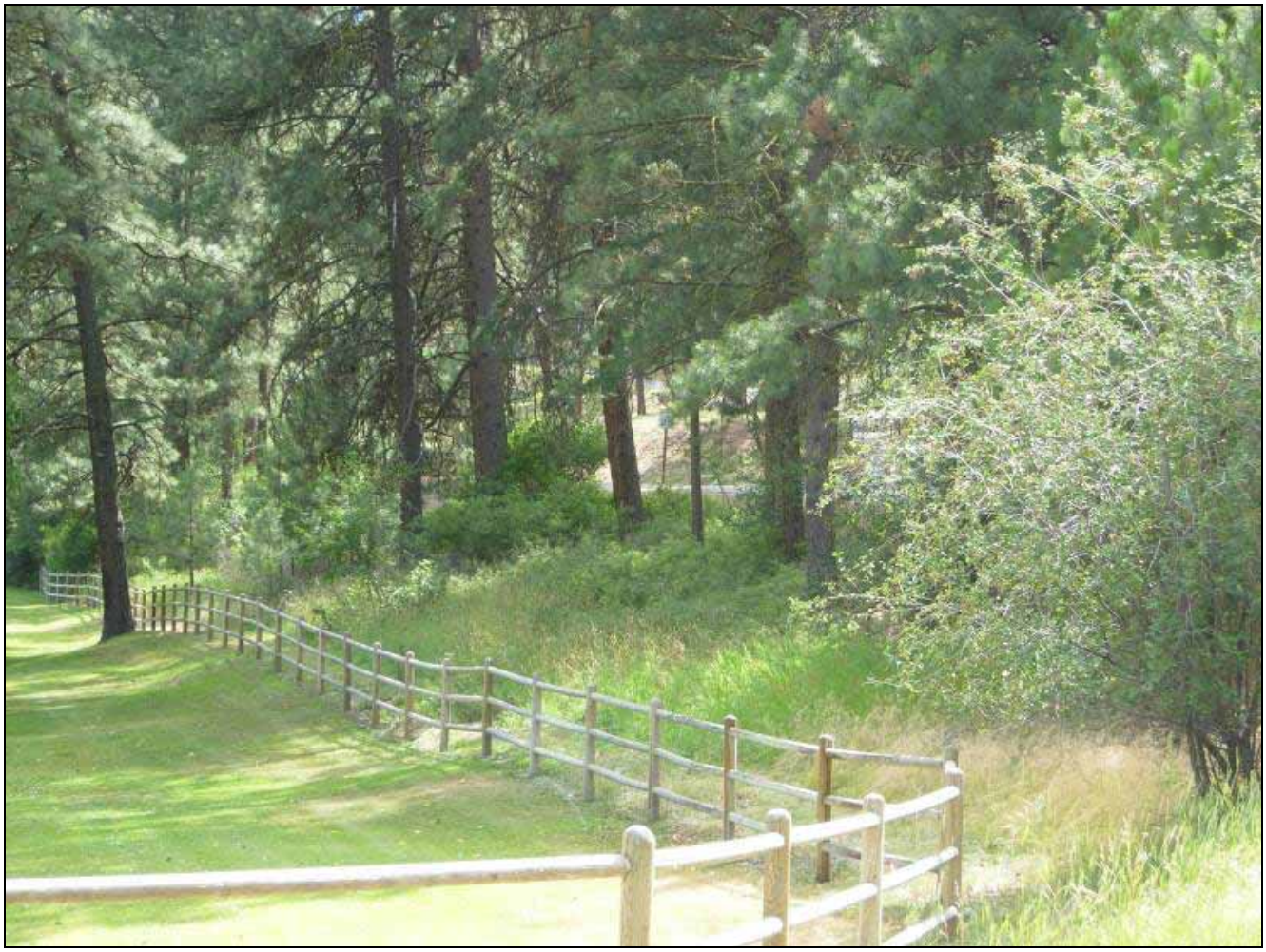


Figure 5. An example of the ponderosa pine / snowberry plant association at Conconully State Park.

The ponderosa pine / snowberry plant association was described by Daubenmire and Daubenmire (1984). It is composed of an overstory of ponderosa pine with an understory dominated by common snowberry (*Symphoricarpos albus*; SYAL), (Figure 5). It is ranked G4, globally secure.

At Conconully State Park, the ponderosa pine / snowberry association occurs on moister sites than that of the ponderosa pine / bluebunch wheatgrass plant association. Figure 5 shows a small stand growing at the toe of a slope where there is more available water than in adjacent areas. The presence of this association is indicative of more productive soils. This association has evolved with fire, and would normally burn every 15-30 years in a natural fire-regime (Ohlson 1996). The stand in Figure 5 is the only example of this plant association at the park. It is too small to worry about becoming overstocked from fire suppression.

Cottonwood / mountain alder (POBAT/ALIN2) G3

Figure 6. An example of the cottonwood / mountain alder plant association at Conconully State Park, forming part of the band of vegetation along the inlet stream.

The cottonwood / mountain alder plant association was described by Kovalchik and Clausnitzer (2004). It occurs as a riparian strip along Salmon Creek just before it crosses under the road alongside the park (Figure 6). This plant association is ranked G3 or vulnerable globally.

At Conconully State Park, the cottonwood / mountain alder plant association occurs as a complex assemblage of riparian vegetation. In addition to cottonwoods (*Populus balsamifera* ssp. *trichocarpa*; POBAT) the overstory also has mountain alder (*Alnus incana*; ALIN2) and ponderosa pines. Several different vegetative cover groups can be seen growing next to each other in Figure 6. This mix of vegetation makes this the most diverse ecosystem in the park. Ecological factors that maintain the plant diversity include the chemistry and physics of organic transport, timing and amount of rock and woody debris, bank characteristics and the flow regime. Besides the dominant species, this plant association also includes Wood's rose (*Rosa woodsii*; ROWO), common snowberry (*Symphoricarpos albus*; SYAL), field horsetail (*Equisetum arvense*; EQAR), and invasive species such as reed canary grass (*Phalaris arundinacea*; PHAR3) and quackgrass (*Elymus repens*; ELRE4).

Unfortunately, the polygon containing the cottonwood / mountain alder association was too small to express its full range of ecological functions. It is situated between two heavily developed areas: the town and the park. It has a water control structure located on the park property that is also used as a pull out for vehicles. Over the years it has been planted to many different non-native seed mixtures. Today it is being

taken over by invasive species such as reed canary grass. However it is still heavily used by a semi-tame herd of deer that prefer to hide in the culvert.

Cottonwood / red-osier dogwood (POBAT/COSE16) G3

Figure 7. An example of the cottonwood / red-osier dogwood plant association at Conconully State Park.

The cottonwood / red-osier dogwood plant association (Figure 7) was described by Kovalchik and Clausnitzer (2004). This plant association is a wetland/riparian community with an overstory of cottonwood (*Populus balsamifera* ssp. *trichocarpa*; POBAT) and with an understory dominated by red-osier dogwood (*Cornus sericea*; COSE16). This plant association as a rank of G3, implying that it is vulnerable globally.

At Conconully State Park, the cottonwood / red-osier dogwood plant association only occurs in one polygon, where it is intermediate between stands of cottonwood and narrowleaf willow (*Salix exigua*; SAEX). The preferred hydrologic regime of the cottonwood / red-osier dogwood plant association is also intermediate between the wetter willow stands and the more mesic cottonwoods. Other species within this plant association include field horsetail (*Equisetum arvense*; EQAR), scouring rush horsetail (*Equisetum hyemale*; EQHY) Bebb's sedge (*Carex bebbii*; CABE2), reed canary grass (*Phalaris arundinacea*; PHAR3) and aspen (*Populus tremuloides*; POTR5).

Cottonwood / narrowleaf willow (POBAT/SAEX) G1

Figure 8. An example of the cottonwood / narrowleaf willow plant association at Conconully State Park.

The cottonwood / narrowleaf willow plant association (Figure 8) was described by Crawford (2003) and by Kagan (2000). In Conconully State Park this association occurs at the confluence of Salmon Creek and Conconully Lake Reservoir. It is ranked G1, critically imperiled. Only a few examples of this type of association are known, and those that are known are mostly overrun with invasive species.

The cottonwood / narrowleaf willow plant association occurs in seasonally flooded alluvial sands. Narrowleaf willow forms a continuous shrub canopy, while cottonwoods and other deciduous overstory trees form a more open higher canopy. At Conconully Lake State Park, there are very few other plants in the community. This community is being invaded by reed canary grass (*Phalaris arundinacea*; PHAR3), but the two dominants appear to be maintaining their presence.

The cottonwood / narrowleaf willow plant association is adjacent to a number of other cottonwood plant communities that appear to differ in soil moisture and age of the stand. The cottonwood / narrowleaf willow plant association has the wettest soil of all of these. Figure 8 was taken in a mud hole that was flooded under several feet of water the following day. Along the lakeshore, where there is more solar

exposure, the cottonwood / narrowleaf association grades into either a reed canary grass monoclone or a narrowleaf willow / reed canary grass association.

Cottonwood / snowberry (POBAT/SYAL) ~G3

Figure 9. An example of the cottonwood / snowberry plant association at Conconully State Park.

At Conconully Lake State Park, the cottonwood / snowberry plant association occurs near the inlet of Salmon Creek between developed campground areas and a deciduous forest dominated by cottonwoods (Figure 9). This association was described by Kovalchik and Clausnitzer (2004). This association is not ranked but a similar association that is ranked as G3 is the cottonwood – mountain alder / snowberry association (*Populus balsamifera* ssp. *trichocarpa* - *Alnus incana* / *Symphoricarpos albus*; POBAT–ALIN2/SYAL) which was described by Kagan et al. (2000).

This association has a diverse shrub and forb understory that includes a number of graminoids. A number of invasive deciduous trees are present including Siberian elm (*Ulmus pumila*; ULPU) and hybrid willows (*Salix* sp.). The photograph in Figure 9 does not have as much snowberry as other parts of this association. The photograph also illustrates that there was a high coverage of a sedge species that could not be identified to species because it was not in bloom at the time of the last survey. This sedge appeared similar to *Carex bebbii* or *Carex pellita*.

Aspen / snowberry (POTR5/SYAL) G3

Figure 10. An example of the aspen / snowberry plant association at Conconully State Park (in degraded condition).

At Conconully State Park, the aspen / snowberry plant association was only found as a secondary plant association in a small draw within a ponderosa pine / shrub-steppe landscape (Figure 10). This plant association was described by Kovalchik and Clausnitzer (2004). It is ranked G3, vulnerable.

The aspen / snowberry plant community is characterized by an overstory of trembling aspen and an understory of common snowberry. It grows in moist pockets and swales, and sometimes within wetlands. It usually has a diverse understory. This community is very important for many wildlife species.

Aspen is a seral species that is regenerated by fire. With fire suppression, aspen is in decline throughout the west. Figure 10 illustrates this decline. Normally, aspen root suckers would extend away from the center of the stand, while older trees would dominate the center of the stand. But the older trees are not being stimulated to send out root suckers and they are water-stressed. The decline of the aspen canopy has opened the stand up and allowed invasive grasses to take over. Soon the aspen will be completely gone unless they are regenerated by fire or a fire surrogate.

Narrowleaf willow (SAEX) G5

Figure 11. An example of the narrowleaf willow plant association at Conconully State Park.

At Conconully State Park, the narrowleaf willow vegetation type occurs along the east shore of Conconully Lake Reservoir (Figure 11). This association was described by Bourgeron and Engelking (1994). It is ranked G5, secure.

The narrowleaf willow vegetation type occurs in seasonally flooded wetlands along the shore of Lake Conconully Reservoir. This vegetation type often has an understory of reed canary grass, (*Phalaris arundinacea*; PHAR3), as can be seen in Figure 11. Reed canary grass is classified as a noxious weed.

Bluebunch wheatgrass – arrowleaf balsamroot (PSSP6-BASA3) ~G2

Figure 12. An example of the bluebunch wheatgrass – arrowleaf balsamroot plant association at Conconully State Park (foreground).

The bluebunch wheatgrass – arrowleaf balsamroot association is part of the meadow-steppe assemblage at Conconully State Park (Figure 12). It was described by Visalli and Morrison (2006) from the Methow Valley, Washington, in similar habitats. Based on its resemblance to similar plant associations, as well as its global rarity, it was tentatively ranked as G2, globally imperiled.

The bluebunch wheatgrass – arrowleaf balsamroot association is characterized by the dominance of bluebunch wheatgrass and arrowleaf balsamroot and the absence of shrub and/or tree cover. The most similar published plant association matching this community type is the bluebunch wheatgrass - arrowleaf balsamroot – Sandberg bluegrass (*Poa secunda*) association described by Kagan (2004). However, *Poa secunda* is uncommon in this community.

Reed canary grass (PHAR3) G5

Figure 13. An example of the reed canary grass plant association at Conconully State Park.

At Conconully State Park, reed canary grass (*Phalaris arundinacea*; PHAR3) forms a monoclone wetland community (Figure 13). It occurs in shallow water along the shoreline of Conconully Lake Reservoir in the project area. It is ranked G5, globally secure, but this is misleading as reed canary grass is not considered to be a native to this area. Although there is some debate on the natural range of this species, it is safe to say that its range is expanding. Its distribution as a natural type is complicated because even though this species is native to the western hemisphere, its wide cultivation as a forage crop has led to range expansion into wetlands and riparian areas, displacing the local flora. The area shown in Figure 13 was heavily used by Canada geese. The expansion of reed canary grass is favored by the presence of deep, silty soils, such as those occurring on the fluctuating lakeshore of Lake Conconully Reservoir.

Other Land Cover Types

Conconully State Park has these other land cover types:

- Disturbed areas. These included fallow fields in the shrub-steppe and areas with disturbed oils near campgrounds.
- Developed areas with roads and campgrounds

Rare Plant Surveys

Methods

Conconully State Park was visited two times during the 2008 field season. 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 collected plant specimens for later identification when needed. We used a wide range of floras and other plant identification references (e.g. Boersma et al 2006, 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, Wilson 2006).

A historic sighting (1989) of many-headed sedge, *Carex sychnocephala*, is reported for the area. The location of this sighting is mapped as a circular polygon two miles in diameter with the center inside Conconully Lake Reservoir. Searches for this sedge concentrated on the most likely habitats, which are opens moist areas with calcareous soils.

Field surveys were conducted on May 16 and July 13. A brief third visit was made on June 10 for a plant collection. During the field surveys, we were equipped with reference literature, rare plant lists for the area, maps showing rare plant locations from previous surveys. We looked for rare plants in habitats previously identified as being likely occurrence sites. So as not to miss any rare plants, 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 need 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 were felt more likely to occur. This method is referred to as the intuitive-controlled method of rare plant surveys (Whiteaker 1998). These areas were the lakeshore, wetlands, and the stream at the west end of the park. Survey routes for the rare plant inventory and rare plant locations were recorded either by hand, on a hardcopy topographic map, or as GPS waypoints and trackpoints, all of which were later compiled into a single GIS data layer, depicted in Figure 1.

Results

We did not find any threatened, endangered or sensitive plants in Conconully State Park. No specimens of the state sensitive many-headed sedge, *Carex sychnocephala*, were found in the park, despite searching diligently. It is possible that the historic location did not occur within the park, but the accuracy of the mapped location was not sufficient to determine this.

If the historic location of many-headed sedge was ever within the park, there have been many changes since its last observation that could have caused it to become extirpated. These include invasion by reed canary grass along the lakeshore, fluctuating water levels of the reservoir, or impacts from recreation.

A third possibility is that the original identification of many-headed sedge was in error. The slenderbeak sedge, *Carex athrostachya*, was identified on a trail turnpike near the inlet stream to the reservoir. This is an uncommon sedge that bears a very close resemblance to many-headed sedge.

Vascular Plant List for the 2008 Project Area

There were 141 vascular taxa identified to species during surveys of Conconully State Park (Table 3). An additional 13 plants in this table were only identified to the level of genus. Six additional genera are not included in the table because they were considered identical to an identified species. Thus, the total number of taxa accounted for is approximately 154. Table 3 also identifies 40 non-native species identified within the park, or approximately 26% of the total number of species observed.

Table 3. Vascular Plant Species of Conconully 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	
AGGI2	Agrostis gigantea Roth	Redtop	Poaceae	yes
AGSC5	Agrostis scabra Willd.	rough bentgrass	Poaceae	
ALPL	Alisma plantago-aquatica L.	European water plantain	Alismataceae	
ALIN2	Alnus incana (L.) Moench	gray alder	Betulaceae	
AMAL2	Amelanchier alnifolia (Nutt.) Nutt. ex M. Roem.	Saskatoon serviceberry	Rosaceae	
ANMI3	Antennaria microphylla Rydb.	littleleaf pussytoes	Asteraceae	
ARHOR	Arabis holboellii Hornem. var. retrofracta (Graham) Rydb.	second rockcress	Brassicaceae	
ARCOC	Arenaria congesta Nutt. var. cephaloidea (Rydb.) Maguire	sharptip sandwort	Caryophyllaceae	
ARDR4	Artemisia dracunculus L.	tarragon	Asteraceae	
ARTR4	Artemisia tripartita Rydb.	threetip sagebrush	Asteraceae	
ASMI9	Astragalus miser Douglas ex Hook.	timber milkvetch	Fabaceae	
BASA3	Balsamorhiza sagittata (Pursh) Nutt.	arrowleaf balsamroot	Asteraceae	
BEOC2	Betula occidentalis Hook.	water birch	Betulaceae	
BRAR5	Bromus arvensis L.	field brome	Poaceae	yes
BRIN2	Bromus inermis Leyss.	smooth brome	Poaceae	yes
BRRA2	Bromus racemosus L.	bald brome	Poaceae	yes
BRTE	Bromus tectorum L.	cheatgrass	Poaceae	yes
BUAR3	Buglossoides arvensis (L.) I.M. Johnst.	corn gromwell	Boraginaceae	yes
CALY	Calochortus lyallii Baker	Lyall's mariposa lily	Liliaceae	
CAMA5	Calochortus macrocarpus Douglas	sagebrush mariposa lily	Liliaceae	
CAPE3	Cardamine pensylvanica Muhl. ex Willd.	Pennsylvania bittercress	Brassicaceae	
CAAT3	Carex athrostachya Olney	slenderbeak sedge	Cyperaceae	
CABE2	Carex bebbii Olney ex Fernald	Bebb's sedge	Cyperaceae	
CADO2	Carex douglasii Boott	Douglas' sedge	Cyperaceae	
CAPE42	Carex pellita Muhl. ex Willd.	woolly sedge	Cyperaceae	
CARO5	Carex rossii Boott	Ross' sedge	Cyperaceae	
CAUT	Carex utriculata Boott	Northwest Territory sedge	Cyperaceae	
CATH4	Castilleja thompsonii Pennell	Thompson's Indian paintbrush	Scrophulariaceae	
CEDI3	Centaurea diffusa Lam.	diffuse knapweed	Asteraceae	yes
CHDO	Chaenactis douglasii (Hook.) Hook. & Arn.	Douglas' dustymaiden	Asteraceae	
CHAT	Chenopodium atrovirens Rydb.	pinyon goosefoot	Chenopodiaceae	
CHVI8	Chrysothamnus viscidiflorus (Hook.) Nutt.	yellow rabbitbrush	Asteraceae	
CIAR4	Cirsium arvense (L.) Scop.	Canada thistle	Asteraceae	yes

Symbol	Scientific Name with Author	National Common Name	Family	Exotic
CIVU	Cirsium vulgare (Savi) Ten.	bull thistle	Asteraceae	yes
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	
COLI2	Collomia linearis Nutt.	tiny trumpet	Polemoniaceae	
COAR4	Convolvulus arvensis L.	field bindweed	Convolvulaceae	yes
COCA5	Conyza canadensis (L.) Cronquist	Canadian horseweed	Asteraceae	
COSE16	Cornus sericea L.	redosier dogwood	Cornaceae	
CRDO2	Crataegus douglasii Lindl.	black hawthorn	Rosaceae	
CRAT	Crepis atribarba A. Heller	slender hawksbeard	Asteraceae	
CYOF	Cynoglossum officinale L.	gypsyflower	Boraginaceae	yes
CYFR2	Cystopteris fragilis (L.) Bernh.	brittle bladderfern	Dryopteridaceae	
DAGL	Dactylis glomerata L.	orchardgrass	Poaceae	yes
DELI3	Delphinium lineapetalum Ewan	thinpetal larkspur	Ranunculaceae	
DEPI	Descurainia pinnata (Walter) Britton	western tansymustard	Brassicaceae	
DISP	Distichlis spicata (L.) Greene	saltgrass	Poaceae	
DRVE2	Draba verna L.	spring draba	Brassicaceae	yes
ELEOC	Eleocharis R. Br.	spikerush	Cyperaceae	
ELGL	Elymus glaucus Buckley	blue wildrye	Poaceae	
ELRE4	Elymus repens (L.) Gould	quackgrass	Poaceae	yes
EPCI	Epilobium ciliatum Raf.	fringed willowherb	Onagraceae	
EQAR	Equisetum arvense L.	field horsetail	Equisetaceae	
EQHY	Equisetum hyemale L.	scouringrush horsetail	Equisetaceae	
EQUIS	Equisetum L.	horsetail	Equisetaceae	
ERCO5	Erigeron corymbosus Nutt.	longleaf fleabane	Asteraceae	
ERFI2	Erigeron filifolius (Hook.) Nutt.	threadleaf fleabane	Asteraceae	
ERPU2	Erigeron pumilus Nutt.	shaggy fleabane	Asteraceae	
ERHE2	Eriogonum heracleoides Nutt.	parsnipflower buckwheat	Polygonaceae	
ERNI2	Eriogonum niveum Douglas ex Benth.	snow buckwheat	Polygonaceae	
FESTU	Festuca L.	fescue	Poaceae	
FRLA	Fraxinus latifolia Benth.	Oregon ash	Oleaceae	
GALIU	Galium L.	bedstraw	Rubiaceae	
GRIN	Grindelia integrifolia DC.	Puget Sound gumweed	Asteraceae	
GYPA	Gypsophila paniculata L.	baby's breath	Caryophyllaceae	yes
HEMA80	Heracleum maximum Bartram	common cowparsnip	Apiaceae	
HOJU	Hordeum jubatum L.	foxtail barley	Poaceae	
HYCA4	Hydrophyllum capitatum Douglas ex Benth.	ballhead waterleaf	Hydrophyllaceae	
HYPE	Hypericum perforatum L.	common St. Johnswort	Clusiaceae	yes
JUARL	Juncus arcticus Willd. ssp. littoralis (Engelm.) Hultén	mountain rush	Juncaceae	
LACTU	Lactuca L.	lettuce	Asteraceae	
LEVI3	Lepidium virginicum L.	Virginia pepperweed	Brassicaceae	
LEDO2	Lesquerella douglasii S. Watson	Douglas' bladderpod	Brassicaceae	
LECI4	Leymus cinereus (Scribn. & Merr.) A. Löve	basin wildrye	Poaceae	
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	Boraginaceae	

Symbol	Scientific Name with Author	National Common Name	Family	Exotic
LOAR5	Logfia arvensis (L.) Holub	field cottonrose	Asteraceae	yes
LOMA3	Lomatium macrocarpum (Nutt. ex Torr. & A. Gray) J.M. Coult. & Rose	bigseed biscuitroot	Apiaceae	
LOTR2	Lomatium triternatum (Pursh) J.M. Coult. & Rose	nineleaf biscuitroot	Apiaceae	
LUSE4	Lupinus sericeus Pursh	silky lupine	Fabaceae	
MAAQ2	Mahonia aquifolium (Pursh) Nutt.	hollyleaved barberry	Berberidaceae	
MAVE2	Marsilea vestita Hook. & Grev.	hairy waterclover	Marsileaceae	
MELU	Medicago lupulina L.	black medick	Fabaceae	yes
MEOF	Melilotus officinalis (L.) Lam.	yellow sweetclover	Fabaceae	yes
MEAR4	Mentha arvensis L.	wild mint	Lamiaceae	
MIGR	Microsteris gracilis (Hook.) Greene	slender phlox	Polemoniaceae	
NECA2	Nepeta cataria L.	catnip	Lamiaceae	yes
OENOT	Oenothera L.	evening primrose	Onagraceae	
OSBE	Osmorhiza berteroi DC.	sweetcicely	Apiaceae	
PHHA	Phacelia hastata Douglas ex Lehm.	silverleaf phacelia	Hydrophyllaceae	
PHLI	Phacelia linearis (Pursh) Holz.	threadleaf phacelia	Hydrophyllaceae	
PHAR3	Phalaris arundinacea L.	reed canarygrass	Poaceae	yes
PHLE4	Philadelphus lewisii Pursh	Lewis' mock orange	Hydrangeaceae	
PIPO	Pinus ponderosa C. Lawson	ponderosa pine	Pinaceae	
PLMA2	Plantago major L.	common plantain	Plantaginaceae	yes
PLPA2	Plantago patagonica Jacq.	woolly plantain	Plantaginaceae	
PLOR80	Platycladus orientalis (L.) Franco	Oriental arborvitae	Cupressaceae	
POAN	Poa annua L.	annual bluegrass	Poaceae	yes
POBU	Poa bulbosa L.	bulbous bluegrass	Poaceae	yes
POPR	Poa pratensis L.	Kentucky bluegrass	Poaceae	yes
POSE	Poa secunda J. Presl	Sandberg bluegrass	Poaceae	
POAME	Polygonum amphibium L. var. emersum Michx.	longroot smartweed	Polygonaceae	
POMI2	Polygonum minimum S. Watson	broadleaf knotweed	Polygonaceae	
POPE3	Polygonum persicaria L.	spotted ladysthumb	Polygonaceae	yes
POPU5	Polygonum punctatum Elliot	dotted smartweed	Polygonaceae	
POBAT	Populus balsamifera L. ssp. trichocarpa (Torr. & A. Gray ex Hook.) Brayshaw	black cottonwood	Salicaceae	
POTR5	Populus tremuloides Michx.	quaking aspen	Salicaceae	
POBI7	Potentilla biennis Greene	biennial cinquefoil	Rosaceae	
PORI3	Potentilla rivalis Nutt.	brook cinquefoil	Rosaceae	
PRVI	Prunus virginiana L.	chokecherry	Rosaceae	
PSSP6	Pseudoroegneria spicata (Pursh) A. Löve	bluebunch wheatgrass	Poaceae	
PSME	Pseudotsuga menziesii (Mirb.) Franco	Douglas-fir	Pinaceae	
RANUN	Ranunculus L.	buttercup	Ranunculaceae	
RAMA2	Ranunculus macounii Britton	Macoun's buttercup	Ranunculaceae	
RICE	Ribes cereum Douglas	wax currant	Grossulariaceae	
ROWO	Rosa woodsii Lindl.	Woods' rose	Rosaceae	
RUAC3	Rumex acetosella L.	common sheep sorrel	Polygonaceae	yes
RUCR	Rumex crispus L.	curly dock	Polygonaceae	yes
SABE2	Salix bebbiana Sarg.	Bebb willow	Salicaceae	
SAEX	Salix exigua Nutt.	narrowleaf willow	Salicaceae	
SALIX	Salix L.	willow	Salicaceae	

Symbol	Scientific Name with Author	National Common Name	Family	Exotic
SALU	Salix lucida Muhl.	shining willow	Salicaceae	
SAPR3	Salix prolixa Andersson	MacKenzie's willow	Salicaceae	
SAKA	Salsola kali L.	Russian thistle	Chenopodiaceae	yes
SANIC5	Sambucus nigra L. ssp. cerulea (Raf.) R. Bolli	blue elderberry	Caprifoliaceae	
SANGU2	Sanguisorba L.	burnet	Rosaceae	
SCAC3	Schoenoplectus acutus (Muhl. ex Bigelow) A. Löve & D. Löve	hardstem bulrush	Cyperaceae	
SIAL2	Sisymbrium altissimum L.	tall tumblemustard	Brassicaceae	yes
SILO3	Sisymbrium loeselii L.	small tumbleweed mustard	Brassicaceae	yes
SPARG	Sparganium L.	bur-reed	Sparganiaceae	
SPCR	Sporobolus cryptandrus (Torr.) A. Gray	sand dropseed	Poaceae	
SYAL	Symphoricarpos albus (L.) S.F. Blake	common snowberry	Caprifoliaceae	
SYOR2	Symphoricarpos oreophilus A. Gray	mountain snowberry	Caprifoliaceae	
TAOF	Taraxacum officinale F.H. Wigg.	common dandelion	Asteraceae	yes
THIN6	Thinopyrum intermedium (Host) Barkworth & D.R. Dewey	intermediate wheatgrass	Poaceae	yes
TRDU	Tragopogon dubius Scop.	yellow salsify	Asteraceae	yes
TRIFO	Trifolium L.	clover	Fabaceae	yes
TRRE3	Trifolium repens L.	white clover	Fabaceae	yes
ULPA	Ulmus parvifolia Jacq.	Chinese elm	Ulmaceae	yes
ULPU	Ulmus pumila L.	Siberian elm	Ulmaceae	yes
URDI	Urtica dioica L.	stinging nettle	Urticaceae	
UTRIC	Utricularia L.	bladderwort	Lentibulariaceae	
VETH	Verbascum thapsus L.	common mullein	Scrophulariaceae	yes
VEBR	Verbena bracteata Cav. ex Lag. & Rodr.	bigbract verbena	Verbenaceae	
VERON	Veronica L.	speedwell	Scrophulariaceae	
VIAM	Vicia americana Muhl. ex Willd.	American vetch	Fabaceae	
VIMI2	Vinca minor L.	common periwinkle	Apocynaceae	yes
WOOR	Woodsia oregana D.C. Eaton	Oregon cliff fern	Dryopteridaceae	
ZIVE	Zigadenus venenosus S. Watson	meadow deathcamas	Liliaceae	

Discussion and Recommendations

Noxious Weeds

A list of the noxious weeds found at Conconully State Park is presented in Table 4. The noxious weeds that were observed within each polygon are recorded in the corresponding record in the vegetation database for the park, which is included in this report as Appendix D.

During our surveys of Conconully State Park we found two Class B noxious weeds and six Class C weeds. The most widespread noxious weed found in wet areas was reed canary grass (*Phalaris arundinacea*, PHAR3). The most widespread weeds found in dry areas were (*Centaurea diffusa*; CEDI3) and common St. John's wort (*Hypericum perforatum*; HYPE). Both of these benefit from soil disturbance such as roadsides.

Table 4. State listed noxious weeds at Conconully State Park.

Symbol	Scientific Name with Author	National Common Name	State Weed Status
CEDI3	Centaurea diffusa Lam.	diffuse knapweed	B
CIAR4	Cirsium arvense (L.) Scop.	Canada thistle	C
CIVU	Cirsium vulgare (Savi) Ten.	bull thistle	C
COAR4	Convolvulus arvensis L.	field bindweed	C
CYOF	Cynoglossum officinale L.	gypsyflower	B
GYPA	Gypsophila paniculata L.	baby's breath	C
HYPE	Hypericum perforatum L.	common St. Johnswort	C
PHAR3	Phalaris arundinacea L.	reed canarygrass	C

Ecological Condition

The ecological condition of Conconully State Park was based on the rating descriptions (see Appendix B for definitions). A map of the overall ecological condition is presented in Figure 14.

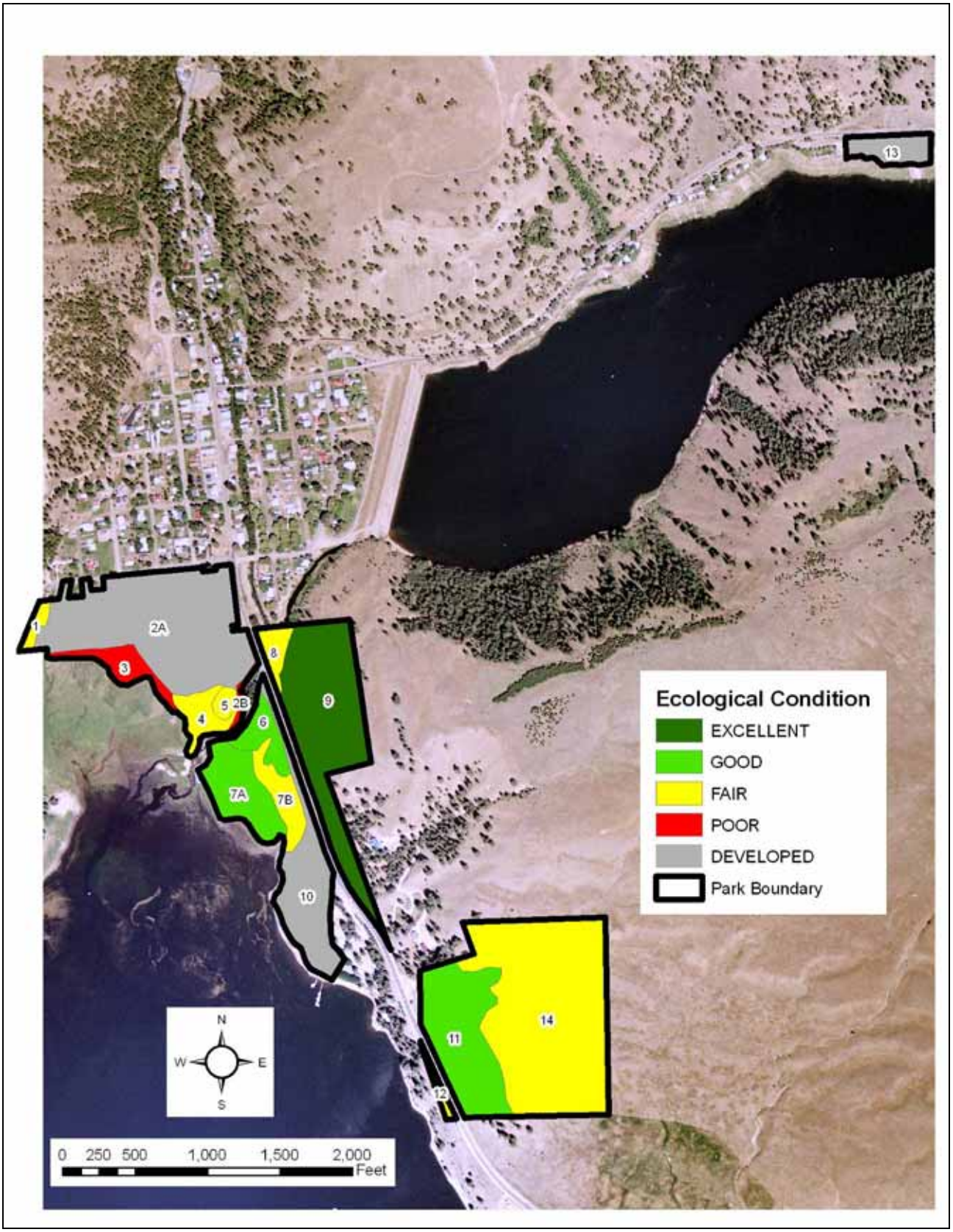


Figure 14. Ecological condition assessed for vegetation polygons at Conconully State Park.

The ecological condition at Conconully State Park ranged from Poor to Excellent. Of these areas, polygons in fair condition were most common. About 30% of the park was rated as Developed. Only one polygon was deemed in Excellent condition. This was a shrub-steppe area in the northeast part of the park. Several polygons were rated in Poor ecological condition. Two of these were wetlands; one was a monoclone of reed canary grass (Figure 13), and the other was along the inlet stream, where many non-native species had become established.

The percentage of non-native taxa was approximately 26% of 154 taxa. Non-native taxa contribute a large part to poor ecological condition rankings.

Restoration Opportunities

There are limited restoration opportunities at Conconully State Park. The developed areas are likely to benefit only from maintenance activities such as mowing and spot treatment of class B invaders. They may however offer hardened sites for people so that more fragile natural communities can remain undisturbed. The shrub-steppe areas appear to be trending toward recovery on their own. This is likely to continue, if these areas remain free of soil disturbances and are the areas are monitored for the presence of new non-native plants.

The riparian and lacustrine communities along Conconully Lake Reservoir will be difficult to restore. One recommendation that may help would be to designate a desired ecological condition for Park lands. This would help prioritize restoration efforts into maintenance, passive protection or active restoration. In cases where restoration would be unlikely to attain a desired condition, funds could be prioritized elsewhere.

As an example of how designating a desired ecological condition might operate, consider the lakeshore communities along Conconully Lake Reservoir. These areas include developed campgrounds, parking lots, deciduous stands and reed canary grass monoclones (Figure 13). There are currently very few proven control strategies for reed canary grass. It makes sense to prioritize the deciduous stands for restoration, since they still retain substantial ecological values. The parking lots and reed canary grass-dominated stands could then be managed under an existing maintenance regime.

The type of restoration activities that could benefit the deciduous lakeshore communities should include elements of both preservation, removal of invaders, and setting stands toward trajectories that are more beneficial. Retaining shade cover wherever it presently exists is strongly recommended. Solar exposure is one of the factors that benefits weed invasions. Controlling undesirable plants should consider the use of biological control agents. There are currently a large number of biological controls for diffuse knapweed xxx (*Centaurea diffusa*), which have successfully reduced populations to manageable levels in much of Washington State. Within the near future, diffuse knapweed may no longer need active control efforts. This should be taken into consideration before spending large sums for eradication.

Active restoration efforts at Conconully State Park should be targeted toward recreational activities. There are a few places where trails could be built that would promote restoration. It is important that trails are regularly monitored for the presence of noxious weeds and that these are controlled regularly. There are a number of opportunities for educational outreach. The management of the

park's recreational areas for large numbers of Canada geese could involve signage and discussion of their biology, in conjunction with discussion of the reed canary grass that grows as a monoclone in areas used by Canada geese.

Controlling the lake level and the rate at which it changes could be managed to the benefit of Conconully State Park. During our first visit, we observed extremely rapid flooding of the lake by a raging, silt-laden Salmon Creek (Figure 15). Sandbars and vegetation were being actively eroded, and there were hazardous conditions that will likely occur again. The lakeshore was visibly rising. On the second visit many lakeshore features seen before were under water. It is likely that the magnitude and frequency of this severe flooding has increased over pre-settlement times. It may be advantageous to consider protection measures for the land and the recreating public. These could include specific measures such as armoring culverts and bridges or participation in broad community watershed protection efforts. Again, development of a desired future condition would help formulate objectives.

Figure 15. Salmon Creek flooding at Conconully State Park.

Other Recommendations

There are discrepancies between the GIS ownership boundary of Conconully State Park and the bounding fences and signs (where present) (Figure 16). If the GIS ownership boundary is correct, then there may be private use (livestock grazing, etc.) being made of State property. We recommend a proper survey of the park and reconciliation of the GIS boundary. Livestock grazing within the park damages fragile plant communities and should be discouraged by proper fencing.

Figure 16. Boundary sign and fence line at Conconully State Park that does not match the GIS boundary.

GIS Products Produced

Associated with this report are polygon layers created by PBI depicting the vegetation community types and associated data mapped within Conconully 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.

References

Bourgeron, P. S. and L. D. Engelking, editors. 1994. A preliminary vegetation classification of the western United States. Unpublished report. The Nature Conservancy, Western Heritage Task Force, Boulder, CO. 175 pp. plus appendix.

Crawford, Rex C. 2003. A riparian vegetation classification of the Columbia Basin, Washington. 2003. Washington Natural Heritage Program, Washington Department of Natural Resources, Olympia, WA 98504-7016. Published in coordination with Bureau of Land Management, Spokane District and The Nature Conservancy.

Daubenmire, R. and J.B. Daubenmire. 1984. Forest Vegetation of Eastern Washington and Northern Idaho. Agricultural Research Center, College of Agriculture and Home Economics, WSU, 1968. Repr. WSU Cooperative Extension, March 1984.

Hitchcock, C.L. and A. Cronquist. 1973. Flora of the Pacific Northwest: An Illustrated Manual University of Washington Press, Seattle.

Hitchcock, C.L., Cronquist, A., Ownbey, M., and J. W. Thompson. 1955. Vascular Plants of the Pacific Northwest. University of Washington Press, Seattle.

Kagan, J. S., J. A. Christy, M. P. Murray, and J. A. Titus. 2004. Classification of native vegetation of Oregon. January 2004. Oregon Natural Heritage Information Center, Portland. 52 pp.

Kagan, J. S., J. A. Christy, M. P. Murray, and J. A. Titus. 2000. Classification of native vegetation of Oregon. Oregon Natural Heritage Program, Portland. 63 pp.

Kovalchik, B.L and R.R. Clausnitzer. 2004. Classification and Management of Aquatic, Riparian, and Wetland Sites on the National Forests of Eastern Washington. USDA Forest Service GTR-593.

Ohlson, T.H. 1996. Fire Regimes of the Ponderosa Pine-Douglas-fir/Bluebunch Wheatgrass Plant Association in the Methow Valley of North Central Washington. 85 pp. Unpublished document. On file with: U.S. Department of Agriculture, Forest Service, Methow Valley Ranger District, Winthrop, WA 98862.

Washington Natural Heritage Program. No date. Unpublished data files. Washington Natural Heritage Program, Department of Natural Resources, Olympia, WA.

Visalli, J.D., Smith, H.M. IV, and P.H. Morrison, 2006. Rare plant and vegetation survey of Pearrygin Lake State Park. Pacific Biodiversity Institute, Winthrop, Washington.

Western Ecology Working Group of NatureServe. No date. International Ecological Classification Standard: International Vegetation Classification -Terrestrial Vegetation. NatureServe, Boulder, CO.

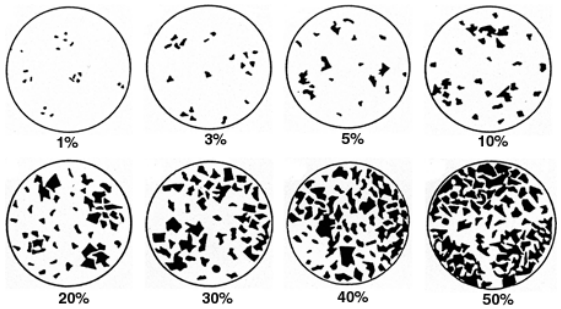
Whiteaker, Lou; J. Henderson, R. Holmes; L. Hoover; R. Lesher; J. Lippert; E. Olson; L. Potash; J. Seevers; M. Stein; N. Wogen. 1998. Survey protocols for Survey and Manage Strategy 2 Vascular Plants v. 2.0, Bureau of Land Management, December. 1998. (http://www.blm.gov/or/plans/surveyandmanage/SP/VascularPlants/section1.htm).

Appendix A – 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 B.)

% 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 B – 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.

- **Fair 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 higher 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 influence 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.

- **Developed**

Developed portions of the park property: campgrounds, offices, facilities, infrastructure, etc.

- **Ownership Issue**

Areas within the GIS boundary of the park that appear to be owned or controlled by another entity other than WSPRC.

Appendix C – Definitions of Vegetation Community Conservation Status

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 Data

Polygon Number 1

ParkName:
Conconully

Survey Intensity	1
Observer	PM
Date	7/13/2008
Total Vegetation	6
Trees Total	5
Dominant Trees	PIPO
emergent	0
maincanopy	4
subcanopy	3
Shrubs Total	4
Dominant Shrubs	SYAL, AMAL2, PHLE4, MAAQ2, ROWO
> 1.5' tall	3
< 1.5' tall	3
Graminoids Total	3
Dominant Graminoids	BRIN2, BRTE
Graminoids Perennial	2
Graminoids Annual	2
Forbs Total	2
Dominant Forbs	BASA3
Forbs Perennial	2
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	1
Water	0
Rock Outcrop	0
Gravel	2
Logging	1
Fire:	0
Stand Age	2
Agriculture	0
Livestock	0
Development	2
Wildlife	3
Recreation Severity	2
Recreation Type	3
Hydrology	0

Exotic Species

Noxious Exotic Plants
CEDI3
Other Exotic Plants
BRTE, MEOF

Water:	0
Rock:	0
Talus:	0
Gravel:	2
Bare Ground:	0
Moss Lichen:	0
Litter:	98

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PIPO/SYAL	100	Matrix	FAIR
Veg Community1:	PIPO/SYAL			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: Small, narrow strip, below road. Moderately disturbed.

Polygon Number 10

ParkName:
Conconully

Survey Intensity	1
Observer	PM
Date	7/13/2008
Total Vegetation	4
Trees Total	3
Dominant Trees	PIPO
emergent	0
maincanopy	3
subcanopy	2
Shrubs Total	2
Dominant Shrubs	ROWO, RICE
> 1.5' tall	2
< 1.5' tall	1
Graminoids Total	3
Dominant Graminoids	ELRE4, PHAR3, DAGL, BRTE
Graminoids Perennial	3
Graminoids Annual	1
Forbs Total	2
Dominant Forbs	ARDR4, ACMI2, LOAR5, CEDI3, TRRE3, PLPA2
Forbs Perennial	2
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	4
Exotics Perennial	4
Exotics Annual	2
Water	0
Rock Outcrop	1
Gravel	30
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	0
Development	6
Wildlife	2
Recreation Severity	1
Recreation Type	4
Hydrology	2

Exotic Species

Noxious Exotic Plants
CEDI3, PHAR3
Other Exotic Plants
VETH, BRTE

Water:	0
Rock:	1
Talus:	2
Gravel:	30
Bare Ground:	30
Moss Lichen:	0
Litter:	37

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: CAMPGROUND, ROADS, BOAT LAUNCHING FACILITIES

Polygon Number 11

ParkName:
Conconully

Survey Intensity	2
Observer	PM
Date	7/13/2008
Total Vegetation	5
Trees Total	4
Dominant Trees	PIPO, PSME, POTR5
emergent	0
maincanopy	4
subcanopy	2
Shrubs Total	2
Dominant Shrubs	RICE, AMAL2, ERNI2, SYAL, PHLE4
> 1.5' tall	2
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	PSSP6, POBU, BRTE
Graminoids Perennial	4
Graminoids Annual	2
Forbs Total	3
Dominant Forbs	BASA3, LIRU4, LUSE4, ARDR4, ACMI2
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	10
Logging	0 (scattered old
Fire:	0
Stand Age	2
Agriculture	0
Livestock	0
Development	2 (road at bottom,
Wildlife	1 (lots of deer
Recreation Severity	3
Recreation Type	3
Hydrology	0

Exotic Species

Noxious Exotic Plants
GYPA, VETH
Other Exotic Plants
BRTE, POBU, ARDR4

Water:	0
Rock:	0
Talus:	1
Gravel:	10
Bare Ground:	30
Moss Lichen:	0
Litter:	59

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PIPO/PSSP6-BASA3-LUSE4	90	Matrix	GOOD
Veg Community1:	PIPO/PSSP6			
Existing Veg2:	POTR5-PIPO-PSME/AMAL2-SYAL/mixed grasses	10	linear	GOOD
Veg Community3:	POTR5/SYAL			
Existing Veg3:		0		
Veg Community3:				

Notes: scattered old stumps

Polygon Number 12

ParkName:
Conconully

Survey Intensity	1
Observer	PM
Date	7/13/2008
Total Vegetation	4
Trees Total	2
Dominant Trees	PIPO
emergent	0
maincanopy	2
subcanopy	1
Shrubs Total	2
Dominant Shrubs	ERHE2, ERNI2
> 1.5' tall	0
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	PSSP6, STIPA, BRTE, POBU, BRRA2
Graminoids Perennial	4
Graminoids Annual	3
Forbs Total	3
Dominant Forbs	BASA3, GYPA, PHHA, CHDO, ARDR4
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	8
Logging	1
Fire:	0
Stand Age	0
Agriculture	0
Livestock	0
Development	2
Wildlife	3
Recreation Severity	3
Recreation Type	4
Hydrology	2

Exotic Species

Noxious Exotic Plants
GYPA, VETH, CEDI3
Other Exotic Plants
PLPA2, BRTE, BRAR5

Water:	0
Rock:	0
Talus:	1
Gravel:	8
Bare Ground:	30
Moss Lichen:	0
Litter:	61

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	ERHE2/PSSP6-BASA3-GYPA	50	Matrix	FAIR
Veg Community1:	PSSP6-BASA3			
Existing Veg2:	Disturbed road shoulder	50	Large patch	POOR
Veg Community3:	Disturbed			
Existing Veg3:		0		
Veg Community3:				

Notes: This disturbed site below road, very narrow sliver, some fair PSSP6. BASA3 in lower east part

Polygon Number 13

ParkName:
Conconully

Survey Intensity	1
Observer	PM
Date	7/13/2008
Total Vegetation	3
Trees Total	2
Dominant Trees	
emergent	0
maincanopy	2
subcanopy	0
Shrubs Total	2
Dominant Shrubs	ROWO, SALIX, AMAL2
> 1.5' tall	2
< 1.5' tall	2
Graminoids Total	2
Dominant Graminoids	BRTE, PHAR3
Graminoids Perennial	2
Graminoids Annual	2
Forbs Total	2
Dominant Forbs	VIAM, CIAR4, CEDI3, VETH
Forbs Perennial	2
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	2
Water	0
Rock Outcrop	2
Gravel	15
Logging	1
Fire:	0
Stand Age	0
Agriculture	0
Livestock	0
Development	1
Wildlife	0
Recreation Severity	1
Recreation Type	4
Hydrology	2

Exotic Species

Noxious Exotic Plants
CEDI3, SAKA, CIAR4
Other Exotic Plants
VETH, BRTE

Water:	0
Rock:	2
Talus:	0
Gravel:	15
Bare Ground:	63
Moss Lichen:	0
Litter:	20

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: DEVELOPED AREA, MOSTLY ASPHALT PARKING.

Polygon Number 14

ParkName:
Conconully

Survey Intensity	2
Observer	PM
Date	7/13/2008
Total Vegetation	5
Trees Total	1
Dominant Trees	PIPO
emergent	0
maincanopy	0
subcanopy	1
Shrubs Total	2
Dominant Shrubs	ERHE2, ERNI2, ARTR4, CHVI8
> 1.5' tall	1
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	PSSP6, ACOC3, ELRE4, POBU, BRTE, BRRA2
Graminoids Perennial	4
Graminoids Annual	3
Forbs Total	4
Dominant Forbs	ARDR4, LIRU4, BASA3, LUSE4, ACMI2, VETH, TRDU, CAMA5
Forbs Perennial	4
Forbs Annual	2
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	4
Exotics Perennial	3
Exotics Annual	3
Water	0
Rock Outcrop	1
Gravel	5
Logging	1
Fire:	0
Stand Age	0
Agriculture	6
Livestock	0
Development	6
Wildlife	3
Recreation Severity	3
Recreation Type	3
Hydrology	0

Exotic Species

Noxious Exotic Plants
CEDI3, VETH
Other Exotic Plants
ARDR4, BRTE, POBU

Water:	0
Rock:	1
Talus:	1
Gravel:	5
Bare Ground:	25
Moss Lichen:	0
Litter:	68

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	ERHE2/ERNI2/ACOC3-PSSP6-ARDR4	100	Matrix	FAIR
Veg Community1:	PSSP6-BASA3			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: Much of this area was probably ploews and cultivated at one time. It was abandoned and has grown back into a mix of native and alien plants.

Polygon Number 2A

ParkName:
Conconully

Survey Intensity	1
Observer	GW
Date	7/13/2008
Total Vegetation	5
Trees Total	3
Dominant Trees	SALIX, POBAT, PSME
emergent	2
maincanopy	2
subcanopy	1
Shrubs Total	1
Dominant Shrubs	
> 1.5' tall	1
< 1.5' tall	0
Graminoids Total	5
Dominant Graminoids	POPR, POAN, BRTE
Graminoids Perennial	5
Graminoids Annual	1
Forbs Total	2
Dominant Forbs	PLMA2, TRRE3
Forbs Perennial	2
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	5
Exotics Perennial	5
Exotics Annual	1
Water	0
Rock Outcrop	0
Gravel	3
Logging	1
Fire:	0
Stand Age	2
Agriculture	0
Livestock	0
Development	1
Wildlife	2
Recreation Severity	2
Recreation Type	4
Hydrology	2

Exotic Species

Noxious Exotic Plants

Other Exotic Plants
POPR, SALIX, POAN, BRTE

Water:	0
Rock:	0
Talus:	0
Gravel:	3
Bare Ground:	2
Moss Lichen:	0
Litter:	95

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: LARGE CAMPGROUND, PICNIC AREA, LAWNS, ETC.; ENTERANCE STATION

Polygon Number 2B

ParkName:
Conconully

Survey Intensity	2
Observer	GW
Date	7/13/2008
Total Vegetation	5
Trees Total	3
Dominant Trees	SALIX, POBAT
emergent	0
maincanopy	3
subcanopy	3
Shrubs Total	4
Dominant Shrubs	ROWO, SAPR3, SAEX
> 1.5' tall	4
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	PHAR3, POPR, AGGI2, ELGL, ELRE4
Graminoids Perennial	4
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	EQHY, EQAR, MEAR4, CYOF, CIAR4
Forbs Perennial	2
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	2
Exotics Perennial	2
Exotics Annual	0
Water	20
Rock Outcrop	0
Gravel	2
Logging	1
Fire:	0
Stand Age	2
Agriculture	0
Livestock	0
Development	6
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Noxious Exotic Plants
PHAR3, CYOF, CIAR4
Other Exotic Plants
AGGI2, POPR, SALIX, ELRE4

Water:	20
Rock:	0
Talus:	0
Gravel:	2
Bare Ground:	20
Moss Lichen:	0
Litter:	58

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	SAEX/PHAR3	60	Matrix	POOR
Veg Community1:	POBAT/SAEX			
Existing Veg2:	SALIX/SAEX/PHAR3	40	Small patch	POOR
Veg Community3:	POBAT/SAEX			
Existing Veg3:		0		
Veg Community3:				

Notes: NATURAL AREA; FREQUENT FOOT TRAFFIC; TAME DEER

Polygon Number 3

ParkName:
Conconully

Survey Intensity	1
Observer	PM
Date	7/13/2008
Total Vegetation	5
Trees Total	2
Dominant Trees	POBAT
emergent	1
maincanopy	2
subcanopy	1
Shrubs Total	2
Dominant Shrubs	SAEX
> 1.5' tall	2
< 1.5' tall	0
Graminoids Total	4
Dominant Graminoids	PHAR3, POPR
Graminoids Perennial	4
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	POLYG4 (in water), COAR4, NECA2, VETH, VIAM
Forbs Perennial	2
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	4
Exotics Perennial	4
Exotics Annual	0
Water	45
Rock Outcrop	0
Gravel	0
Logging	1
Fire:	0
Stand Age	0
Agriculture	0
Livestock	0
Development	3
Wildlife	6
Recreation Severity	2
Recreation Type	3
Hydrology	2

Exotic Species

Noxious Exotic Plants
COAR4, CIAR4, CIVU
Other Exotic Plants
PHAR3, VETH

Water:	45
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	10
Moss Lichen:	0
Litter:	45

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PHAR3	95	Matrix	POOR
Veg Community1:	PHAR3			
Existing Veg2:	SAEX/PHAR3	5	linear	POOR
Veg Community3:	SAEX			
Existing Veg3:		0		
Veg Community3:				

Notes: A PHAR3 marsh at edge of lake, narrow patch/strip of salix exigua along parts of polygon.

Polygon Number 4

ParkName:
Conconully

Survey Intensity	2
Observer	GW
Date	7/13/2008
Total Vegetation	6
Trees Total	3
Dominant Trees	SALIX, ULPU, FRLA
emergent	0
maincanopy	3
subcanopy	1
Shrubs Total	5
Dominant Shrubs	SAEX
> 1.5' tall	5
< 1.5' tall	0
Graminoids Total	4
Dominant Graminoids	PHAR3, POAN
Graminoids Perennial	4
Graminoids Annual	1
Forbs Total	2
Dominant Forbs	POPU5, MEAR4
Forbs Perennial	2
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	4
Exotics Perennial	4
Exotics Annual	0
Water	3
Rock Outcrop	0
Gravel	0
Logging	0
Fire:	0
Stand Age	1
Agriculture	0
Livestock	6
Development	5
Wildlife	7
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Noxious Exotic Plants
PHAR3
Other Exotic Plants
POPU5, POAN, TAOF, PLMA2

Water:	3
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	15
Moss Lichen:	0
Litter:	82

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	SALIX/SAEX/PHAR3	97	Matrix	FAIR
Veg Community1:	POBAT/SAEX			
Existing Veg2:	SALIX-POBAT-ULPU/PHAR3	3	linear	FAIR
Veg Community3:	POBAT/SAEX			
Existing Veg3:		0		
Veg Community3:				

Notes: EXISTING VEG 2 IS A BANK ALONG THE EDGE OF THE CAMPGROUND WHERE VEG IS DIVERSE. THE SAEX/PHAR3 IS VERY LOW DIVERSITY.

Polygon Number 5

ParkName:
Conconully

Survey Intensity	2
Observer	GW
Date	7/13/2008
Total Vegetation	6
Trees Total	5
Dominant Trees	POBAT, POTR5
emergent	3
maincanopy	4
subcanopy	2
Shrubs Total	3
Dominant Shrubs	SAPR3, AMAL2, ROWO, COSE16, MAAQ2
> 1.5' tall	3
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	PHAR3, POPR, ELGL, ELRE4, CABE2
Graminoids Perennial	4
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	EQHY, EQAR
Forbs Perennial	2
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	4
Exotics Perennial	4
Exotics Annual	0
Water	0
Rock Outcrop	0
Gravel	0
Logging	1
Fire:	0
Stand Age	2
Agriculture	0
Livestock	6
Development	5
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Noxious Exotic Plants
PHAR3
Other Exotic Plants
POPR, ELRE4

Water:	0
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	2
Moss Lichen:	0
Litter:	98

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	POBAT/ROWO-COSE16/CABE2-PHAR3-POPR	100	Matrix	FAIR
Veg Community1:	POBAT/COSE16			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: NATURAL STAND WITH OCCASIONAL PEDESTRIANS

Polygon Number 6

ParkName:
Conconully

Survey Intensity	2
Observer	GW
Date	7/13/2008
Total Vegetation	6
Trees Total	5
Dominant Trees	POBAT
emergent	0
maincanopy	5
subcanopy	2
Shrubs Total	4
Dominant Shrubs	ROWO, SYAL MAAQ2, CLLI2
> 1.5' tall	4
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	POPR, CABE2, ELRE4, PHAR3, ELGL
Graminoids Perennial	4
Graminoids Annual	0
Forbs Total	2
Dominant Forbs	EQAR
Forbs Perennial	2
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	3
Exotics Perennial	3
Exotics Annual	0
Water	0
Rock Outcrop	0
Gravel	0
Logging	1
Fire:	0
Stand Age	2
Agriculture	0
Livestock	6
Development	2
Wildlife	1
Recreation Severity	3
Recreation Type	3
Hydrology	3

Exotic Species

Noxious Exotic Plants
PHAR3
Other Exotic Plants
POPR, ELRE4

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

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	POBAT/ROWO-SYAL/POPR-PHAR3	100	Matrix	GOOD
Veg Community1:	POBAT/SYAL			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: DEER IS STAND- ABOUT 5-10 ANIMALS- ARE TAME

Polygon Number 7A

ParkName:
Conconully

Survey Intensity	1
Observer	GW
Date	7/13/2008
Total Vegetation	2
Trees Total	0
Dominant Trees	0
emergent	0
maincanopy	0
subcanopy	0
Shrubs Total	2
Dominant Shrubs	SAEX
> 1.5' tall	2
< 1.5' tall	0
Graminoids Total	0
Dominant Graminoids	0
Graminoids Perennial	0
Graminoids Annual	0
Forbs Total	0
Dominant Forbs	0
Forbs Perennial	0
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	0
Exotics Perennial	0
Exotics Annual	0
Water	96
Rock Outcrop	0
Gravel	1
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	6
Development	5
Wildlife	7
Recreation Severity	3
Recreation Type	5
Hydrology	2

Exotic Species

Noxious Exotic Plants
0
Other Exotic Plants
0

Water:	96
Rock:	0
Talus:	0
Gravel:	1
Bare Ground:	3
Moss Lichen:	0
Litter:	0

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	SAEX	100	Matrix	GOOD
Veg Community1:	SAEX			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: THIS WAS DRY AND EXPOSED IN SPRING

Polygon Number 7B

ParkName:
Conconully

Survey Intensity	2
Observer	GW
Date	7/13/2008
Total Vegetation	5
Trees Total	3
Dominant Trees	POBAT
emergent	0
maincanopy	3
subcanopy	2
Shrubs Total	5
Dominant Shrubs	SAEX, ROWO,
> 1.5' tall	5
< 1.5' tall	2
Graminoids Total	4
Dominant Graminoids	PHAR3, POPR
Graminoids Perennial	4
Graminoids Annual	0
Forbs Total	1
Dominant Forbs	CIVU, HYPE
Forbs Perennial	1
Forbs Annual	0
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	4
Exotics Perennial	4
Exotics Annual	0
Water	5
Rock Outcrop	0
Gravel	0
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	6
Development	5
Wildlife	3
Recreation Severity	3
Recreation Type	5
Hydrology	2

Exotic Species

Noxious Exotic Plants
PHAR3, HYPE
Other Exotic Plants
CIVU, POPR

Water:	5
Rock:	0
Talus:	0
Gravel:	0
Bare Ground:	5
Moss Lichen:	0
Litter:	90

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	SAEX/PHAR3	100	Matrix	FAIR
Veg Community1:	SAEX			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes: IMPENETRABLE WILLOW STAND WITH LOGS AND MUCKY GROUND

Polygon Number 8

ParkName:
Conconully

Survey Intensity	1
Observer	GW
Date	7/13/2008
Total Vegetation	5
Trees Total	3
Dominant Trees	POBAT, ALIN2
emergent	0
maincanopy	3
subcanopy	2
Shrubs Total	3
Dominant Shrubs	AMAL2, SYAL, ROWO
> 1.5' tall	3
< 1.5' tall	0
Graminoids Total	4
Dominant Graminoids	PHAR3, ELRE4, BRIN2
Graminoids Perennial	4
Graminoids Annual	2
Forbs Total	3
Dominant Forbs	EQAR, CYOF, TRRE3, VETH, HEMA80
Forbs Perennial	3
Forbs Annual	1
Ferns Total	0
Ferns Evergreen	0
Ferns Deciduous	0
ExoticsTotal	4
Exotics Perennial	4
Exotics Annual	2
Water	10
Rock Outcrop	1
Gravel	2
Logging	1
Fire:	0
Stand Age	1
Agriculture	0
Livestock	6
Development	1
Wildlife	2
Recreation Severity	3
Recreation Type	3
Hydrology	2

Exotic Species

Noxious Exotic Plants
PHAR3, CYOF, CEDI3
Other Exotic Plants
SIAL2, BRTE, ELRE4, VETH, BROMU

Water:	10
Rock:	1
Talus:	1
Gravel:	2
Bare Ground:	4
Moss Lichen:	0
Litter:	82

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	POBAT-ALIN2/SYAL/PHAR3-ELRE4	100	Matrix	FAIR
Veg Community1:	POBAT/ALIN2			
Existing Veg2:		0		
Veg Community3:				
Existing Veg3:		0		
Veg Community3:				

Notes:

Polygon Number 9

ParkName:
Conconully

Survey Intensity	2
Observer	PM
Date	7/13/2008
Total Vegetation	4
Trees Total	2
Dominant Trees	PIPO
emergent	1
maincanopy	2
subcanopy	1
Shrubs Total	2
Dominant Shrubs	ERHE2, AMAL2, RICE, ERNI2, PRVI
> 1.5' tall	2
< 1.5' tall	1
Graminoids Total	4
Dominant Graminoids	PSSP6, POBU, BRTE, BRRA2
Graminoids Perennial	4
Graminoids Annual	2
Forbs Total	3
Dominant Forbs	BASA3, LUSE4, COLI2, ARDR4, PHHA, ACMI2
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	1
Gravel	25
Logging	1
Fire:	0
Stand Age	2
Agriculture	0
Livestock	0
Development	6
Wildlife	1
Recreation Severity	3
Recreation Type	3
Hydrology	0

Exotic Species

Noxious Exotic Plants

Other Exotic Plants
POBU, BRTE

Water:	0
Rock:	1
Talus:	2
Gravel:	25
Bare Ground:	30
Moss Lichen:	0
Litter:	42

Vegetation Types

		Percent	Pattern	Rank
Existing Veg1:	PSSP6-BASA3-LUSE4	80	Matrix	EXCELLE
Veg Community1:	PSSP6-BASA3			
Existing Veg2:	PIPO/PSSP6-BASA3-LUSE4	20	Small patch	EXCELLE
Veg Community3:	PIPO/PSSP6			
Existing Veg3:		0		
Veg Community3:				

Notes: