

Botanical Inventory of Fourteen Lakes Cedar River Municipal Watershed

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This document describes a botanical inventory of herbaceous plant species along the shorelines of five small lakes, known as Fourteen Lakes¹, in the lower portion of the Cedar River Municipal Watershed (Figure 1). The inventory was conducted in the summer of 2010, supplemented by other collections in July 2002.

Background

Fourteen Lakes consists of five small lakes located in the lower Cedar River Municipal Watershed between Landsburg Diversion Dam and Cedar Falls at an elevation of about 800 feet above sea level. The five lakes include: Big Lake (4.3 acres), Small Lake (0.8 acres), Deep Lake (3.5 acres), Blackberry Lake (2.1 acres), and Wood Lake (1.9 acres).

Fourteen Lakes are kettle lakes that formed in glacial outwash deposits as a result of the melting of large pieces of glacial ice enclosed within outwash sediments. The resulting depressions in the landscape became small lakes as a result of groundwater input, as there are no perennial flowing streams entering the lakes. Fourteen Lakes also have no outlets. The water level of the lakes fluctuates widely both within and among years. Groundwater from the pool behind the Masonry Dam above Cedar Falls, flowing through the moraine deposits below, supports Rattlesnake Lake near Cedar Falls and may also continue down the valley affecting the water level in Fourteen Lakes.

The lakes are surrounded by second growth coniferous forest, but have an herbaceous-dominated shoreline that is a result of the fluctuating water level (Figure 2). Periodic high water levels prevent woody species from persisting, leaving an open shoreline with a diverse community of herbaceous species, many of which are tolerant of wetland conditions. The width of the herbaceous-dominated shorelines varies, primarily as a function of slope. The north shoreline of Big Lake has the greatest area of open, herbaceous vegetation, due both to the lake's relatively large size and the gradual slope of the shoreline to the north.

¹ Fourteen Lakes refers to the location of the lakes in Section 14, Township 22N Range 7E, not to the number of lakes that occur there.

Because the lakes are isolated with respect to surface-water inflow and outflow, the aquatic habitat is isolated and there are no known populations of fish in the lakes. There are healthy populations of several amphibian populations (likely a result of the lack of fish), including red-legged frog (*Rana aurora*), Pacific tree frogs (*Pseudacris regilla*), roughskinned newt (*Taricha granulose*), and northwestern salamander (*Ambytoma gracile*).

Over the past several years, there has been substantial effort to remove invasive plant species, primarily Himalayan blackberry (*Rubus armeniacus*) and evergreen blackberry (*Rubus laciniatus*), from the shoreline areas of Fourteen Lakes, accompanied by planting of native shrub species. There are also areas of reed canarygrass (*Phalaris arundinacea*) that occur in portions of the lake shorelines, but there has been no attempt to date to either control or remove this invasive species. Although Himalayan blackberry has been controlled, the threat of reed canarygrass spreading is relatively high and there may be other invasive plant species in the area that also may be able to colonize and spread within the open habitat of the lake shorelines.

The unique setting of Fourteen Lakes, their relative isolation as aquatic habitat, their importance as amphibian breeding habitat, and the hydrologic influences on shoreline vegetation make these lakes an important element of biodiversity within the Cedar River Municipal Watershed. Because of their ecological and biological importance within the watershed, I conducted a botanical inventory of the lake shorelines, focusing on herbaceous species, to document their present botanical diversity and assess threats from invasive species.

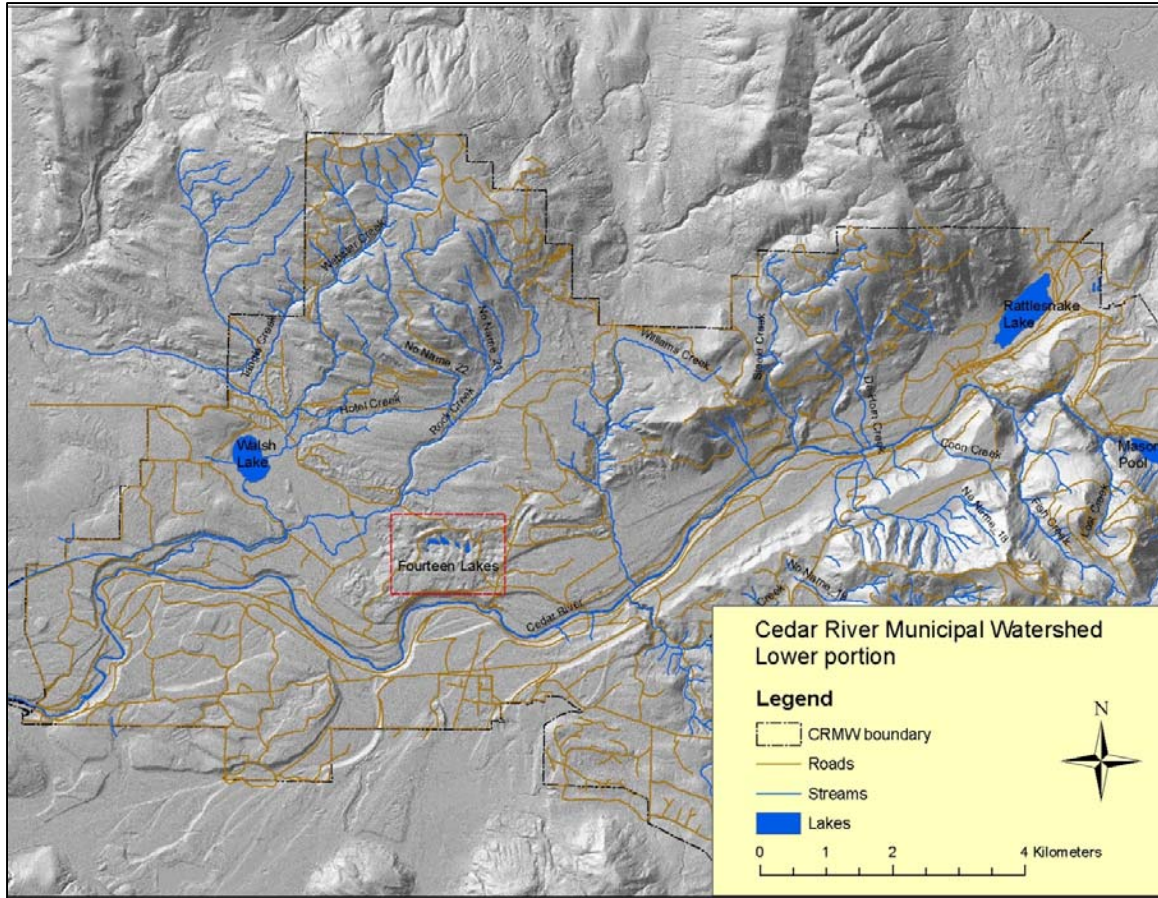


Figure 1. Map of lower Cedar River Municipal Watershed, showing location of Fourteen Lakes.



Figure 2. Aerial photograph of Fourteen Lakes. Water levels are at relatively high levels in this aerial photograph, with little herbaceous-dominated shoreline exposed.

Methodology

I collected plants at Fourteen Lakes at three different times during the summer of 2010: June 22-29, August 4-10, and September 10. These three visits should have provided the opportunity to find nearly all the herbaceous species present, although it is possible some early season annuals were not evident by late June. The survey protocol consisted of walking slowly along the shoreline from below the water line to the forest edge and making collections of all herbaceous species when first encountered. Notes were made of the presence of all herbaceous species at each lake. No attempt was made to quantify abundance of species.

Although shrub vegetation was also present, primarily on the margin of the open, herbaceous vegetation at the forest edge, shrub species were not included in the inventory. The shrubs were a mix of riparian species (e.g., red-osier dogwood [*Cornus sericea*], red elderberry [*Sambucus*

racemosa) and forest understory species (e.g., snowberry [*Symphoricarpos albus*], salal [*Gaultheria shaloni*]).

Plants were pressed, dried, and entered into my personal plant collection, numbered by year and sequential collection number (e.g., 2010-5). I identified the specimens, primarily using Hitchcock et al. (1961) – *Vascular Plants of the Pacific Northwest*, supplemented by Hickman (1993) – *The Jepson Manual: Higher Plants of California* and the online *Flora of North America* (http://www.efloras.org/flora_page.aspx?flora_id=1). Nomenclature follows the PLANTS database of the USDA Natural Resource Conservation Service (http://plants.usda.gov/about_plants.html). Life history characteristics and wetland indicator status were also derived from the PLANTS database. The specimens are currently in my personal collection stored at Cedar Falls.

In addition to the collections I made, I have included a number of collections made by a student intern at the CRMW, Jennifer French, in July 2002. The collections by Jennifer French were deposited in the University of Washington Herbarium (although not all of them have been accessioned) and information on them was downloaded from the herbarium website (<http://www.washington.edu/burkemuseum/collections/herbarium/>).

Results and Discussion

A total of 85 herbaceous species were identified along the shorelines of the five lakes comprising Fourteen Lakes. Twenty of the 85 species were collected both in 2010 by me and by Jennifer French in 2002, with three species identified in the 2002 collections but not found in the 2010 inventory. The 2002 collections were not intended to be a comprehensive inventory and only represent a portion of the Fourteen Lakes flora, in contrast to the 2010 inventory, which was intended to be comprehensive. The three species collected in 2002 but not in 2010 were either identified as different species in different years (e.g. *Trifolium hybridum* [2002] vs. *Trifolium repens* [2010]) or were missed in 2010 (two were annuals). In addition, two species in aquatic habitat could not be identified and were not included in the list of 85 species. The relatively high number of plant species for such a small area is indicative of the importance Fourteen Lakes has for biodiversity in the watershed, especially since this type of habitat is rare. However, no rare plants tracked by the Washington Natural Heritage Program were found at Fourteen Lakes (<http://www1.dnr.wa.gov/nhp/refdesk/lists/plantrnk.html>).

Big Lake had the most species (57 species), with Small Lake having the fewest (29 species) (Table 1). However, a standardized measure of species to shoreline showed that Small Lake had the highest number of species per 100 m shoreline (13 species), while Deep Lake had the fewest (8.6 species). The shorelines of Small, Blackberry, and Wood lakes are relatively steep and thus substantially narrower than that of Big and Deep lakes. Because of the narrow width of the open habitat along the steeper shorelines, the effects of forest microclimate are greater, especially on the south side of the lake where shade is more prolonged. These shorelines tend to stay moist

through most of the growing season, especially compared to the broad open shoreline on the north side of Big Lake, which is subject to much greater desiccation during summer months. The more shaded shorelines tended to have more forest understory species, possibly contributing to the standardized high species richness at Small Lake.

Forbs comprised about 73% of the species and graminoids about 21 %. Sedge and grass species were about equal in number. There were six identified species that were characterized as strictly aquatic, along with the two additional aquatic species that were unidentified. Water knotweed (*Polygonum amphibium* var. *stipulaceum*) and variable-leaf pondweed (*Potamogeton gramineus*) were the most common aquatic species. Most of the species at Fourteen Lakes were strictly perennial (57 species), with three species characterized as strictly annual and three as biennial. The remaining 19 species were characterized as having variable life histories.

A majority of the species were wetland species, with 56 having a wetland indicator status of Obligate (OBL), Facultative Wetland (FACW), or Facultative (FAC).² Species in other wetland indicator classes are considered to only rarely occur in wetlands. The open shorelines range from areas that are inundated every year to areas at the upper end of the open shoreline that are inundated irregularly. The distribution of wetland species would likely reflect this hydrologic gradient.

Twenty-eight species were classified as non-native (i.e., introduced). Because the shoreline habitat is open and many non-native species are more characteristic of open sites with high light levels, the high number of non-native species is not surprising. Other than reed canarygrass, there were no species that would be considered highly invasive, although bull thistle (*Cirsium vulgare*) does pose some risk. There were also numerous introduced “weedy” species that do have the potential to become abundant. Several of these species are common along roadsides in the watershed, such as purple foxglove (*Digitalis purpurea*), common St. Johns wort (*Hypericum perforatum*), oxeye daisy (*Leucanthemum vulgare*), common mullein (*Verbascum thapsus*). The presence of these species, as well as a variety of composite species (e.g., spiny sowthistle [*Sonchus asper*], smooth hawkbeard [*Crepis capillaries*]) that often occur in disturbed sites, indicates that the open habitat along the Fourteen Lakes shorelines is highly susceptible to establishment by weedy species.

The forest surrounding the lakes was harvested over 100 years ago, but there is no current human source of physical disturbance. However, natural sources of disturbance can also lead to open mineral soil, providing opportunity for weedy species to germinate and become established. For example, elk hooves often break the surface and create open mineral soil, especially when the soil is wet (elk sign is often seen in the area). Also, prolonged high water periods may result in the death of some plants, creating the opportunity of establishment by invasive plant species.

² The probability of a plant species occurring in wetlands for each of these classes is as follows: OBL $\geq 99\%$; FACW 67 to 99%, FAC 34 to 66%, FACU 1 to 33 %.

The threat of reed canarygrass spreading is by far the greatest imminent threat to the native species occurring along the Fourteen Lakes shorelines. There are several areas where reed canarygrass is highly abundant, including a monotypic stand within an embayment to Big Lake and dominance by reed canarygrass on the low divide between Big and Deep lakes. Mapping of these patches would be helpful to quantify the current extent of reed canarygrass at Fourteen Lakes and provide a basis to determine whether its abundance is changing substantially. Prolonged high water periods may exclude reed canarygrass from lower portions of the shoreline but may make mid and higher portions of the shoreline more susceptible to invasion by this species.

References

- Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1961. Vascular Plants of the Pacific Northwest. University of Washington Publications in Biology, Volume 17. University of Washington Press, Seattle.
- Hickman, J.C. (Editor). 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley.

Table 1. Distribution of herbaceous plant species collected at Fourteen Lakes by different criteria

	Number of species	
Number of identified species	85	-----
Number of plant families represented	30	-----
Number of species by lake		Number of species per 100m shoreline
Big	57	9.3
Small	29	13.0
Deep	45	8.7
Blackberry	43	10.9
Wood	38	10.6
		Percentage of total species
Number of native species	56	65.9
Number of introduced species	28	32.9
Number of undetermined native/introduced species	1	1.2
Number of aquatic species	6	7.1
Number of species by growth form		
grass	9	10.6
sedge	8	9.4
rush	1	1.2
total graminoid	18	21.2
forb	62	72.9
fern/fern allies	5	5.9
Number of species by life history		
annual	6	7.1
biennial	3	3.5
annual-biennial	7	8.2
annual-perennial	10	11.8
biennial-perennial	2	2.4
perennial	57	67.1
Number of species by wetland indicator status		
Obligate - OBL	18	21.2
Facultative Wetland - FACW	13	15.3
Facultative - FAC	25	29.4
Facultative Upland - FACU	12	14.1
Upland - UPL	2	2.4
Not Listed - NL	15	17.6

Table 2. List of herbaceous plant species collected at Fourteen Lakes, Cedar River Municipal Watershed – 2002, 2010.

Scientific Name	Common Name	Family	Collected by D. Chapin or J. French	Locations Observed					Life History and Other Characteristics				
				Big Lake	Small Lake	Deep Lake	Black- berry Lake	Wood Lake	Growth Form	Aquatic?	Life span	Native/ Introd.	Wetland Indicator Status ¹
<i>Adiantum pedatum</i> L.	northern maidenhair	Pteridaceae	DC				X	X	fern/fern allies	No	perennial	N	FAC
<i>Agrostis oregonensis</i> Vasey	Oregon bentgrass	Poaceae	DC	X					grass	No	perennial	N	FAC
<i>Agrostis scabra</i> Willd.	rough bentgrass	Poaceae	DC	X	X	X	X		grass	No	perennial	N	FAC
<i>Agrostis capillaris</i> L.	colonial bentgrass	Poaceae	DC	X		X			grass	No	perennial	I	FAC
<i>Alopecurus aequalis</i> Sobol.	shortawn foxtail	Poaceae	DC	X	X	X			grass	No	perennial	N	OBL
<i>Arabis eschscholtziana</i> Andrz.	Eschscholtz's hairy rockcress	Brassicaceae	DC	X					forb	No	annual- perennial	N	FACU
<i>Athyrium filix-femina</i> (L.) Roth	common ladyfern	Dryopteridaceae	DC		X		X	X	fern/fern allies	No	perennial	N	FAC
<i>Bolboschoenus fluviatilis</i> (Torr.) M.T. Strong	river bulrush	Cyperaceae	DC,JF	X		X			sedge	No	perennial	N	OBL
<i>Cardamine oligosperma</i> Nutt.	little western bittercress	Cruciferae	DC	X	X		X	X	forb	No	annual- perennial	N	FAC
<i>Carex aperta</i> Boott	Columbian sedge	Cyperaceae	DC	X	X	X	X	X	sedge	No	perennial	N	FACW
<i>Carex canescens</i> L.	silvery sedge	Cyperaceae	DC,JF		X		X	X	sedge	No	perennial	N	FACW+
<i>Carex lenticularis</i> Michx. var. <i>lipocarpa</i> (T. Holm) L.A. Standl	Kellogg's sedge	Cyperaceae	DC,JF	X					sedge	No	perennial	N	FACW+
<i>Carex microptera</i> Mack.	smallwing	Cyperaceae	DC				X	X	sedge	No	perennial	N	FAC
<i>Carex obnupta</i> L.H. Bailey	slough sedge	Cyperaceae	DC,JF			X		X	sedge	No	perennial	N	OBL
<i>Cerastium fontanum</i> Baumg. ssp. <i>vulgare</i> (Hartm.) Greuter & Burdet	big chickweed	Caryophyllaceae	DC,JF	X	X	X	X	X	forb	No	biennial- perennial	I	FACU
<i>Ceratophyllum demersum</i> L.	coon's tail	Ceratophyllaceae	DC			X			forb	Yes	perennial	N	OBL
<i>Cirsium vulgare</i> (Savi) Ten	bull thistle	Asteraceae	DC	X		X		X	forb	No	biennial	I	FACU
<i>Claytonia sibirica</i> L.	Siberian springbeauty	Portulacaceae	DC	X			X	X	forb	No	annual- perennial	N	FAC

Table 2. List of herbaceous plant species collected at Fourteen Lakes, Cedar River Municipal Watershed – 2002, 2010 (continued).

Scientific Name	Common Name	Family	Collected by D. Chapin or J. French	Locations Observed					Life History and Other Characteristics				
				Big Lake	Small Lake	Deep Lake	Black- berry Lake	Wood Lake	Growth Form	Aquatic?	Life span	Native/ Introd.	Wetland Indicator Status ¹
<i>Crepis capillaris</i> (L.) Wallr.	smooth hawkbeard	Asteraceae	DC,JF	X		X			forb	No	annual- biennial	I	FACU*
<i>Dianthus armeria</i> L.	Deptford pink	Caryophyllaceae	DC,JF	X		X			forb	No	annual- biennial	I	NL
<i>Dichanthelium acuminatum</i> (Sw.) Gould & C.A. Clark var. <i>fasciculatum</i> (Torr.) Freckmann	western panicgrass	Poaceae	DC,JF	X		X		X	grass	No	perennial	N	FAC
<i>Digitalis purpurea</i> L.	purple foxglove	Scrophulariaceae	DC,JF	X	X	X	X		forb	No	biennial	I	FACU*
<i>Eleocharis acicularis</i> (L.) Roem. & Schult.	needle spikerush	Cyperaceae	DC	X	X	X			sedge	No	annual- perennial	N	OBL
<i>Eleocharis palustris</i> (L.) Roem. & Schult.	common spikerush	Cyperaceae	DC,JF	X					sedge	No	perennial	N	OBL
<i>Epilobium ciliatum</i> Raf. ssp. <i>glandulosum</i> (Lehm.) Hoch & P.H. Raven	fringed willowherb	Onagraceae	DC	X	X	X	X	X	forb	No	perennial	N	FACW-
<i>Epilobium minutum</i> Lindl. ex Lehm.	smallflowered willowherb	Onagraceae	JF				X		forb	No	annual	N	NL
<i>Equisetum arvense</i> L.	field horsetail	Equisetaceae	DC		X	X	X		fern/fern allies	No	perennial	N	FAC
<i>Erigeron philadelphicus</i> L.	Philadelphia fleabane	Asteraceae	DC,JF	X	X	X	X	X	forb	No	biennial- perennial	N	FACU
<i>Erigeron strigosus</i> Muhl. ex Willd.	prairie fleabane	Asteraceae	DC			X			forb	No	annual- perennial	N	FACU
<i>Galium parisiense</i> L.	wall bedstraw	Rubiaceae	JF				X		forb	No	annual	I	UPL
<i>Galium trifidum</i> L.	threepetal bedstraw	Rubiaceae	DC			X			forb	No	perennial	N	FACW+
<i>Galium triflorum</i> Michx.	fragrant bedstraw	Rubiaceae	DC		X		X	X	forb	No	perennial	N	FACU
<i>Geranium carolinianum</i> L.	Carolina geranium	Geraniaceae	DC	X				X	forb	No	annual- biennial	N	NL
<i>Geranium robertianum</i> L.	Robert geranium	Geraniaceae	DC	X			X	X	forb	No	annual- biennial	I	NL
<i>Pseudognaphalium stramineum</i> (Kunth) Anderb.	cottonbatting plant	Asteraceae	DC						forb	No	annual- biennial	N	FAC+
<i>Holcus lanatus</i> L.	common velvetgrass	Poaceae	DC	X	X	X	X	X	grass	No	perennial	I	FAC

Table 2. List of herbaceous plant species collected at Fourteen Lakes, Cedar River Municipal Watershed – 2002, 2010 (continued).

Scientific Name	Common Name	Family	Collected by D. Chapin or J. French	Locations Observed					Life History and Other Characteristics				
				Big Lake	Small Lake	Deep Lake	Black- berry Lake	Wood Lake	Growth Form	Aquatic?	Life span	Native/ Introd.	Wetland Indicator Status ¹
<i>Hypericum perforatum</i> L.	common St. Johnswort	Clusiaceae	DC	X		X	X		forb	No	perennial	I	NL
<i>Hypochaeris radicata</i> L.	hairy cat's ear	Asteraceae	DC	X					forb	No	perennial	I	FACU*
<i>Juncus tenuis</i> Willd.	poverty rush	Juncaceae	DC		X		X		rush	No	perennial	N	FACW-
<i>Lapsana communis</i> L.	common nipplewort	Asteraceae	DC					X	forb	No	annual	I	NO
<i>Lathyrus nevadensis</i> S. Watson ssp. <i>lanceolatus</i> (Howell) C.L. Hitchc. var. <i>pilosellus</i> (M. Peck) C.L. Hitchc.	Sierra pea	Fabaceae	DC			X			forb	No	perennial	N	NL
<i>Lemna minor</i> L.	common duckweed	Lemnaceae	DC		X		X	X	forb	Yes	perennial	N	OBL
<i>Leucanthemum vulgare</i> Lam.	oxeye daisy	Asteraceae	DC	X	X	X		X	forb	No	perennial	I	NL
<i>Lotus corniculatus</i> L.	bird's-foot trefoil	Fabaceae	DC	X			X	X	forb	No	perennial	I	FAC
<i>Lotus micranthus</i> Benth.	desert deervetch	Fabaceae	DC,JF	X		X			forb	No	perennial	N	NL
<i>Lycopus uniflorus</i> Michx.	northern bugleweed	Lamiaceae	DC				X		forb	No	perennial	N	OBL
<i>Mentha arvensis</i> L.	wild mint	Lamiaceae	DC	X		X	X	X	forb	No	perennial	N	FACW-
<i>Mimulus guttatus</i> DC.	seep monkeyflower	Scrophulariaceae	DC,JF	X		X	X	X	forb	No	annual- perennial	N	OBL
<i>Mycelis muralis</i> (L.) Dumort.	wall-lettuce	Asteraceae	DC		X				forb	No	annual	I	NL
<i>Mysotis laxa</i> Lehm.	bay forget-me-not	Boraginaceae	DC,JF	X	X	X	X		forb	No	annual- perennial	N	OBL
<i>Oenanthe sarmentosa</i> C. Presl ex DC.	water parsely	Apiaceae	DC		X		X	X	forb	No	perennial	N	OBL
<i>Parentucellia viscosa</i> (L.) Caruel	yellow glandweed	Scrophulariaceae	DC,JF	X		X			forb	No	annual	I	FAC-
<i>Phalaris arundinacea</i> L.	reed canarygrass	Poaceae	DC	X	X	X	X	X	grass	No	perennial	N	FACW
<i>Plantago lanceolata</i> L.	narrowleaf plantain	Plantaginaceae	DC	X		X			forb	No	perennial	I	FAC
<i>Poa palustris</i> L.	fowl bluegrass	Poaceae	DC	X					grass	No	perennial	N	FAC
<i>Poa pratensis</i> L.	Kentucky bluegrass	Poaceae	DC	X					grass	No	perennial	I	FAC
<i>Polygonum amphibium</i> L. var. <i>stipulaceum</i> Coleman	water knotweed	Polygonaceae	DC,JF	X	X	X	X	X	forb	Yes	perennial	N	OBL
<i>Polygonum amphibium</i> L. var. <i>emersum</i> Michx.	longroot knotweed	Polygonaceae	DC	X		X	X		forb	No	perennial	N	OBL

Table 2. List of herbaceous plant species collected at Fourteen Lakes, Cedar River Municipal Watershed – 2002, 2010 (continued).

Scientific Name	Common Name	Family	Collected by D. Chapin or J. French	Locations Observed					Life History and Other Characteristics				
				Big Lake	Small Lake	Deep Lake	Black- berry Lake	Wood Lake	Growth Form	Aquatic?	Life span	Native/ Introd.	Wetland Indicator Status ¹
<i>Polygonum</i> sp.		Polygonaceae	DC					X	forb	No	perennial		
<i>Polystichum munitum</i> (Kaulf.) C. Presl	western swordfern	Dryopteridaceae	DC		X				fern/fern allies	No	perennial	N	FACU
<i>Potamogeton amplifolius</i> Tuck.	largeleaf pondweed	Potamogetonaceae	DC	X		X			forb	Yes	perennial	N	OBL
<i>Potamogeton gramineus</i> L.	variableleaf pondweed	Potamogetonaceae	DC	X		X	X	X	forb	Yes	perennial	N	OBL
<i>Potentilla norvegica</i> L.	Norwegian cinquefoil	Rosaceae	DC	X		X	X		forb	No	annual- perennial	N	FAC
<i>Prunella vulgaris</i> L. ssp. <i>lanceolata</i> (W. Bartram) Hultén	lance selfheal	Lamiaceae	DC,JF	X		X	X	X	forb	No	perennial	N	FACU+
<i>Pteridium aquilinum</i> (L.) Kuhn	western brackenfern	Dennstaedtiaceae	DC		X	X	X	X	fern/fern allies	No	perennial	N	FACU
<i>Ranunculus flammula</i> L.	greater creeping spearwort	Ranunculaceae	DC,JF	X	X	X	X	X	forb	No	perennial	N	FACW
<i>Ranunculus repens</i> L.	creeping buttercup	Ranunculaceae	DC	X			X	X	forb	No	perennial	I	FACW
<i>Ranunculus uncinatus</i> D. Don ex G. Don var. <i>parviflorus</i> (Torr.) L.D. Benson	Idaho buttercup	Ranunculaceae	DC		X	X			forb	No	annual- perennial	N	FAC-
<i>Ranunculus aquatilis</i> L.	white water crowfoot	Ranunculaceae	DC					X	forb	Yes	perennial	N	OBL
<i>Rorippa curvisiliqua</i> (Hook.) Besser ex Britton	curvepod yellowcress	Brassicaceae	DC	X					forb	No	annual- biennial	N	OBL
<i>Rumex crispus</i> L.	curly dock	Polygonaceae	DC				X		forb	No	perennial	I	FAC+
<i>Senecio jacobaea</i> L.	tansy ragwort	Asteraceae	DC	X		X			forb	No	perennial	I	FACU*
<i>Sisyrinchium idahoense</i> E.P. Bicknell var. <i>segetum</i> (E.P. Bicknell) Douglass M. Hend.	Idaho blue-eyed grass	Iridaceae	DC	X					forb	No	perennial	N	FACW
<i>Solanum dulcamara</i> L.	climbing nightshade	Solanaceae	DC				X		forb/sub shrub	No	perennial	I	FAC+
<i>Sonchus asper</i> (L.) Hill	spiny sowthistle	Asteraceae	DC	X	X	X	X		forb	No	annual	I	FAC-
<i>Stachys mexicana</i> Benth.	Mexican hedgenettle	Lamiaceae	DC,JF	X	X	X	X	X	forb	No	perennial	N	FACW
<i>Stellaria borealis</i> Bigelow ssp. <i>sitchana</i> (Steud.) Piper	Sitka starwort	Caryophyllaceae	DC					X	forb	No	perennial	N	FACW-

Table 2. List of herbaceous plant species collected at Fourteen Lakes, Cedar River Municipal Watershed – 2002, 2010 (continued).

Scientific Name	Common Name	Family	Collected by D. Chapin or J. French	Locations Observed					Life History and Other Characteristics				
				Big Lake	Small Lake	Deep Lake	Black- berry Lake	Wood Lake	Growth Form	Aquatic?	Life span	Native/ Introd.	Wetland Indicator Status ¹
<i>Tellima grandiflora</i> (Pursh) Douglas ex Lindl.	fringecup	Saxafragaceae	DC	X					forb	No	perennial	N	NL
<i>Tolmiea menziesii</i> (Pursh) Torr. & A. Gray	youth on age	Saxafragaceae	DC	X					forb	No	perennial	N	FAC*
<i>Trifolium hybridum</i> L.	alsike clover	Fabaceae	JF	X					forb	No	annual- perennial	I	FAC
<i>Trifolium campestre</i> Schreb.	field clover	Fabaceae	DC	X		X	X	X	forb	No	annual- biennial	I	NL
<i>Trifolium repens</i> L.	white clover	Fabaceae	DC	X		X	X		forb	No	perennial	I	FAC*
<i>Verbascum thapsus</i> L.	common mullein	Scrophulariaceae	DC	X	X	X	X	X	forb	No	biennial	I	NL
<i>Veronica officinalis</i> L.	common gypsyweed	Scrophulariaceae	DC,JF	X				X	forb	No	perennial	I	UPL
<i>Veronica scutellata</i> L.	skullcap speedwell	Scrophulariaceae	DC	X					forb	No	perennial	N	OBL

¹ See footnote 2 and Table 1 in text for explanation of wetland indicator status classes. An “*” refers to provisional classification; a “+” indicates slightly wetter and a “-” slightly drier than the specified class.