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Spring Wetland Flora Inventory – Cedar Breaks National Monument

Survey Report



ON THE COVER
A wetland surveyed at Cedar Breaks National Park.

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Spring Wetland Flora Inventory – Cedar Breaks National Monument

Survey Report

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Abstract

This report provides the results from the 2021 and 2022 spring wetland flora inventory at Cedar Breaks National Monument (CEBR). In total, seven National Park Service units within the Northern Colorado Plateau Network (NCPN) determined the need to evaluate and map spring and wetland condition based on the presence/absence of perennial obligate and facultative wetland plant species known to occur in the parks. Mapping spring and wetland areas for each park provides a baseline measure of areas sensitive to drying that can be used to monitor change over time. The overall objective of the project was to establish a baseline for the area and condition of wetlands, seeps, and springs to provide supporting evidence for any future claims of impairment resulting from groundwater management actions.

Survey results at Cedar Breaks National Monument identified and inventoried springs at 15 of 22 survey sites. This report summarizes the results at the 15 sites, including spring type identification, dominant herbaceous plant species present, average plant cover, wildlife sign frequency and observation, and wetland feature map figures.

Acknowledgements

This project was possible through the support from the National Park Service Inventory and Monitoring Division.

Introduction

Project Background

Small water sources, such as springs and wetlands in intermountain parks, are often of resource management concern because they provide unique resources and habitat for plants and wildlife, and they may be vulnerable to developments outside of park boundaries and to climate change. Some of these resources also have or could have special protections through water rights agreements with states. Measuring the hydrology of these water sources can be difficult because they often have diffuse to low flow.

Seven National Park Service (NPS) units (or parks) within the NCPN determined the need to evaluate and map spring and wetland condition based on the presence/absence of perennial obligate (OBL) and facultative wetland (FACW) plant species known to occur in the parks. Mapping spring and wetland areas for each park provides a baseline measurement of areas sensitive to drying that can be used to monitor change over time.

Project Objective, Goals, and Parameters

The overall objective of the project was to establish a baseline for the area and condition of wetlands, seeps, and springs to provide supporting evidence for future water rights filings and/or claims of impairment resulting from groundwater management actions. While impairment is determined by state engineers, establishing a baseline where decreases in OBL and FACW species can be measured will help the NPS and its co-managers document impairment. The approach used during the surveys described in this report was developed as an indicator of impairment in coordination with the NPS Water Resources Division.

The project's goals included:

- Document the presence/absence of wetland vascular plant species (OBL and FACW) within seven NCPN parks.
- Map spring and wetland areas defined as those with more than 50 percent (%) perennial wetland (OBL and FACW) herbaceous and shrub plant cover.
- Take representative photos of the spring and wetland areas. When provided by the parks, these may have included rematches of historic photos.

Project parameters that defined the scope of the work and specified criteria for data collection and deliverables included:

- Conducting standardized fixed-area surveys for target species using standard sampling techniques that sufficiently detected target species and measured percent cover.
- Sampling that ensured all prioritized sites were investigated.
- The placement of plots that included spatial replication was sufficient to discern the presence of all targeted wetland species and determine the perimeter of wetlands as defined by 50% cover of target species.
- When conditions allowed, the perimeter of the area with greater than 50% perennial wetland (OBL and FACW) herbaceous and shrub plant cover was mapped with sub-meter accuracy. However, there were areas in canyons that did not have sufficient sky view to receive a satellite signal for sub-meter accuracy, and these were mapped using the best Global Positioning System (GPS) accuracy available.
- Cover of wetland trees such as cottonwoods without underlying wetland herbs and shrubs would be excluded from the perimeter.
- In spring systems feeding an extensive stream-type riparian area, the area would be capped at 50 meters (m) downstream from the spring orifice for the purposes of this inventory.
- For sites too large to sample effectively or efficiently, or if more than one wetland polygon was present at a site, only a portion of the site would be selected for sampling. This was typically the largest wetland polygon, the most mesic polygon, and/or the polygon that included a spring orifice.
- Observation data was summarized and reported by site: wetland area, perimeter length, and wetland species diversity.

- Specimens were not collected, unless necessary to verify plant species identification. Specimens, when collected, were destroyed during analysis.
- Ancillary data at each site was related to specific park needs (determined prior to commencing field work). Some parks re quested additional simple metrics be collected at a site that do not require additional expertise and were not expected to require a significant amount of additional time to record. The NCPN identified three preliminary data categories be included in the data collection: (a) presence of animal use at sites; (b) impacts from recreation; and (c) presence of spring development structures.

Project Locations

Mapping took place at seven parks and national monuments in Utah and Colorado served by the NCPN, including:

- Black Canyon of the Gunnison National Park (BLCA)
- Bryce Canyon National Park (BRCA)
- Capitol Reef National Park (CARE)
- Cedar Breaks National Monument (CEBR)
- Colorado National Monument (COLM)
- Curecanti National Recreation Area (CURE)
- Dinosaur National Monument (DINO)

This report describes the approach and summarizes and summarizes the results of mapping and surveys at CEBR. The priority survey sites were identified by CEBR staff, and most require verification to inform the potential for adjudication of diligence rights on their sources. The priority sites are found in Figure 1 and Table 1.

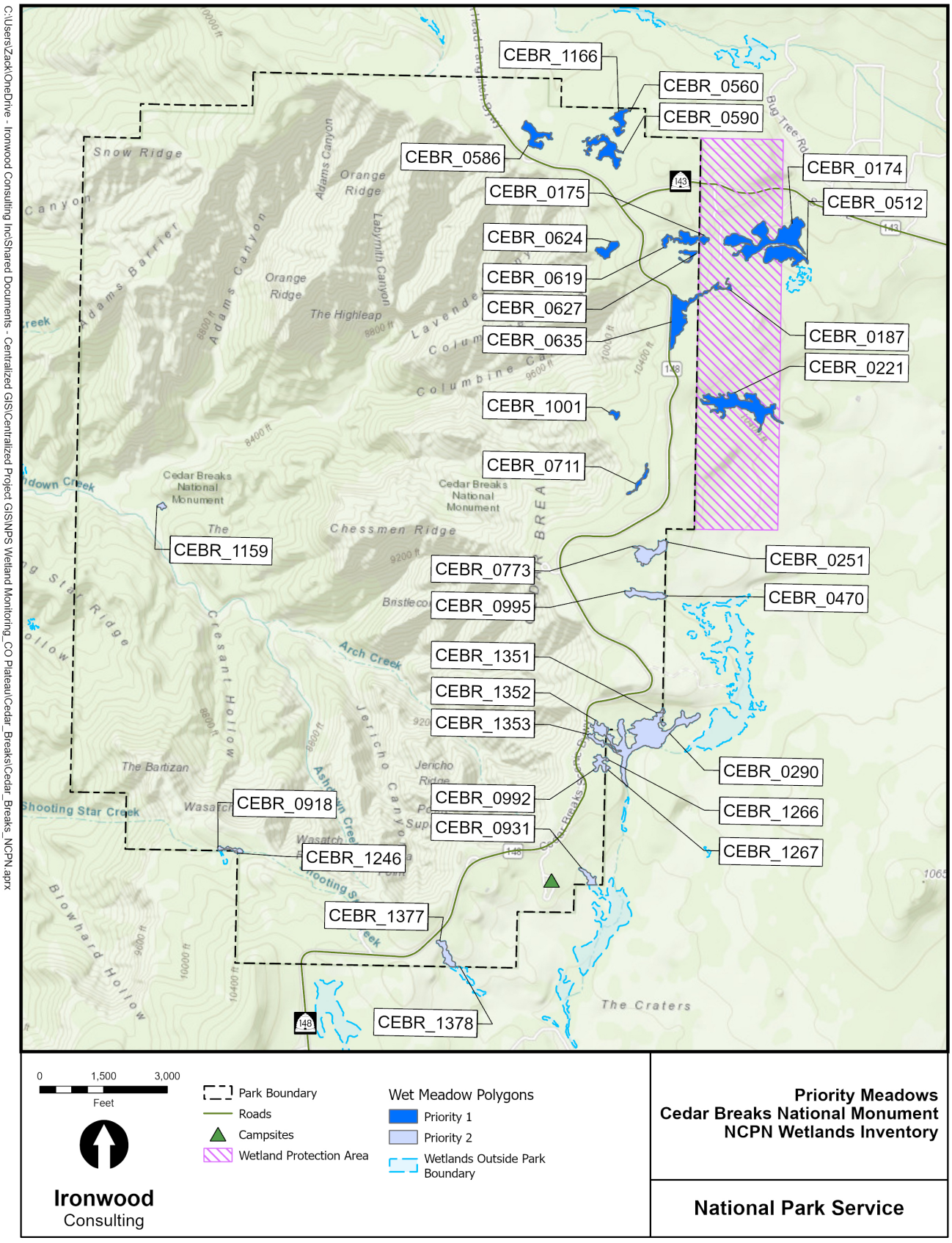


Figure 1. Cedar Breaks National Monument Overview with Priority Survey Areas.

Table 1. Cedar Breaks National Monument Priority Survey Sites. WPA indicates that the site occurs within a Wetland Protection Area, which borders the Monument to the east.

Site Name	Priority for Survey	Area (acres)	Inside/Outside of Monument Boundary
CEBR 0174	1	15.86	Outside (WPA) [A]
CEBR 0175	1	0.70	Outside (WPA)
CEBR 0187	1	1.17	Outside (WPA)
CEBR 0221	1	12.52	Outside (WPA)
CEBR 0512	1	6.63	Outside (WPA)
CEBR 0560	1	0.001	Inside
CEBR 0586	1	4.09	Inside
CEBR 0590	1	6.01	Inside
CEBR 0619	1	3.36	Inside
CEBR 0624	1	2.49	Inside
CEBR 0627	1	1.11	Inside
CEBR 0635	1	7.71	Inside
CEBR 0711	1	1.19	Inside
CEBR 1001	1	0.69	Inside
CEBR 1166	1	2.82	Inside
CEBR 0251	2	0.07	Outside
CEBR 0290	2	20.01	Inside
CEBR 0470	2	0.04	Outside
CEBR 0773	2	4.64	Inside
CEBR 0918	2	0.83	Inside
CEBR 0931	2	1.42	Inside
CEBR 0992	2	1.68	Inside
CEBR 0995	2	2.97	Inside
CEBR 1159	2	0.45	Inside
CEBR 1246	2	0.07	Outside
CEBR 1266	2	0.09	Outside
CEBR 1267	2	0.20	Outside
CEBR 1351	2	0.15	Inside
CEBR 1352	2	1.77	Inside
CEBR 1353	2	0.97	Inside
CEBR 1377	2	2.34	Inside
CEBR 1378	2	0.01	Inside

[A]WPA – Wetland Protection Area

Methods and Materials

Ironwood completed a project work plan (Ironwood 2021a) that detailed the survey methods, including project locations, staffing roles, project schedule, equipment and materials, pre-field coordination and geospatial analyses, data management protocols, and injury and illness prevention plans. Field methods, data management practices, and analysis methods are outlined below.

Pre-Survey Geospatial Analysis and Preparation

Geographic Information Systems (GIS) data provided by NPS was used to analyze the location, number, and if possible, the rough size of seeps, springs, and wetlands to be mapped and evaluated (Figure 1, Table 1). Each survey site was assigned a unique general identification code.

Prior to field work, project maps and tables identifying priority wetlands/springs wetland/springs were prepared using GIS data provided by the NPS. Maps were prepared at a scale of 1:1000 and included topographic lines, labels for prominent landmarks and geographic features, waterbodies, and roads, and included recent aerial photograph backgrounds. Large (24-inch by 36-inch) printed maps were provided to field staff for navigation and field planning. Digital maps were also created in ESRI Field Maps.

Ironwood created a data collection interface using ESRI Field Maps and Pendragon that was compatible with cell phones and tablets in the field for all data fields outlined in the Data Management Section of this report. Field crews used tablets in the field that stored data locally and connected to cloud storage when in cellular service, so data was regularly backed up and available for initial review and QA/QC.

Goal 1: Documenting Wetland Species

The field procedure for documenting wetland species at each survey site was a modified version of the U.S. Department of Agriculture (USDA) Groundwater-Dependent Ecosystem (GDE) Level II Methodology (used whenever a groundwater-dependent wetland was present; USDA 2012). The protocol was intended to describe a site's general condition, monitor major changes over time, and make comparisons among sites of a certain type or within a specific region. The protocol was not intended for evaluating certain wetlands within the floodplains of surface water bodies, such as hanging gardens and riparian areas within floodplains of surface water bodies.

The full protocol, with redlined non-applicable text, is available in the Ironwood Work Plan (Ironwood 2021a); modifications are described below.

Groundwater-Dependent Ecosystem Level II Methodology

The vegetation components of the GDE Level II protocol were used when collecting associated vegetation data for sites identified as groundwater-dependent wetlands.

During the site evaluation, collected data included location, slope, aspect, elevation, surrounding (non-wetland) vegetation, geologic setting, surface material (no soil samples were taken), groundwater source characterization, and plant species composition. The GDE type was determined using the dichotomous key from Stevens et al. (2021). Photos of the site were taken per the GDE Level II protocol, and a detailed scaled diagram of the wetland was subsequently completed in the office using sub-meter geospatial data collected in the field.

Transects to evaluate species composition were established following the methods outlined in the GDE Level II protocol, with modifications described below.

The wetland perimeter was mapped (see Goal 2: Mapping Springs and Wetlands) and the area and long axis of the wetland were determined. Each end of the long axis was marked using a sub-meter GPS and labeled "Long axis start" and "Long axis end." A measuring tape was run between these two points, with the origin at the Long axis start. Transects were oriented perpendicular to the bearing of long axis, with the transect origin placed on the left side of the long axis, as determined when standing at the Long axis start and facing the Long axis end. Compass bearings were determined at all sites using a declination of 10 degrees (°) east. The first transect began near the Long axis start and was placed perpendicular to the long axis line. Quadrats were

then placed at regular intervals along each transect. Transect and quadrat intervals are outlined in Table 2 (Table 2).

In each quadrat, visual cover was measured for each plant species using a 0.5-square-meter (m^2) quadrat at a quantity and interval determined by the area of the wetland after mapping the wetland boundary (Table 2). A cut-level was used when recording visual cover estimates. Plants within the quadrat with visually estimated cover below the 1% cut-level were not recorded. Quadrats were placed along the left side of the perpendicular transect tape, as determined by looking down the transect from its origin. A random number generator was used to determine a value between 0.0 m and the quadrat interval distance (minus 0.5 m) when placing the first quadrat. The quadrat started at the point corresponding to the distance number along the transect and extended 0.5 m beyond this point. After the first quadrat was randomly located, the set interval was used for all subsequent quadrats until the entire quadrat could no longer fit inside the wetland boundary along that transect. This process was repeated for each transect. The total number of transects at CEBR using this methodology ranged from 4 to 12, and the total number of quadrats at each site ranged from 11 to 32. Details about the number of transects and quadrats used at each GDE site are found in the CEBR data deliverable.

A combination of line intercept and spherical densiometer methods were implemented to determine woody species cover and composition. When present, live woody plant cover to a cut-off height of four feet (ft) was collected using line intercept sampling along each transect as described in the GDE Level II protocol. Overstory cover of live and dead woody plants greater than 4 ft in height and other cover (e.g., canyon walls) was recorded using a spherical densiometer at three locations along each transect: 1) at the transect origin, 2) at the transect end, and 3) at the center quadrat of the transect for transects longer than 15 m, or 3) in the center of the transect line for transects less than 15 m. Non-plant groundcover was visually estimated within the quadrat. Additional plant species observed within the wetland that were not captured in the quadrats or the line intercept were noted on the data form. If more than one wetland polygon was present at a site, a single polygon was selected to establish a GDE transect, which was typically the largest polygon, the most mesic polygon, and/or the polygon that included a spring orifice.

Table 2. Criteria for Determining Quadrat Number and Interval using GDE Level II.

Size of GDE (m^2)	Transect Interval (m)	Quadrat interval (m)
< 20	1.5	1.0
20 to 40	2.0	2.0
40 to 80	3.0	2.0
80 to 150	3.0	2.0
150 to250	4.0	3.0
250 to 500	5.0	4.0
500 to 750	6.0	5.0
750 to 1,000	7.0	6.0
1,000 to 1,500	8.0	7.0
1,500 to 2,500	10.0	9.0
2,500 to 4,00	12.0	10.0
4,00 to 6,00	16.0	12.0
6,00 to 8,000	18.0	14.0
8,000 to 10,000	20.0	16.0
> 10,000[A]	–	Divide into smaller units

[A]Sites larger than 10,000 m^2 required too many quadrats to sample during a single day. Depending on the purpose of the inventory, these sites may need to be divided to facilitate inventory.

Goal 2: Mapping Springs and Wetlands

To meet Goal 2, wetland boundaries were mapped using the vegetation section of the U.S. Army Corps of Engineers (USACE) Wetland Vegetation Dominance Test (USACE 2008). The data form provides a rubric for determining if hydrophytic vegetation (defined as having a wetland indicator status of OBL and/or FACW according to the 2020 USACE Wetland Indicator Status [USACE 2020]) meets or surpasses the absolute cover threshold to be considered a wetland through a quantitative dominance test.

The dominance test was used to determine where hydrophytic vegetation transitioned to upland vegetation cover that identified the boundary of the wetland. All wetland and upland species at the wetland boundaries were identified, and absolute cover composition was quantitatively determined in the field. If more than one wetland polygon was present at a site, each was mapped separately. A gap in wetland vegetation cover greater than 5 m^2 was used to determine when a wetland ended and another began.

The following guidelines were observed when mapping wetlands:

- The site was assessed upon arrival to determine how to minimize damage to soils, plants, and hydrologic processes during the survey. If necessary, an approach to collecting data was devised to avoid damaging soils.
- Upon arrival at each site, a polygon was mapped with sub-meter accuracy (when possible) within ESRI Field Maps along the boundary between the wetland and upland vegetation communities using the USACE Dominance Test. Where wetland areas were represented by having greater than 50% OBL and/or FACW absolute plant cover and upland areas included greater than 50% FAC, FACU, and/or UPL absolute plant cover.
- Each crew mapped the wetland boundary using an EOS Arrow 100 sub-meter GPS receiver connected to a Bluetooth-enabled device to input field data into the data dictionary. The ESRI Field Maps app was used to determine the area and the length at the longest axis of the wetland. This determined the perpendicular transect locations and microplot quantity and placement using the USDA Forest Service GDE Level II protocol. The polygon also served as the delineation deliverable required of all sampled seeps/springs/wetlands under this contract.
- If a site failed the USACE Dominance Test (i.e., less than 50% OBL and/or FACW absolute plant cover) and no wetland characteristics were observed, a walk-thru with photos and a single transect with three microplots using the GDE Level II Protocol through the most mesic part of the feature were collected; no delineation was conducted.
- At CEBR and BRCA, each end of the long axis of the polygon determined where the capped aluminum conduit permanent plot pins were set. Additional monuments were added if the long axis distance exceeded 100 m or if there were distinct bends (“doglegs”). An additional monument was added for every additional 100 m the transect extended and/or when the long axis trajectory changed at the bend. Each conduit cap was scribed with the site name. The depth of the monument below ground was between 12 and 18 inches. The height of the monument above ground did not exceed 12 inches.
- At all other parks (BLCA, CARE, COLM, CURE, and DINO), no permanent monuments were used at the sites. Sub-meter GPS data was collected according to the specifications at each end of the long axis (in Table 3). Additional points were taken if the long axis exceeded 100 m, or if there were distinct doglegs.

Non-wetland Negative Data

At sites where the absolute cover of OBL or FACW species was less than 50% and wetland characteristics were not present, then field staff did not complete the GDE Level II survey protocol. If other wetland features were present (e.g., spring orifice or flowing channel), these features were mapped; however, no wetland delineation was conducted.

If neither wetland characteristics nor other evidence of a spring was present, then the site was documented as negative data and no GDE Level II survey occurred. Instead, field staff took photos facing each cardinal direction standing at the center of the site where negative data was collected. At non-GDE sites that were identified for survey as potential springs, a single transect was placed running through the most mesic part of the site. Three 0.5-m^2 quadrats were

Table 3. GPS Settings and Accuracy Parameters.

Parameter	Setting
Accuracy	75 centimeters (cm)
GPS Averaging	OFF; (If averaging a non-monumented point, turn ON and wait for 30 points)
95% Confidence	OFF
Streaming	46 cm
Photo Upload Size	Large
Related Type	Filtered; Show Related Type set to "OFF"
Offset	None
Snapping	OFF
Provider	EOS Positioning Systems # 1830#### (series specific to the device)
Antenna Ht.	1.5 m
Profile	Default (Geographic Coordinate System WGS84)
Units	Metric
Coordinates	UTM
Distance	Meters
Area	Square meters

spaced evenly along the transect and herbaceous cover data was visually estimated within each quadrat. No wetland delineation was conducted.

GPS Settings and Accuracy

Sub-meter GPS mapping was acquired for mapped wetlands whenever adequate satellite reception was available, with a few exceptions (Table 3). The GPS parameters listed in Table 3 were used to ensure accurate and consistent boundary mapping. EOS Arrow 100 receivers were used to achieve sub-meter accuracy whenever possible. The mapping interface was the ESRI Field Maps app with the data parameter setting options as seen below. When difficult satellite constellation or topography (e.g., narrow canyon) precluded sub-meter data collection, an accuracy setting requirement was modified, as necessary. In these instances, a less accurate polyline or point was achieved.

Goal 3: Representative Photos

As part of the methods discussed above, multiple photos were taken at each wetland following guidance outlined in the respective methods found in the GDE Level II protocol (Ironwood 2021b). Additional photos may have included overall landscape context photos and a representative photo along the wetland boundary. All photos were taken using the geo-referencing application Solocator, which provides a georeferenced copy of each photo with UTM location, aspect, elevation, date, time, project name, and a brief description. The description field described anything notable about the subject of the photo.

All photos were saved in jpeg format, labeled, and backed up each evening. Photo labels included:

- Park abbreviation
- Survey Site name abbreviation
- Date of photo

An example of the photo label is "CEBR_ID123_MMDD2021.jpeg."

Other Park Specific Metrics

In addition to completing one of the methodologies previously described, this section includes the metrics that were evaluated and data that were collected during the site visits.

Wildlife and Livestock Usage Metric

The presence of target animal scat and/or tracks observed within the quadrats was recorded and the frequency of each type was calculated. Target animal species include moose, elk, deer, sheep,

bear, mountain lion, bison, and recent cattle sign. Incidental observations of target species, humans, and aquatic vertebrates were noted.

Wildlife usage data was collected at all six park units using the methodology in the work plan (Ironwood 2021a).

Recreation Impacts Metric

Any campsites, vehicle tracks, human footpaths (social trails) within 100 ft of the site were also noted. After the site was evaluated, qualitative management indicator tools for recreation impacts were used to assess the site.

Recreation impact data was collected using the qualitative management indicator tool for recreation outlined in the GDE Level II protocol in the work plan (Ironwood 2021a).

Spring Development Metric

The data collection methods included categorical data for spring development if present. Categories included fences, tanks, pipes, dams, windmills, pumps, spring boxes, trenches and ditches, others (described). Point data was taken at the approximate center point for each structure or development encountered. Spring development data was collected at all park units.

CEBR Specific Metrics

Within CEBR, wetted surface areas associated with springs were documented and categorized as flowing, pooled, saturated, or not observed. The perimeter of the wetted area was mapped using a sub-meter GPS unit. If a wetted area was less than 5 m^2, point data was taken at the approximate center point.

Photo re-takes from previous vegetation mapping efforts were also completed at CEBR. The NCPN provided spatial locations for each photo point. These photos were provided as part of the data deliverable for this project but are not presented in this report.

Data Management

All data was recorded electronically on the application interface designed for the project using ESRI Field Maps and Pendragon on field tablets. Data was uploaded to the cloud storage at the end of the workday or when cellular or internet service was available. All photos were saved, labeled, and backed up each evening.

Spatial Data

Spatial data collected during the surveys included wetland boundary mapping, site evaluations, and photos. Spatial field data collection equipment included:

- **Recreational-grade GPS units**: Each crew member carried a GPS unit that is capable of a 5-m or greater accuracy, such as a handheld Garmin unit or smartphone GPS application that was used to navigate to sites and collect tracks.
- **Sub-meter GPS units**: Each team had an EOS Arrow 100 sub-meter GPS receiver that was used with a Bluetooth-enabled device to input field data into the data dictionary. The EOS Arrow 100 is a mapping grade GPS unit that can achieve accuracy at the sub-meter scale.
- **Data collection interface**: ESRI Field Maps was used to collect spatial data and transfer it to a cloud storage. A data collection interface was created for cell phones and tablets in the field for all data collection. The data collection interface was available offline when cell service was not available, and data was uploaded to the cloud storage upon re-entering cell service.

Tabular Data

Tabular data included species lists, photo lists, and geospatial metadata. Tabular data included all fields necessary so data is broadly useful, including dates, UTMs, descriptions, associated files, data type, observer, survey site, species, etc. All plant species lists included USDA PLANTS database codes (USDA and NRCS 2023). Tabular data was compiled after the field data collection was completed from digital data forms.

Data Accuracy and Quality

To ensure data was collected accurately, all botanists and botany technicians were trained in data collection methodology. A botanist or botany technician was assigned the role of Data Collection Lead for each team. This person was tasked with reviewing the data fields for accuracy and completeness. A different crew member was assigned the role of filling out and keeping the species list.

The Project Manager and/or the Assistant PM was in the field for all data collection to help ensure that the workplan was followed and the data documentation followed NPS requirements. At the end of each field day, data was reviewed in the field by the Project Manager or Assistant Project Manager to ensure completeness, accuracy, and quality. If data errors were detected, the GIS/Data Lead contacted the PM and/or Assistant PM, and the data was corrected and re-reviewed by the GIS/Data Lead.

Results

Surveys took place between August 9 and 15, 2021, and August 1 and 10, 2022. Fifteen of the 22 surveyed areas were identified as GDE sites, with evidence of springs present (Table 4, Appendix A).

The dominant herbaceous species reported in the GDE herbaceous vegetation quadrat summary tables were determined using the USACE Dominance Test. Only OBL and FACW plants were considered vegetative wetland indicators for this project.

Table 4. List of surveyed sites identifying whether each was described as a GDE or non-GDE and whether the site occurs inside or outside of the Monument boundary.

Site Name	Site Type	Primary GDE Type	Inside/Outside of Monument Boundary
CEBR 0290	Spring	Helocrene	Inside
CEBR 0586	Spring	Hypocrene	Inside
CEBR 0590	Spring	Helocrene	Inside
CEBR 0619	Spring	Helocrene	Inside
CEBR 0624	Spring	Hillslope	Inside
CEBR 0627	Spring	Hypocrene	Inside
CEBR 0635	Spring	Hypocrene	Inside
CEBR 0711	Spring	Hillslope	Inside
CEBR 0773	Spring	Helocrene	Inside
CEBR 0918	Spring	Rheocrene	Inside
CEBR 0995	Spring	Hypocrene	Inside
CEBR 1166	Spring	Helocrene	Inside
CEBR 1246	Spring	Rheocrene	Outside
CEBR 1352	Spring	Helocrene	Inside
CEBR 1353	Spring	Hypocrene	Inside
CEBR 0560	Non-GDE	–	Inside
CEBR 0931	Non-GDE	–	Inside
CEBR 0992	Non-GDE	–	Inside
CEBR 1001	Non-GDE	–	Inside
CEBR 1351	Non-GDE	–	Inside
CEBR 1377	Non-GDE	–	Inside
CEBR 1378	Non-GDE	–	Inside
CEBR 0174	Did Not Survey	–	Outside (WPA)[A]
CEBR 0175	Did Not Survey	–	Outside (WPA)
CEBR 0187	Did Not Survey	–	Outside (WPA)
CEBR 0221	Did Not Survey	–	Outside (WPA)
CEBR 0251	Did Not Survey	–	Outside
CEBR 0470	Did Not Survey	–	Outside
CEBR 0512	Did Not Survey	–	Outside (WPA)
CEBR 1159	Did Not Survey	–	Inside
CEBR 1266	Did Not Survey	–	Outside
CEBR 1267	Did Not Survey	–	Outside

[A]Wetland Protection Area (WPA), which borders the CEBR to the east.

After further discussion with Bryan Larsen (CEBR Resource Manager), ten of the priority survey sites originally identified by CEBR staff were not surveyed. Nine of these 10 sites were located outside of CEBR. The only priority site within CEBR that was not surveyed (CEBR 1159) was determined to be the lowest priority due to difficulty in access and logistics.

CEBR 0290

The CEBR 0290 GDE site was located at an elevation of approximately 3,153 m, with an overall southeast (160°) aspect and low slope variability across the site. Flow from spring sources, standing water, and wetland vegetation provided evidence of groundwater at this site. A total of 14 orifices were mapped. The spring type was characterized as helocrene. This GDE site included a total wetland area and perimeter of 3.6 acre (ac; 14,500.4 m^2) and 1,752.9 m, respectively (Figure 2, Figure 3, Appendix B).

Forty-one plant taxa were encountered during the GDE Level II survey, including 22 taxa captured in vegetation quadrats and line intercept transects (Table 5, Appendix D). Total average herbaceous cover was 59.5% (Table 6). The dominant herbaceous wetland plants were tufted hairgrass (*Deschampsia caespitosa*), white marsh-marshmarigold (*Caltha leptosepala*), western mountain aster (*Symphyotrichum spathulatum*), and Arizona willow (*Salix arizonica*) with 9.3%, 9.2%, 6.4%, and 6.1% average cover, respectively. Groundcover included litter, bryophyte, and soil with 82.1%, 16.7%, and 1.2% average corner hits, respectively (6). According to the GDE Level II protocol, since the Arizona willow stand at this site was typically less than 0.5 m tall, its cover was recorded in the quadrat data, and therefore there was no woody line intercept cover.

The non-native plant species encountered included common dandelion (*Taraxacum officinale*), Kentucky bluegrass (*Poa pratensis*), redtop (*Agrostis stolonifera*), and timothy (*Phleum pratense*). There were no noxious species present.

No recreation impacts were observed at this site. Spring developments occurred in the form of a vertical PVC pipe sunk into the ground, with resting water present within the pipe. Deer and elk sign were observed with 5% and 33% frequency, respectively, within the GDE quadrats (Appendix C). Deer and elk sign were also observed outside of the quadrats.

CEBR 0586

The CEBR 0586 GDE site was located at an elevation of approximately 3,160 m, with an overall north (6°) aspect and low slope variability across the site. Wetland vegetation provided evidence of groundwater at this site. The spring type was characterized as hypocrene. This GDE site included a total wetland area and perimeter of 0.7 ac (2,815.6 m^2) and 710.0 m, respectively (Figure 4, Appendix B).

Twelve plant taxa were encountered during the GDE Level II survey, including 10 taxa captured in vegetation quadrats and line intercept transects (Table 7, Appendix D). Total average herbaceous cover was 50.1%. The dominant herbaceous wetland plant was water sedge (*Carex aquatilis*) with 30.9% average cover. Groundcover included litter, bryophyte, basal, and soil with 72.7%, 13.6%, 9.1%, and 4.5%% average corner hits, respectively (Table 8). There was no woody line intercept cover.

The non-native plant species encountered included smooth brome (*Bromus inermis*) and common dandelion (*Taraxacum officinale*). There were no noxious species present.

The only recreational impact observed at this site was scattered trash due to proximity to road and scenic overlook. There were no spring developments observed. Deer sign was observed with 9% frequency within the GDE quadrats and was also observed outside of the quadrats (Appendix C).

CEBR 0590

The CEBR 0590 GDE site occurs at an elevation of approximately 3,176 m with an overall northwest (352°) aspect. The primary spring type was identified as a helocrene spring and the secondary type as an exposure spring. The evidence of groundwater included flow from a spring source, standing water, and wetland vegetation. A single orifice was mapped at this site. This site included a total wetland area and perimeter length of 1.3 ac (5,250.9 m^2) and 1,189.1 m, respectively (Figure 5).

A total of 21 plant taxa were recorded at this site, including 19 taxa captured by the vegetation quadrats and woody line intercept transects (Appendix D,

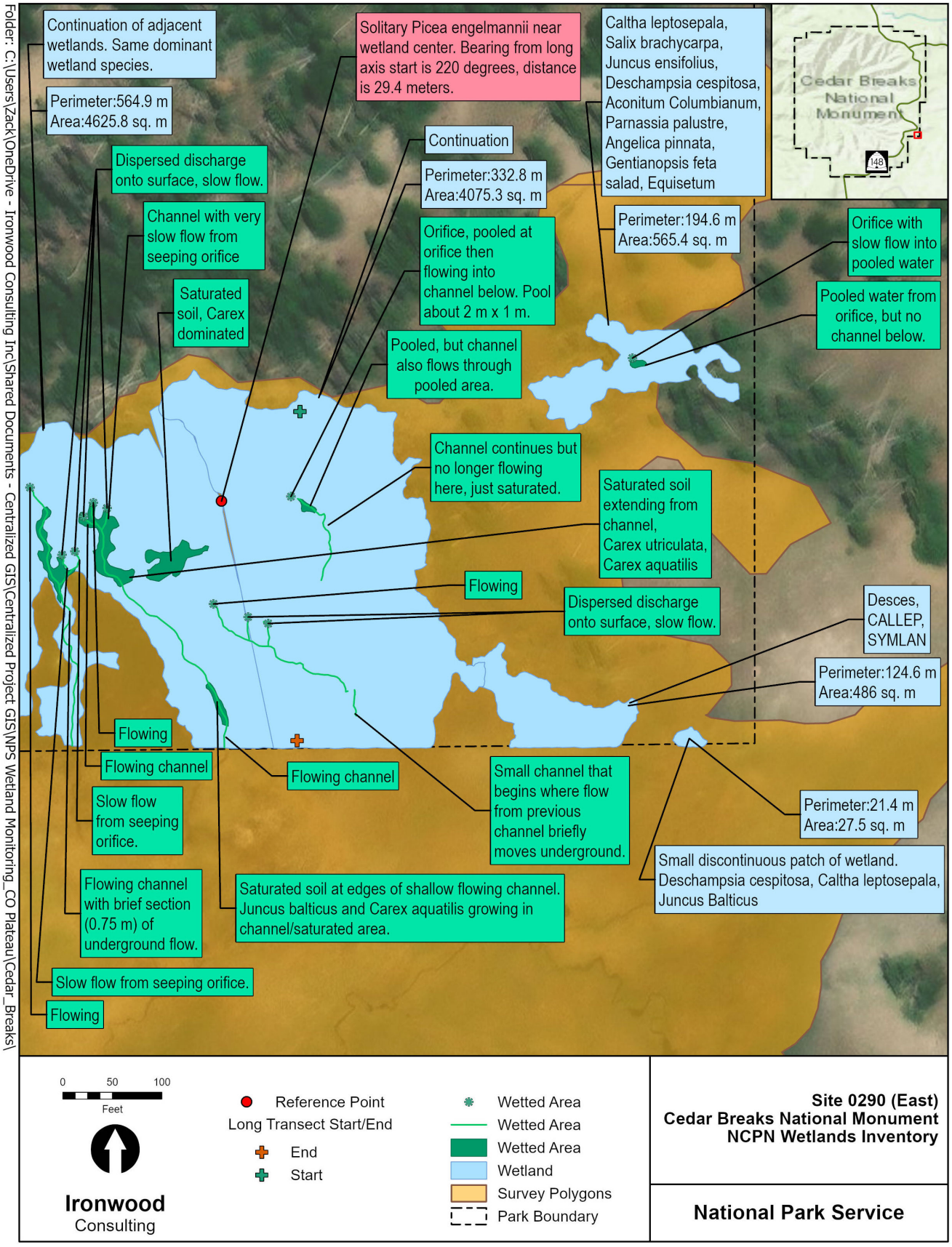


Figure 2. Wetland mapping for CEBR 0290 – East.

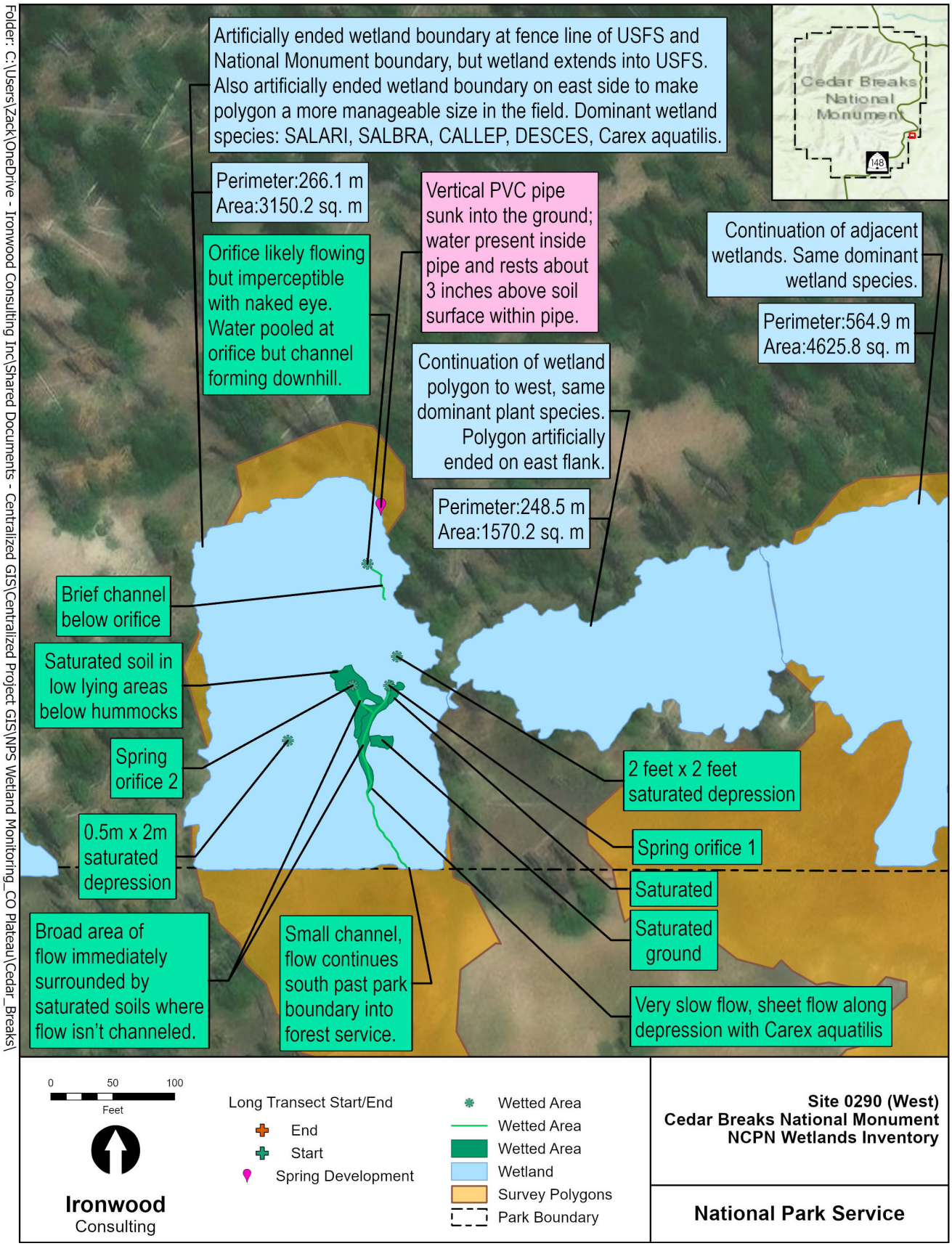


Figure 3. Wetland mapping for CEBR 0290 – West.

Table 5. Herbaceous vegetation quadrat data for CEBR 0290. Bryophytes not included in totals.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Deschampsia caespitosa	tufted hairgrass	FACW	9.3	95
Caltha leptosepala	white marsh-marshmarigold	OBL	9.2	76
Symphyotrichum spathulatum	western mountain aster	FAC	6.4	90
Salix arizonica	Arizona willow	FACW	6.1	24
Carex aquatilis	water sedge	OBL	3.9	62
Carex scirpoidea	slender sedge	FAC	3.5	19
Viola nephrophyla	northern bog violet	FACW	2.7	33
Trifolium longipes	longstalk clover	FAC	2.2	57
Polygonum bistortoides	American bistort	FACW	2.1	38
Salix brachycarpa	short-fruit willow	FACW	2.1	5
Muhlenbergia filiformis	pullup muhly	FACW	2.0	43
Carex utriculata	beaked sedge	OBL	1.8	19
Agrostis stolonifera	redtop	FAC	1.2	10
Agrostis scabra	ticklegrass	FAC	0.9	10
Carex pellita	woolly sedge	OBL	0.9	10
Pedicularis groenlandica	elephant-head	OBL	0.8	29
Equisetum variegatum	northern scouring-rush	FACW	0.7	43
Carex sp.	sedge	–	0.6	10
Phleum alpinum	Alpine timothy	FAC	0.4	14
Achillea millefolium	common yarrow	FACU	0.4	5
Carex aurea	golden sedge	FACW	0.4	10
Dodecatheon pulchellum	darkthroat shootingstar	FACW	0.4	24
Juncus mertensianus	Mertens' rush	OBL	0.3	19
Poa pratensis	Kentucky bluegrass	FAC	0.3	10
Parnassia palustris	marsh grass of Parnassus	OBL	0.2	19
Taraxacum officinale	common dandelion	FACU	0.2	10
Polygonum viviparum	alpine bistort	FAC	0.2	5
Geum macrophyllum	largeleaf avens	FAC	0.1	5
Gentianopsis thermalis	fringed gentian	FACW	0.05	5
Hordeum brachyantherum	meadow barley	FACW	0.05	5
Bryophytes	moss	–	15.2	81
Total	–	–	**59.5**	–
50% of Total	–	–	**29.7**	–
20% of Total	–	–	**11.9**	–

Table 6. Ground cover quadrat data for CEBR 0290.

Groundcover Type	Average Corner Hits (%)
Bryophyte	16.7
Gravel	0.0
Cobble	0.0
Stone	0.0
Boulder	0.0
Bedrock	0.0
Basal	0.0
Litter	82.1
Water	0.0
Wood	0.0
Soil	1.2
Total	**100.0**

Table 9, Table 10). Total herbaceous cover averaged 68.4%. The dominant wetland plants included in the quadrat data were Arizona willow less than 0.5-m tall and small-wing sedge (*Carex microptera*), with 39.5% and 13.8% average cover, respectively. The average groundcover included litter, bryophyte, wood, and soil with 78.3%, 11.7%, 5.0%, and 5.0% average corner hits, respectively (Table 11). Arizona willow over 0.5-m tall had an average woody line intercept cover of 8.9% (Table 10). According to the GDE Level II protocol, since the Arizona willow stand at this site was frequently less than 0.5 m tall due to ungulate browsing, the cover for browsed individuals smaller than 0.5 m was recorded in the herbaceous quadrat data, while cover for individuals taller than 0.5 m was recorded in the woody line intercept transects.

The GDE level II quadrat data does not pass the USACE Dominance Test at this site when using the more rigorous standards for this project, where only FACW and OBL plants are used to indicate wetland presence. However, of the 19 plant taxa captured in the vegetation quadrats, 12 (63%) of these are classified as FACW or OBL. Further, because of the preponderance of Arizona willow within the sampled area, by USACE standards, this site would be identified as a wetland.

Non-native plant species encountered at this site included common dandelion and Kentucky bluegrass. No noxious weeds were observed.

No recreation impacts or spring developments were observed. Deer and elk sign was observed within the GDE quadrats, each with 7% frequency (Appendix C). Deer and elk sign were also noted outside of the quadrats.

CEBR 0619

The CEBR 0619 GDE site was located at an elevation of approximately 3,184 m with an overall southeast (146°) aspect and low slope variability across the site. Flow from a spring source, standing water, and wetland vegetation provided evidence of groundwater at this site. A single orifice was mapped at this site. The spring type was characterized as helocrene. This GDE site included a total wetland area and perimeter of 0.4 ac (1,740.4 m^2) and 592.7 m, respectively (Figure 6, Appendix B).

Thirty plant taxa were encountered during the GDE Level II survey, including 21 taxa captured in vegetation quadrats and line intercept transects (Table 12, Table 13, Appendix D). Total average herbaceous cover was 46.4%. The dominant herbaceous wetland plant was water sedge with 34.0% average cover. Groundcover included litter, basal, and bryophyte with 86.8%, 7.9%, and 5.3% average corner hits, respectively (Table 14). Black twinberry (*Lonicera involucrata*) and Engelmann spruce (*Picea engelmannii*) had average woody line intercept covers of 1.3% and 0.9%, respectively (Table 13).

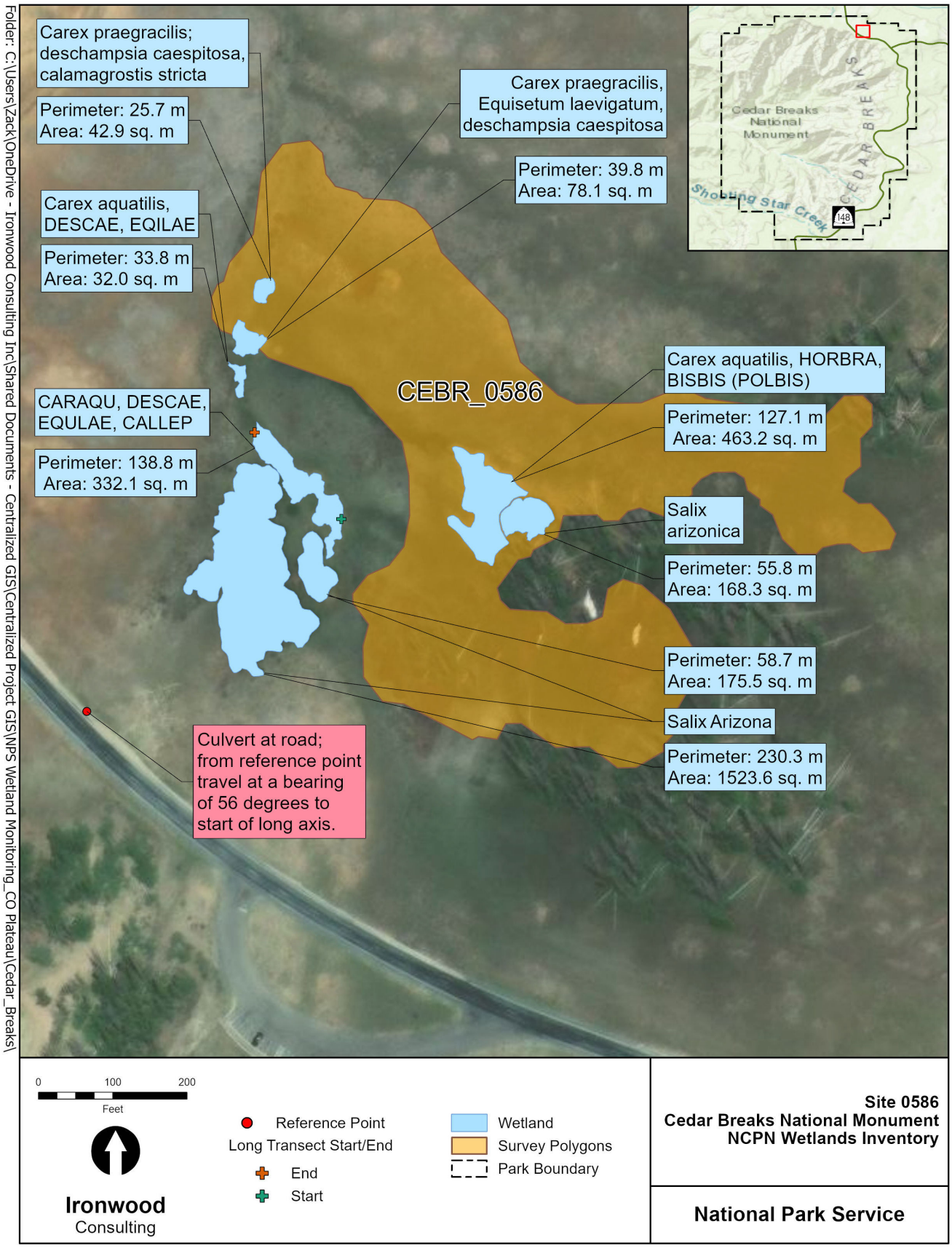


Figure 4. Wetland mapping for CEBR 0586.

Table 7. Herbaceous vegetation quadrat data for CEBR 0586. Bryophytes not included in totals.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Carex aquatilis	water sedge	OBL	30.9	80
Deschampsia caespitosa	tufted hairgrass	FACW	8.1	100
Hordeum brachyantherum	meadow barley	FACW	2.8	36
Carex praegracilis	blackcreeper sedge	FACW	2.3	9
Equisetum laevigatum	smooth scouring-rush	FACW	2.2	100
Caltha leptosepala	white marsh-marshmarigold	OBL	1.6	18
Symphyotrichum ascendens	Pacific aster	FACU	1.0	27
Calamagrostis stricta	slimstem reedgrass	FACW	0.6	18
Taraxacum officinale	common dandelion	FACU	0.5	18
Polygonum bistortoides	American bistort	FACW	0.1	9
Bryophytes	moss	–	7.5	64
Total	–	–	**50.1**	–
50% of Total	–	–	**25.0**	–
20% of Total	–	–	**10.0**	–

Table 8. Groundcover quadrat data for CEBR 0586.

Groundcover Type	Average Corner Hits (%)
Bryophyte	13.6
Gravel	0.0
Cobble	0.0
Stone	0.0
Boulder	0.0
Bedrock	0.0
Basal	9.1
Litter	72.7
Water	0.0
Wood	0.0
Soil	4.5
Total	**100.0**

Common dandelion was the only non-native plant species encountered. There were no noxious species present.

No recreation impacts or spring developments were observed at this site. Deer and elk sign were each observed with 5% frequency within the GDE quadrats (Appendix C). Deer sign was also observed outside of the quadrats.

CEBR 0624

The CEBR 0624 GDE site was located at an elevation of approximately 3,181 m with an overall southwest (262°) aspect and high slope variability across the site. Flow from spring sources, standing water, and wetland vegetation provided evidence of groundwater at this site. Eight spring orifices were mapped at this site. The spring type was characterized as hillslope. This GDE site included a

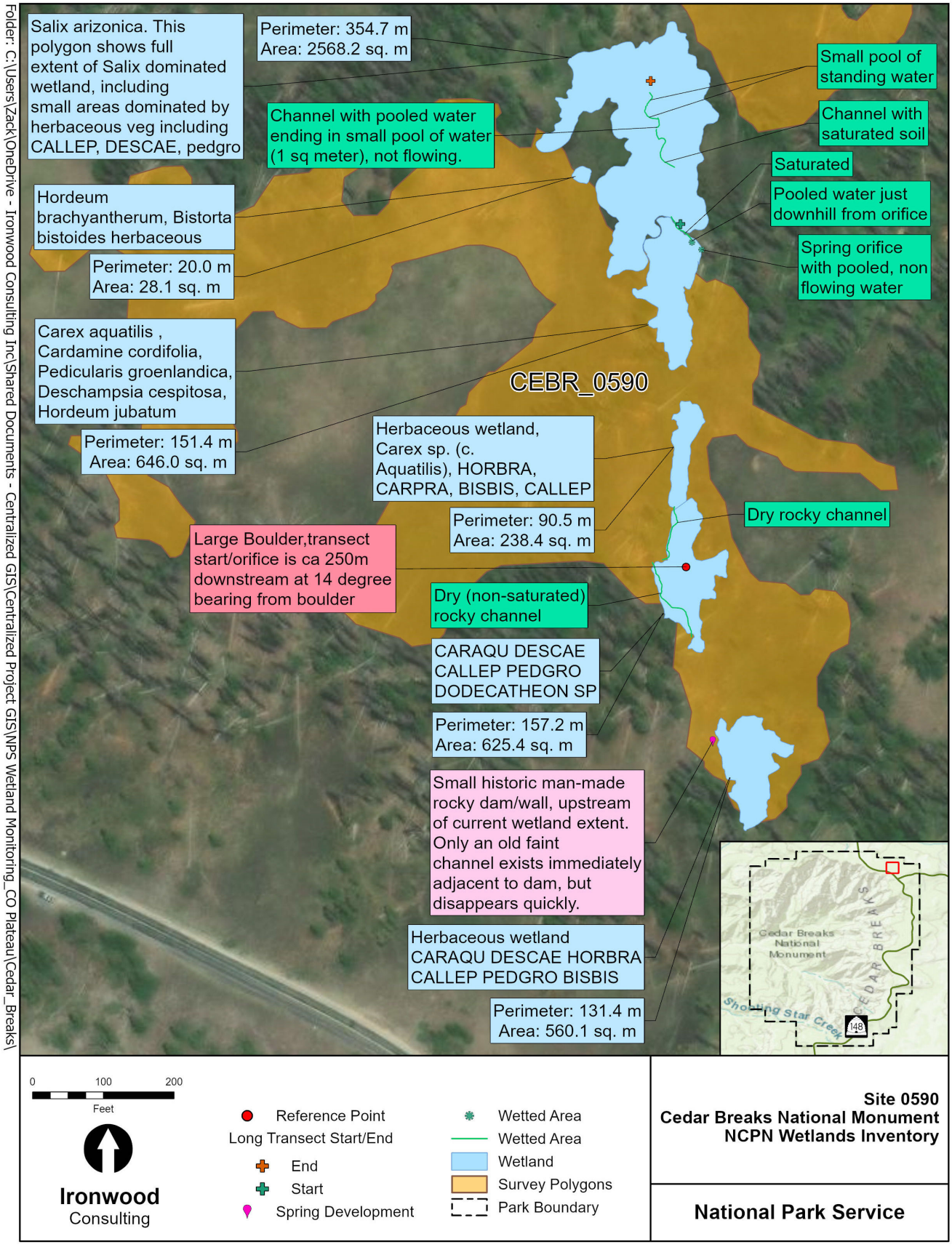


Figure 5. Wetland mapping for CEBR 0590.

Table 9. Herbaceous vegetation quadrat data for CEBR 0590. Bryophytes not included in totals.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Salix arizonica	Arizona willow	FACW	39.5	80
Carex microptera	small-wing sedge	FACU	13.8	67
Polygonum bistortoides	American bistort	FACW	4.6	57
Caltha leptosepala	white marsh-marshmarigold	OBL	2.4	33
Pedicularis groenlandica	elephant-head	OBL	1.8	23
Carex aquatilis	water sedge	OBL	1.2	17
Aconitum columbianum	Columbian monkshood	FACW	1.0	13
Angelica pinnata	pinnate angelica	FACW	0.9	23
Eleocharis sp.	spikerush	–	0.8	3
Geranium richardsonii	Richardson's crane's-bill	FAC	0.5	10
Cardamine cordifolia	heartleaf bittercress	FACW	0.4	7
Rhodiola rhodantha	redpod stonecrop	FACW	0.4	10
Trifolium longipes	longstalk clover	FAC	0.4	17
Deschampsia caespitosa	tufted hairgrass	FACW	0.2	10
Geum macrophyllum	largeleaf avens	FAC	0.1	3
Epilobium hornemannii	Hornemann's willow-herb	FACW	0.1	7
Gentianopsis thermalis	fringed gentian	FACW	0.1	3
Taraxacum officinale	common dandelion	FACU	0.1	3
Poa pratensis	Kentucky bluegrass	FAC	0.1	3
Bryophytes	moss	–	14.8	73
Total	–	–	**68.4**	–
50% of Total	–	–	**34.2**	–
20% of Total	–	–	**13.7**	–

Table 10. Woody vegetation line intercept summary data for CEBR 0590.

Species	Common name	Wetland Code	Average Woody Plant Cover (%)
Salix arizonica	Arizona willow	FACW	8.9
Total	**–**	**–**	**8.9**

total wetland area and perimeter of 2.2 ac (8,786.9 m^2) and 2,150.1 m, respectively (Figure 7, Figure 8, Appendix B).

Thirty-seven plant taxa were encountered during the GDE Level II survey, including 25 taxa captured in vegetation quadrats and line intercept transects (Table 15, Table 16, Appendix D). Total average herbaceous cover was 63.2%. The dominant herbaceous wetland plants were water sedge, beaked sedge (*Carex utriculata*), and heartleaf bittercress (*Cardamine cordifolia*) with 14.1%, 11.6%, and 10.3% average cover, respectively. Groundcover included litter, bryophyte, wood, basal, water, and soil with 59.6%, 25.0%, 7.7%, 3.8%, 1.9%, and 1.9% average corner hits, respectively (Table 17). Engelmann spruce had an average woody line intercept cover of 2.4%.

The non-native plant species encountered were common dandelion and Kentucky bluegrass. There were no noxious species present.

Table 11. Groundcover quadrat data for CEBR 0590.

Groundcover Type	Average Corner Hits (%)
Bryophyte	11.7
Gravel	0.0
Cobble	0.0
Stone	0.0
Boulder	0.0
Bedrock	0.0
Basal	0.0
Litter	78.3
Water	0.0
Wood	5.0
Soil	5.0
Total	**100.0**

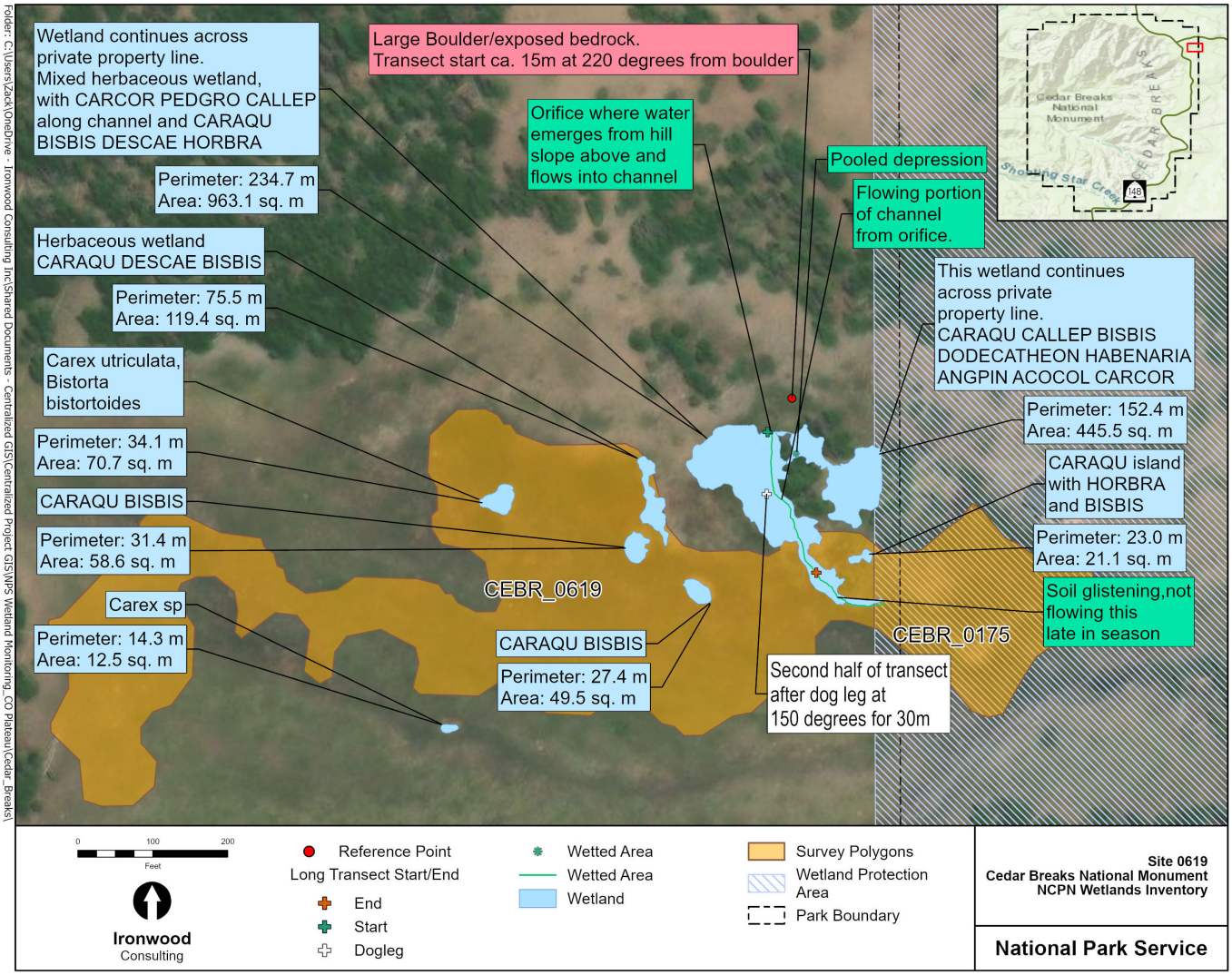


Figure 6. Wetland mapping for CEBR 0619.

Table 12. Herbaceous vegetation quadrat data for CEBR 0619. Bryophytes not included in totals.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Carex aquatilis	water sedge	OBL	34.0	81
Polygonum bistortoides	American bistort	FACW	4.5	57
Dodecatheon sp.	shootingstar	–	1.2	14
Symphyotrichum ascendens	Pacific aster	FACU	1.0	24
Epilobium hornemanii	Hornemann's willow-herb	FACW	0.8	29
Deschampsia caespitosa	tufted hairgrass	FACW	0.8	24
Carex microptera	small-wing sedge	FACU	0.5	10
Pedicularis groenlandica	elephant-head	OBL	0.5	10
Caltha leptosepala	white marsh-marshmarigold	OBL	0.5	48
Lonicera involucrata	black twinberry	FAC	0.5	5
Achillea millefolium	common yarrow	FACU	0.4	19
Hordeum brachyantherum	meadow barley	FACW	0.3	24
Trifolium longipes	longstalk clover	FACU	0.3	14
Taraxacum officinale	common dandelion	FACU	0.2	10
Habenaria sp.	bog orchid	–	0.2	5
Agoseris glauca	pale agoseris	FAC	0.1	5
Luzula parviflora	small-flowered woodrush	FAC	0.1	10
Saxifraga odontoloma	brook saxifrage	FACW	0.1	5
Carex praegracilis	blackcreeper sedge	FACW	0.1	5
Juncus mertensianus	Mertens' rush	OBL	0.1	5
Bryophytes	moss	–	4.7	16
Total	–	–	**46.4**	–
50% of Total	–	–	**23.2**	–
20% of Total	–	–	**9.3**	–

Table 13. Woody vegetation line intercept summary data for CEBR 0619.

Species	Common name	Wetland Code	Average Woody Plant Cover (%)
Lonicera involucrata	black twinberry	FAC	1.3
Picea engelmannii	Engelmann spruce	FAC	0.9
Total	–	–	**2.3**

The only recreation impact observed was a few pieces of scattered trash, likely due to proximity to the road. No spring developments were present. No animal sign was captured within the GDE quadrats; however, deer and elk sign were observed outside of the quadrats (Appendix C).

CEBR 0627

The CEBR 0627 GDE survey site was located at an elevation of approximately 3,184 m with an overall northeast aspect (60°) and low slope variability. Wetland vegetation showed evidence of groundwater at this site. The spring type was identified as

Table 14. Groundcover quadrat data for CEBR 0619.

Groundcover Type	Average Corner Hits (%)
Bryophyte	5.3
Gravel	0.0
Cobble	0.0
Stone	0.0
Boulder	0.0
Bedrock	0.0
Basal	7.9
Litter	86.8
Water	0.0
Wood	0.0
Soil	0.0
Total	**100.0**

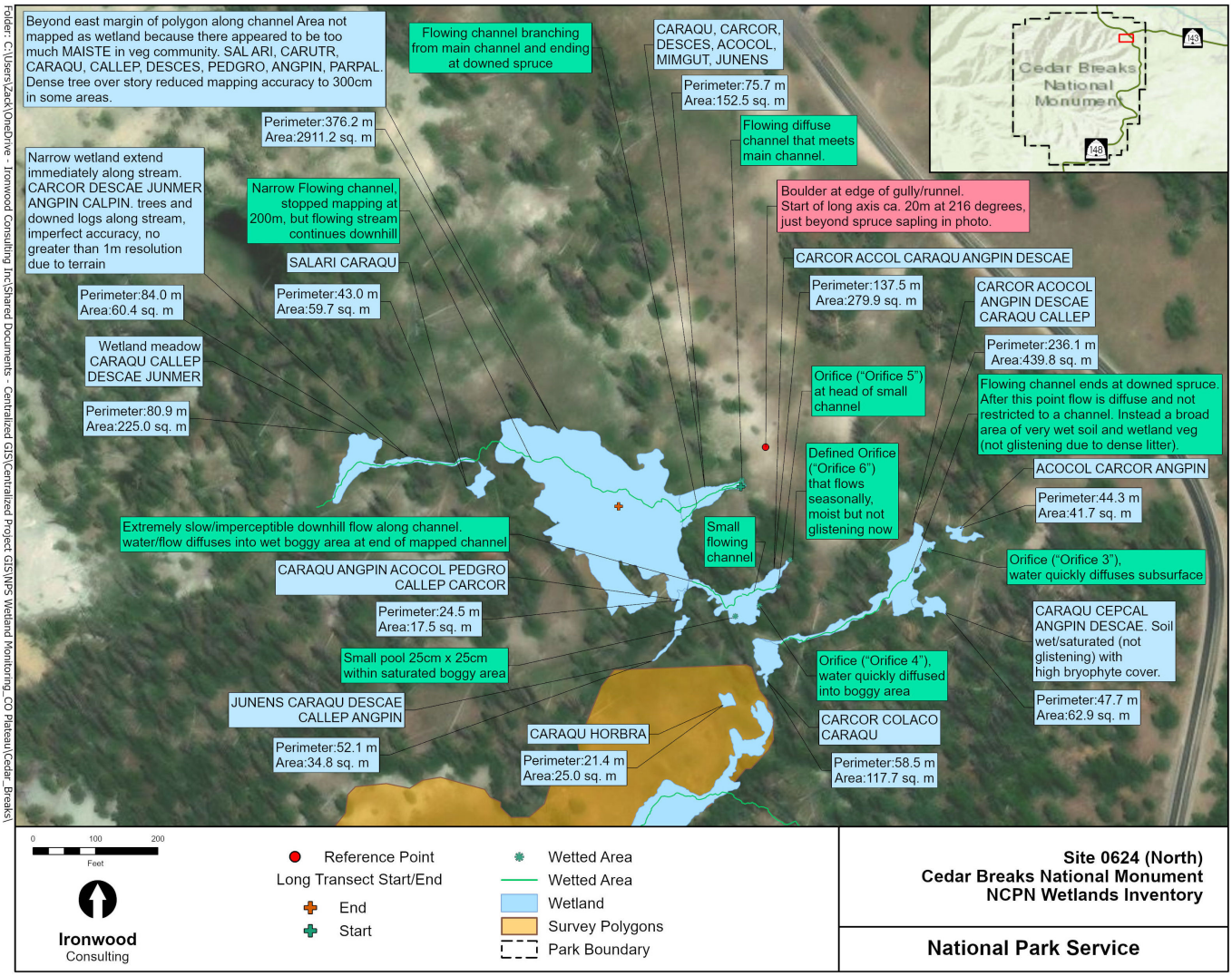


Figure 7. Wetland mapping for CEBR 0624 - North.

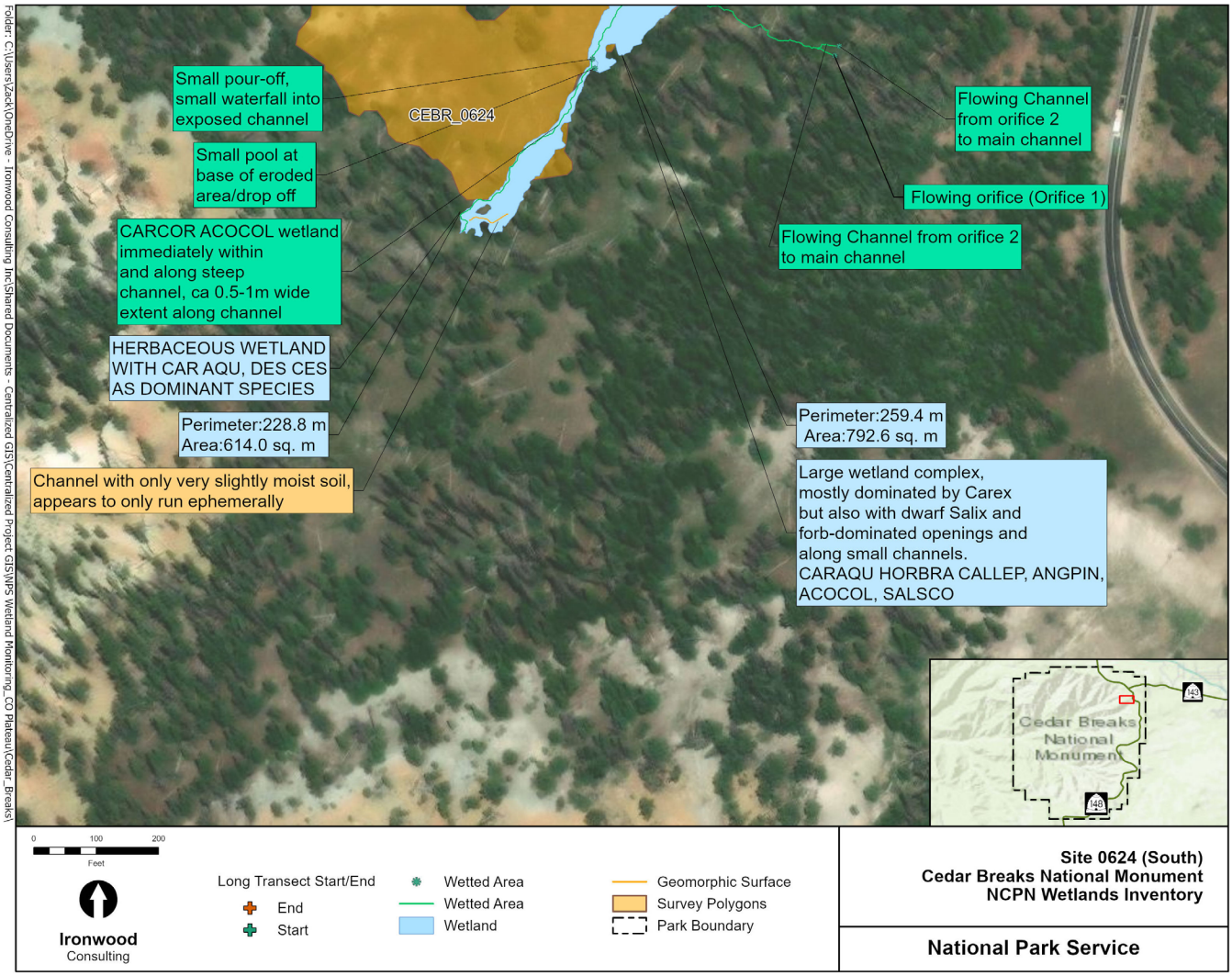


Figure 8. Wetland mapping for CEBR 0624 - South.

hypocrene. The site included a total wetland area and perimeter length of 0.3 ac (1,118.1 m^2) and 414.4 m, respectively (Figure 9, Appendix B).

A total of 18 plant taxa were encountered, including 12 taxa captured in vegetation quadrats and line intercept transects (Table 18, Appendix D). Total average herbaceous cover was 61.4%. The dominant herbaceous wetland plant was blackcreeper sedge (*Carex praegracilis*) with 52.1% average cover. Groundcover included litter and basal with 98.5% and 1.5% average corner hits, respectively (Table 19). There was no woody line intercept cover.

Non-native plant species encountered included common dandelion and Kentucky bluegrass. There were no noxious plants at this site.

A hunting arrow was found in the wetland within a spruce stand. There were no spring developments present. Deer and elk sign were observed with 12% and 18% frequency, respectively, within the GDE quadrats (Appendix C). Both sign types were also observed outside of the quadrats.

CEBR 0635

The CEBR 0635 GDE site occurs at an elevation of approximately 3,174 m with an overall northeast aspect (60°) and low slope variability. Standing water and wetland vegetation provided evidence of groundwater at this site. The spring type was characterized as hypocrene. It included a total wetland area and perimeter length of 0.5 ac (2,176.1 m^2) and 559.0 m, respectively (Figure 10, Appendix B).

Table 15. Herbaceous vegetation quadrat data for CEBR 0624. Bryophytes not included in totals.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Carex aquatilis	water sedge	OBL	14.1	77
Carex utriculata	beaked sedge	OBL	11.6	62
Cardamine cordifolia	heartleaf bittercress	FACW	10.3	31
Salix brachycarpa	short-fruit willow	FACW	7.7	15
Salix arizonica	Arizona willow	FACW	7.3	15
Caltha leptosepala	white marsh-marshmarigold	OBL	3.2	31
Lonicera involucrata	black twinberry	FAC	1.4	15
Saxifraga odontoloma	brook saxifrage	FACW	1.0	38
Juncus ensifolius	swordleaf rush	FACW	0.8	15
Angelica pinnata	pinnate angelica	FACW	0.8	23
Geranium richardsonii	Richardson's crane's-bill	FAC	0.8	15
Symphyotrichum ascendens	Pacific aster	FACU	0.8	31
Ligusticum porteri	southern ligusticum	FACU	0.6	8
Polygonum viviparum	alpine bistort	FAC	0.6	15
Maianthemum stellatum	starry false Solomon's-seal	FAC	0.5	8
Aconitum columbianum	Columbian monkshood	FACW	0.4	8
Parnassia palustris	marsh grass of Parnassus	OBL	0.3	23
Polygonum bistortoides	American bistort	FACW	0.3	23
Deschampsia caespitosa	tufted hairgrass	FACW	0.2	8
Epilobium hornemannii	Hornemann's willow-herb	FACW	0.2	8
Gentianopsis thermalis	fringed gentian	FACW	0.2	8
Pedicularis groenlandica	elephant-head	OBL	0.2	8
Polemonium pulcherrimum	Jacob's-ladder	UPL	0.2	8
Carex aurea	golden sedge	FACW	0.1	8
Bryophytes	moss	–	10.8	54
Total	–	–	**63.2**	–
50% of Total	–	–	**31.6**	–
20% of Total	–	–	**12.6**	–

Table 16. Woody vegetation line intercept summary data for CEBR 0624.

Species	Common name	Wetland Code	Average Woody Plant Cover (%)
Picea engelmannii	Engelmann spruce	FAC	2.4
Total	–	–	**2.4**

Table 17. Groundcover quadrat data for CEBR 0624.

Groundcover Type	Average Corner Hits (%)
Bryophyte	25.0
Gravel	0.0
Cobble	0.0
Stone	0.0
Boulder	0.0
Bedrock	0.0
Basal	3.8
Litter	59.6
Water	1.9
Wood	7.7
Soil	1.9
Total	100.0

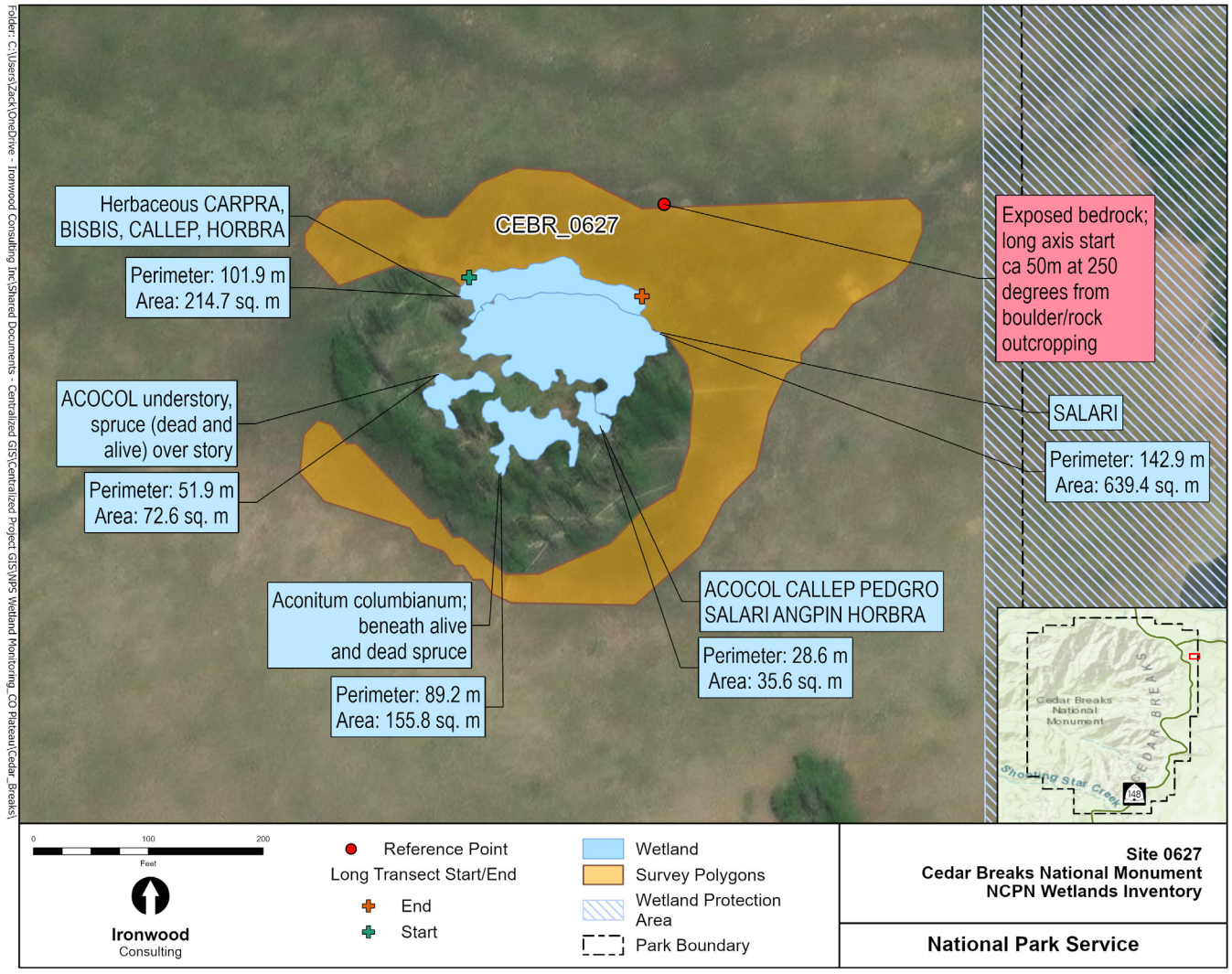


Figure 9. Wetland mapping for CEBR 0627.

Table 18. Herbaceous vegetation quadrat data for CEBR 0627. Bryophytes not included in totals.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Carex praegracilis	blackcreeper sedge	FACW	52.1	100
Polygonum bistortoides	American bistort	FACW	3.3	65
Hordeum brachyantherum	meadow barley	FACW	3.2	24
Carex microptera	small-wing sedge	FACU	0.6	6
Symphyotrichum ascendens	Pacific aster	FACU	0.5	6
Caltha leptosepala	white marsh-marshmarigold	OBL	0.4	12
Geum macrophyllum	largeleaf avens	FAC	0.4	12
Salix arizonica	Arizona willow	FACW	0.4	6
Epilobium hornemannii	Hornemann's willow-herb	FACW	0.3	24
Aconitum columbianum	Columbian monkshood	FACW	0.2	6
Viola sp.	violet	FACU	0.1	12
Mertensia arizonica	aspen bluebell	UPL	0.1	6
Bryophytes	moss	–	0.0	0
Total	–	–	**61.4**	–
50% of Total	–	–	**30.7**	–
20% of Total	–	–	**12.3**	–

Table 19. Groundcover quadrat data for CEBR 0627.

Groundcover Type	Average Corner Hits (%)
Bryophyte	0.0
Gravel	0.0
Cobble	0.0
Stone	0.0
Boulder	0.0
Bedrock	0.0
Basal	1.5
Litter	98.5
Water	0.0
Wood	0.0
Soil	0.0
Total	**100.0**

A total of 11 plant taxa were encountered during the GDE level II survey, including nine taxa captured in vegetation quadrats and line intercept transects (Table 20, Appendix D). Total herbaceous cover averaged 47.5%. The dominant herbaceous wetland plants were water sedge and Baltic rush (*Juncus balticus* var. *montanus*) with 27.9% and 12.9% average cover, respectively. Groundcover included litter, basal, and soil with 94.6%, 3.6%, and 1.8% average corner hits, respectively (Table 21). There was no woody line intercept cover.

The only non-native plant observed was common dandelion. There were no noxious weeds present.

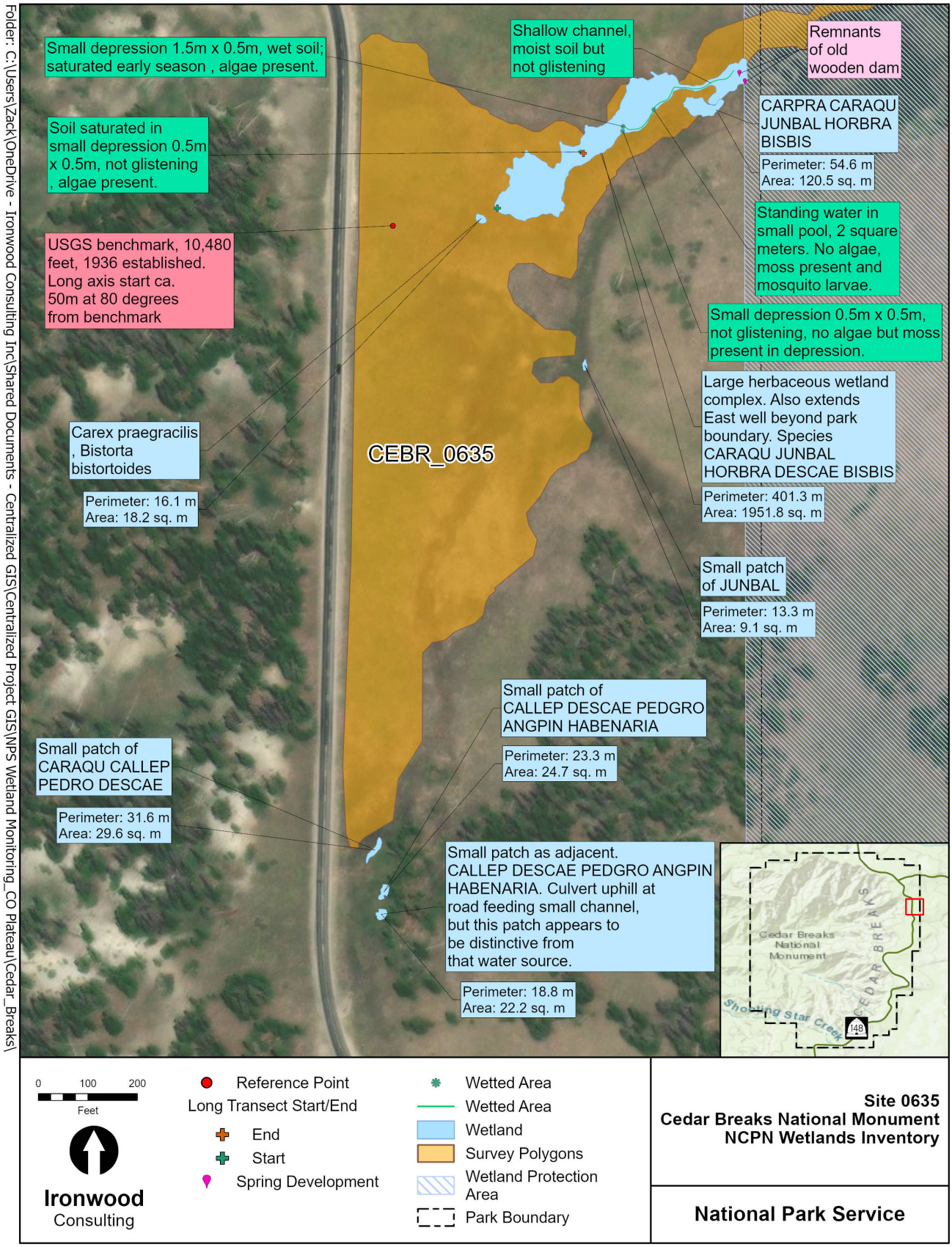


Figure 10. Wetland mapping for CEBR 0635.

Table 20. Herbaceous vegetation quadrat data for CEBR 0635. Bryophytes not included in totals.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Carex aquatilis	water sedge	OBL	27.9	12
Juncus balticus var. *montanus*	Baltic rush	FACW	12.9	79
Polygonum bistortoides	American bistort	FACW	4.1	29
Hordeum brachyantherum	meadow barley	FACW	1.6	50
Symphyotrichum ascendens	Pacific aster	FACU	0.5	14
Carex praegracilis	blackcreeper sedge	FAC	0.2	7
Deschampsia caespitosa	tufted hairgrass	FACW	0.1	7
Carex microptera	small-wing sedge	FACU	0.1	7
Elymus trachycaulus	slender wheatgrass	FAC	0.1	7
Bryophytes	moss	–	0.0	0
Total	–	–	**47.5**	–
50% of Total	–	–	**23.8**	–
20% of Total	–	–	**9.5**	–

Table 21. Groundcover quadrat data for CEBR 0635.

Groundcover Type	Average Corner Hits (%)
Bryophyte	0.0
Gravel	0.0
Cobble	0.0
Stone	0.0
Boulder	0.0
Bedrock	0.0
Basal	3.6
Litter	94.6
Water	0.0
Wood	0.0
Soil	1.8
Total	**100.0**

No recreation impacts or spring developments were observed. Remnants of a historic wooden dam were present at the west end of the site near the CEBR boundary line. Deer sign was observed with 29% frequency within the GDE quadrats (Appendix C). Both deer and elk sign were also observed outside of the quadrats.

CEBR 0711

The CEBR 0711 GDE site occurs at an elevation of approximately 3,183 m with an overall southeast (214°) aspect and low slope variability. Evidence of groundwater included flow from a spring source, peak/much accumulation, standing water, and wetland vegetation. The spring type was characterized as hillslope. The site included a total wetland area and perimeter length of 0.7 ac (2,780.2 m^2) and 433.1 m, respectively (Figure 11, Appendix B).

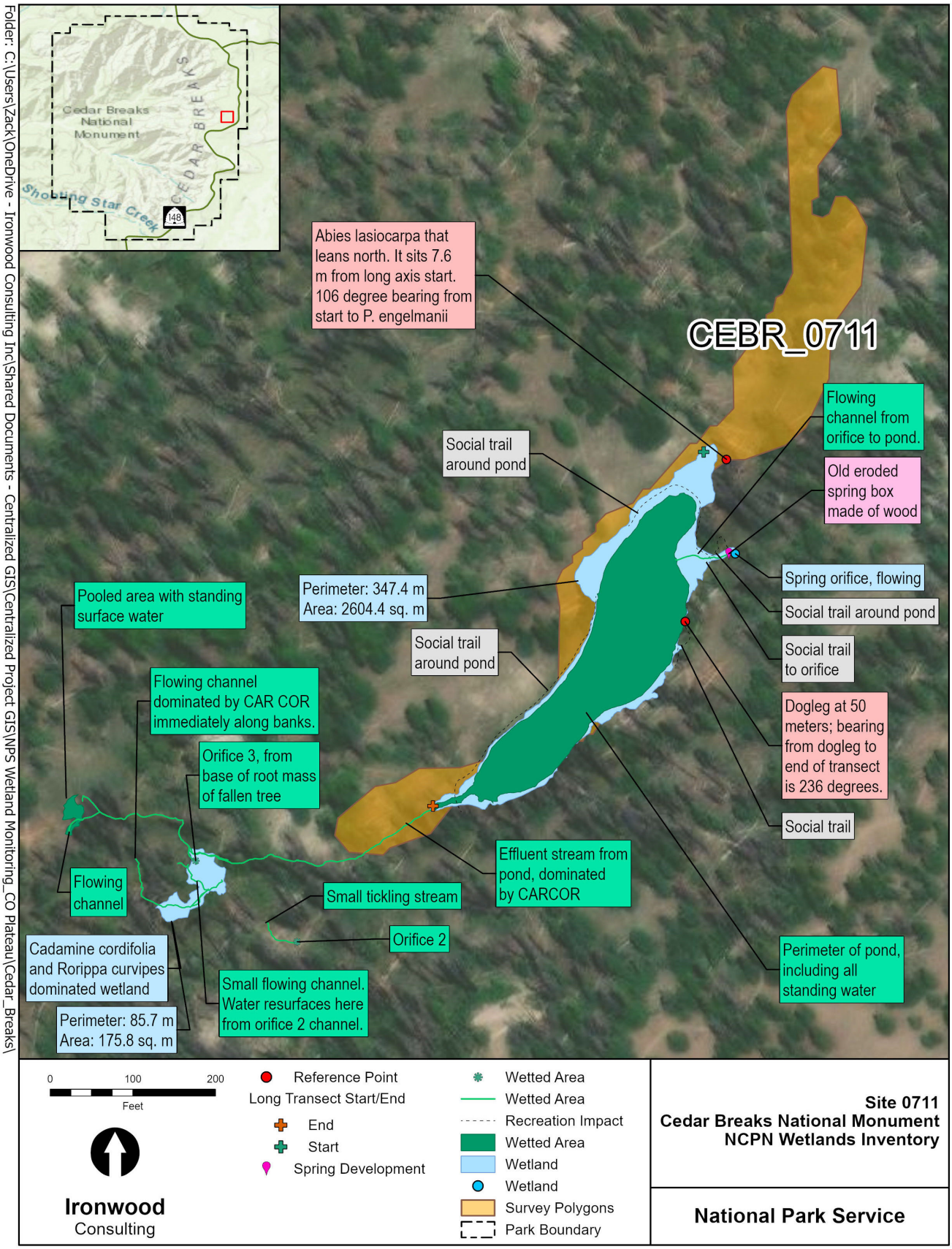


Figure 11. Wetland mapping for CEBR 0711.

Twenty-four plant taxa were encountered during the GDE level II survey, including 10 taxa recorded within vegetation quadrats and line intercept transects (Table 22, Appendix D). Total herbaceous cover averaged 26.2%. The dominant herbaceous wetland plants were water sedge and beaked sedge with 14.8% and 5.3% average cover, respectively. Groundcover included water, litter, and wood with 64.0%, 30.0%, and 6.0% average corner hits, respectively (Table 23). There was no woody line intercept cover.

Non-native plants encountered included common dandelion and Kentucky bluegrass. There were no noxious weeds present.

Both established and social trails occurred at this site, which partially encircled Alpine Pond. An old, eroded spring box was found near the northeast side of the pond. Deer and elk sign were observed outside of the vegetation quadrats (Appendix C).

Table 22. Herbaceous vegetation quadrat data for CEBR 0711. Bryophytes not included in totals.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Carex aquatilis	water sedge	OBL	14.8	32
Carex utriculata	beaked sedge	OBL	5.3	16
Cardamine cordifolia	heartleaf bittercress	FACW	4.4	12
Deschampsia caespitosa	tufted hairgrass	FACW	0.4	8
Hordeum brachyantherum	meadow barley	FACW	0.4	8
Saxifraga odontoloma	brook saxifrage	FACW	0.4	4
Solidago sp.	goldenrod	–	0.2	4
Poa pratensis	Kentucky bluegrass	FAC	0.2	8
Epilobium hornemannii	Hornemann's willow-herb	FACW	0.1	8
Phleum alpinum	alpine timothy	FAC	0.1	8
Bryophytes	moss	–	0.8	20
Total	–	–	**26.2**	–
50% of Total	–	–	**13.1**	–
20% of Total	–	–	**5.2**	–

Table 23. Groundcover quadrat data for CEBR 0711.

Groundcover Type	Average Corner Hits (%)
Bryophyte	0.0
Gravel	0.0
Cobble	0.0
Stone	0.0
Boulder	0.0
Bedrock	0.0
Basal	0.0
Litter	30.0
Water	64.0
Wood	6.0
Soil	0.0
Total	**100.0**

CEBR 0773

The CEBR 0773 GDE site occurs at an elevation of approximately 3,191 m with an overall southeast (160°) aspect and low slope variability. Evidence of groundwater included flow from a spring source and wetland vegetation. The spring type was characterized as helocrene. The site included a total wetland area and perimeter length of 0.2 ac (990.8 m^2) and 397.8 m, respectively (Figure 12, Appendix B).

Thirty plant taxa were encountered during the GDE level II survey, including 24 taxa recorded within vegetation quadrats and line intercept transects (Table 24, Appendix D). Total herbaceous cover averaged 64.2%. The dominant herbaceous wetland plant was water sedge with 37.1% average cover. Groundcover included litter, bryophyte, boulder, stone, and water with 76.6%, 17.2%, 3.1%, 1.6%, and 1.6% average corner hits, respectively (Table 25). There was no woody line intercept cover.

Non-native plants encountered included common dandelion, Kentucky bluegrass, and timothy (*Phleum pratense*). There were no noxious weeds present.

No recreational impacts or spring developments were observed. Deer and elk sign were observed inside the vegetation quadrats at 6% and 31% frequency, respectively (Appendix C). Both sign types were also found outside of the quadrats.

CEBR 0918 and CEBR 1246

The CEBR 0918 and 1246 survey sites were surveyed as a single unit due to the cohesiveness of the wetland. All associated data were labeled as CEBR 0918. This GDE site occurs at an elevation of approximately 2,991 m with an overall northwest (300°) aspect and low slope variability. Evidence of groundwater included flow from a single spring source, standing water, and wetland vegetation. The primary spring type was characterized as rheocrene, and the secondary spring type was helocrene. It included a total wetland area and perimeter length of 0.6 ac (2,260.0 m^2) and 758.2 m, respectively (Figure 13, Appendix B).

A total of 28 plant taxa were encountered during the GDE level II survey, including 17 taxa recorded within vegetation quadrats and line intercept transects (Table 26, Table 27, Appendix D). Total average herbaceous cover was 41.1%. The dominant herbaceous wetland plants were beaked sedge and white marsh-marshmarigold with 17.4% and 8.2% average cover, respectively. Groundcover included litter, soil, bryophyte, water, and wood with 56.9%, 16.7%, 15.3%, 9.7%, and 1.4% average corner hits, respectively (Table 28). Short-fruit willow (*Salix brachycarpa*) had an average woody line intercept cover of 57.3%.

Non-native plants included common dandelion, Kentucky bluegrass, and redtop. No noxious weeds occurred at this site.

No recreation impacts or spring developments were observed. Deer and elk sign were observed outside of the vegetation quadrats (Appendix C).

CEBR 0995

The CEBR 0995 GDE site occurs at an elevation of approximately 3,168 m with an overall southwest (82°) aspect and low slope variability across the site. Evidence of groundwater included standing water and wetland vegetation. The spring type was characterized as hypocrene. It included a total wetland area and perimeter length of 0.3 ac (1,292.1 m^2) and 280.8 m, respectively (Figure 14, Appendix B).

A total of 27 plant taxa were encountered during the GDE level II survey, including 19 taxa recorded within vegetation quadrats (Table 29, Appendix D). Total average herbaceous cover was 69.1%. The dominant herbaceous wetland plant was water sedge with 54.3% average cover. Groundcover included litter, bryophyte, and soil with 88.8%, 10.0%, and 1.3% average corner hits, respectively (Table 30). There were no woody plants encountered on the line intercept transects

Non-native plants occurring at this site included common dandelion, Kentucky bluegrass, and redtop. There were no noxious weeds present.

No recreation impacts or spring developments were observed. Deer and elk sign were observed inside the vegetation quadrats at a 5% and 20% frequency, respectively (Appendix C). Both sign types were also observed outside of the vegetation quadrats.

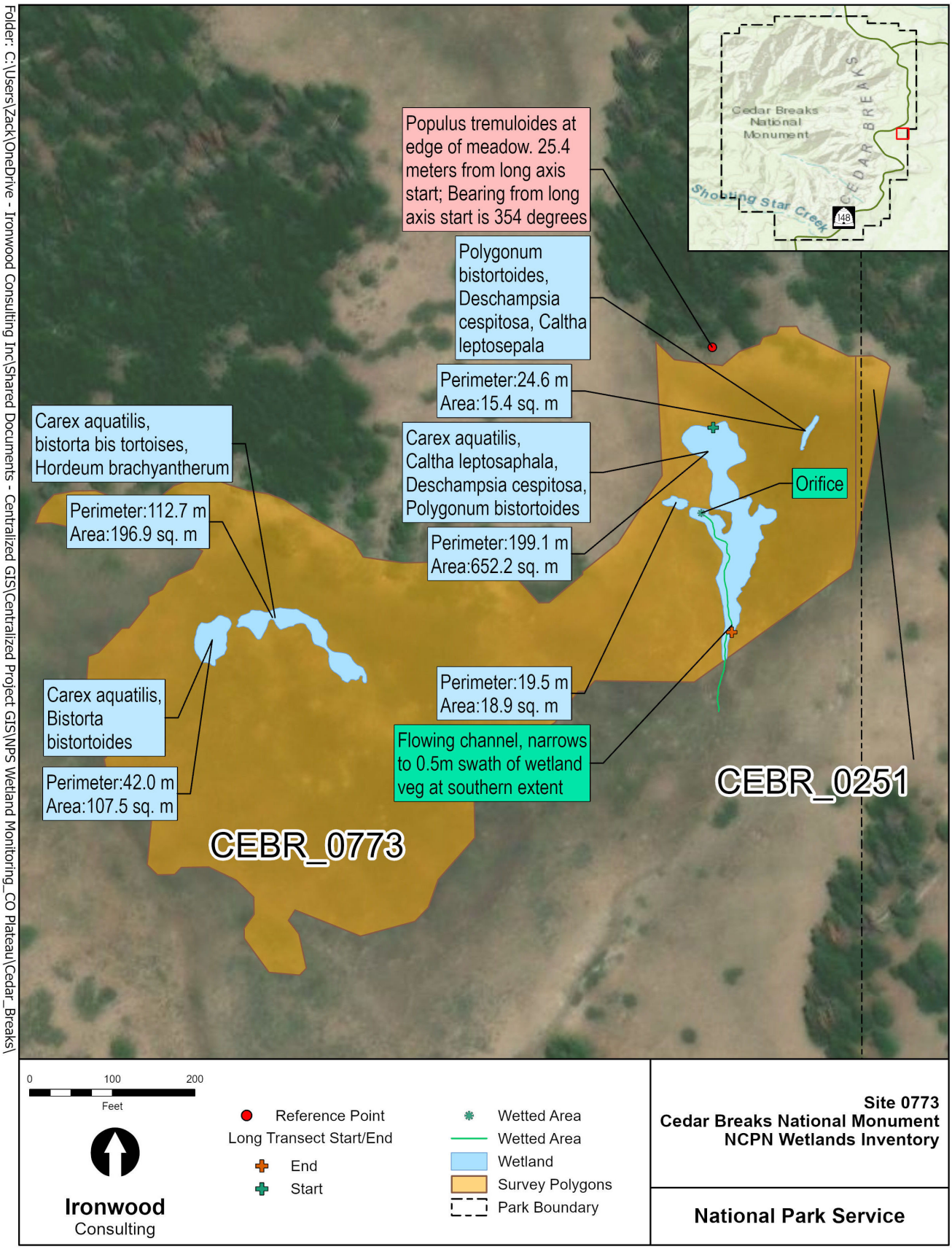


Figure 12. Wetland mapping for CEBR 0773.

Table 24. Herbaceous vegetation quadrat data for CEBR 0773.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Carex aquatilis	water sedge	OBL	37.1	95
Caltha leptosepala	white marsh-marshmarigold	OBL	5.3	42
Poa pratensis	Kentucky bluegrass	FACU	4.9	21
Dodecatheon pulchellum	darkthroat shootingstar	FACW	3.9	32
Polygonum bistortoides	American bistort	FAC	2.6	47
Deschampsia caespitosa	tufted hairgrass	FACW	2.0	42
Mertensia arizonica	aspen bluebell	FACW	1.5	21
Symphyotrichum spathulatum	western mountain aster	FAC	1.2	26
Achillea millefolium	common yarrow	FACU	0.9	21
Trifolium longipes	longstalk clover	FACU	0.9	21
Agrostis scabra	ticklegrass	FAC	0.5	21
Carex aurea	golden sedge	FACW	0.4	11
Elymus trachycaulus	slender wheatgrass	FACU	0.4	16
Potentilla gracilis	slender cinquefoil	FAC	0.4	16
Carex stevenii	Steven's sedge	FAC	0.3	11
Hordeum brachyantherum	meadow barley	FACW	0.3	11
Phleum alpinum	alpine timothy	FAC	0.3	21
Taraxacum officinale	common dandelion	FACU	0.3	21
Juncus mertensianus	Mertens' rush	OBL	0.3	5
Carex microptera	small-wing sedge	FAC	0.2	11
Veronica americana	American brooklime	OBL	0.1	11
Agoseris glauca	pale agoseris	FAC	0.1	26
Eleocharis sp.	spikerush	OBL	0.1	5
Epilobium sp.	willowherb	–	0.1	5
Bryophytes	moss	–	14.4	38
Total	–	–	**64.2**	–
50% of Total	–	–	**32.1**	–
20% of Total	–	–	**12.8**	–

CEBR 1166

The CEBR 1166 GDE site occurs at an elevation of approximately 3,185 m with an overall northwest (290°) aspect and low slope variability across the site. Evidence for groundwater included flow from a spring source and wetland vegetation. A single spring orifice was found at this site. The spring type was characterized as helocrene. It included a total wetland area and perimeter length of 0.8 ac (3,225.4 m^2) and 933.3 m, respectively (Figure 15, Appendix B).

Twenty-five plant taxa were encountered during the GDE level II survey, including 25 taxa recorded within vegetation quadrats and woody line intercept transects (Table 31, and Appendix D). The total average herbaceous cover was 175.0%. The dominant herbaceous wetland plants were heartleaf bittercress (*Cardamine cordifolia*) and water sedge with 54.0% and 38.6% average cover, respectively. Groundcover included litter, water, soil, wood, bryophyte, and stone with 62.5%, 16.7%, 8.3%, 6.3%, 4.2%, and 2.1% average corner hits, respectively (Table 32). There was no woody line intercept cover.

Table 25. Groundcover quadrat data for CEBR 0773.

Groundcover Type	Average Corner Hits (%)
Bryophyte	17.2
Gravel	0.0
Cobble	0.0
Stone	1.6
Boulder	3.1
Bedrock	0.0
Basal	0.0
Litter	76.6
Water	1.6
Wood	0.0
Soil	0.0
Total	**100.0**

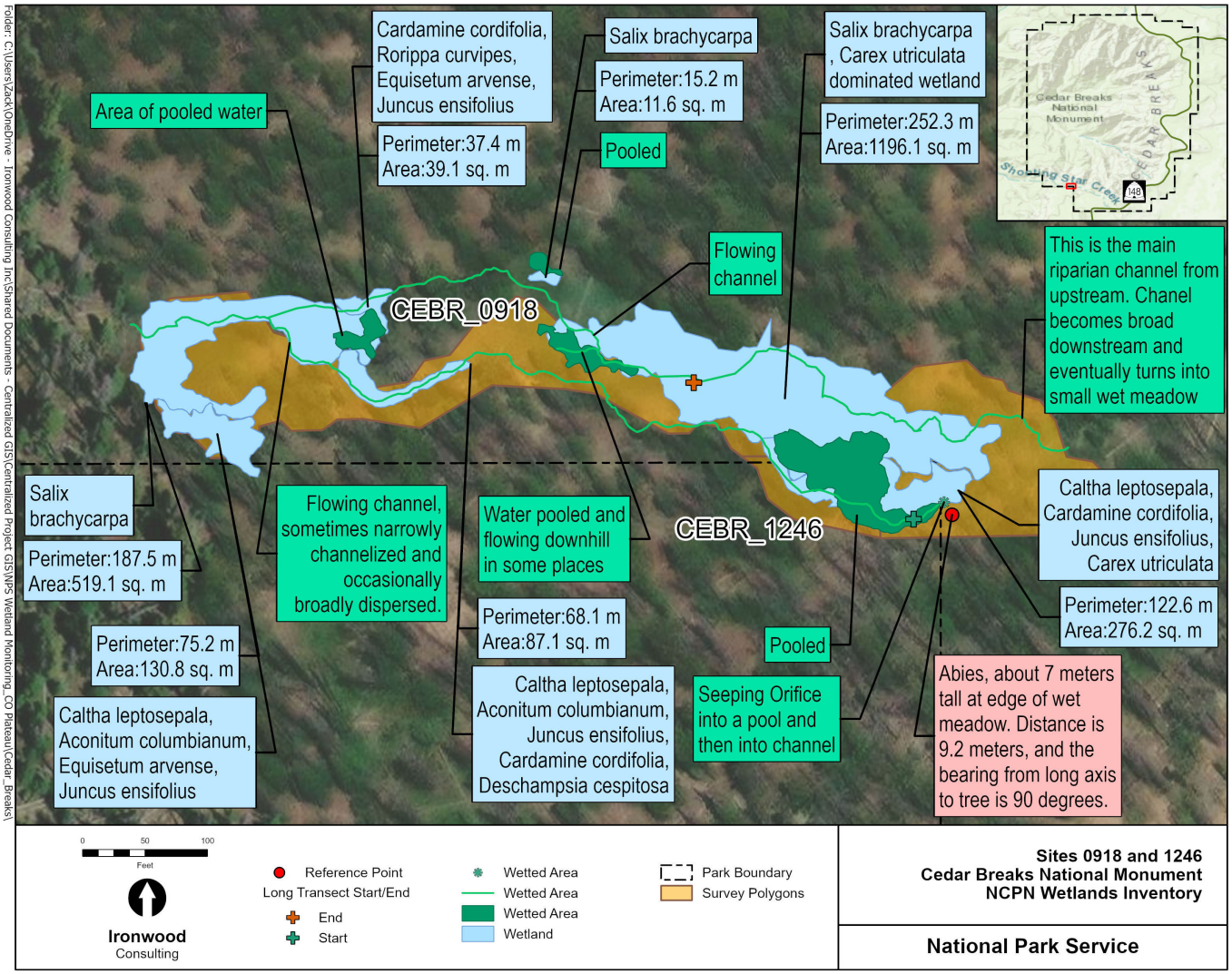


Figure 13. Wetland mapping for CEBR 0918.

Table 26. Herbaceous vegetation quadrat data for CEBR 0918. Bryophytes not included in totals.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Carex utriculata	beaked sedge	OBL	17.4	44
Caltha leptosepala	white marsh-marshmarigold	OBL	8.2	28
Cardamine cordifolia	heartleaf bittercress	FACW	5.0	67
Saxifraga odontoloma	brook saxifrage	FACW	2.6	22
Equisetum arvense	field horsetail	FAC	2.4	44
Juncus ensifolius	swordleaf rush	FACW	2.2	28
Maianthemum stellatum	starry false Solomon's seal	FAC	1.1	22
Agrostis stolonifera	redtop	FAC	0.6	11
Carex microptera	small-wing sedge	FACU	0.4	6
Equisetum hyemale	scouringrush horsetail	FACW	0.3	11
Salix brachycarpa	short-fruit willow	FACW	0.2	6
Veronica americana	American brooklime	OBL	0.2	6
Deschampsia caespitosa	tufted hairgrass	FACW	0.2	11
Epilobium hornemannii	Hornemann's willow-herb	FACW	0.1	11
Aconitum columbianum	Columbian monkshood	FACW	0.1	6
Angelica pinnata	pinnate angelica	FACW	0.1	6
Geranium richardsonii	Richardson's crane's-bill	FAC	0.1	6
Bryophytes	moss	–	14.4	67
Total	–	–	**41.1**	–
50% of Total	–	–	**20.6**	–
20% of Total	–	–	**8.2**	–

Table 27. Woody vegetation line intercept summary data for CEBR 0918.

Species	Common name	Wetland Code	Average Woody Plant Cover (%)
Salix brachycarpa	short-fruit willow	FACW	57.3
Total	**–**	**–**	**57.3**

The non-native plant common dandelion occurred at this site, but no noxious plants were present.

No recreation impacts or spring developments were observed. Deer and elk sign were recorded inside the vegetation quadrats with 18% and 12% frequency, respectively (Appendix C). Both sign types were also encountered outside of the vegetation quadrats.

CEBR 1352

The CEBR 1352 GDE site occurs at an elevation of approximately 3,128 m with an overall southeast (140°) aspect and moderate slope variability across the site. Evidence of groundwater included flow from spring sources (from six orifices), standing water, and wetland vegetation. The spring type was characterized as helocrene. It included a total wetland area and perimeter length of 1.5 ac (5,994.0 m^2) and 1,589.2 m, respectively (Figure 16, Table 33, Appendix B).

Thirty-six plant taxa were encountered during the GDE level II survey, including 29 taxa recorded within the vegetation quadrats and woody line intercept transects (Table 34, Table 35, Appendix D). Total average herbaceous cover was 37.2%. The

Table 28. Groundcover quadrat data for CEBR 0918.

Groundcover Type	Average Corner Hits (%)
Bryophyte	15.3
Gravel	0.0
Cobble	0.0
Stone	0.0
Boulder	0.0
Bedrock	0.0
Basal	0.0
Litter	56.9
Water	9.7
Wood	1.4
Soil	16.7
Total	**100.0**

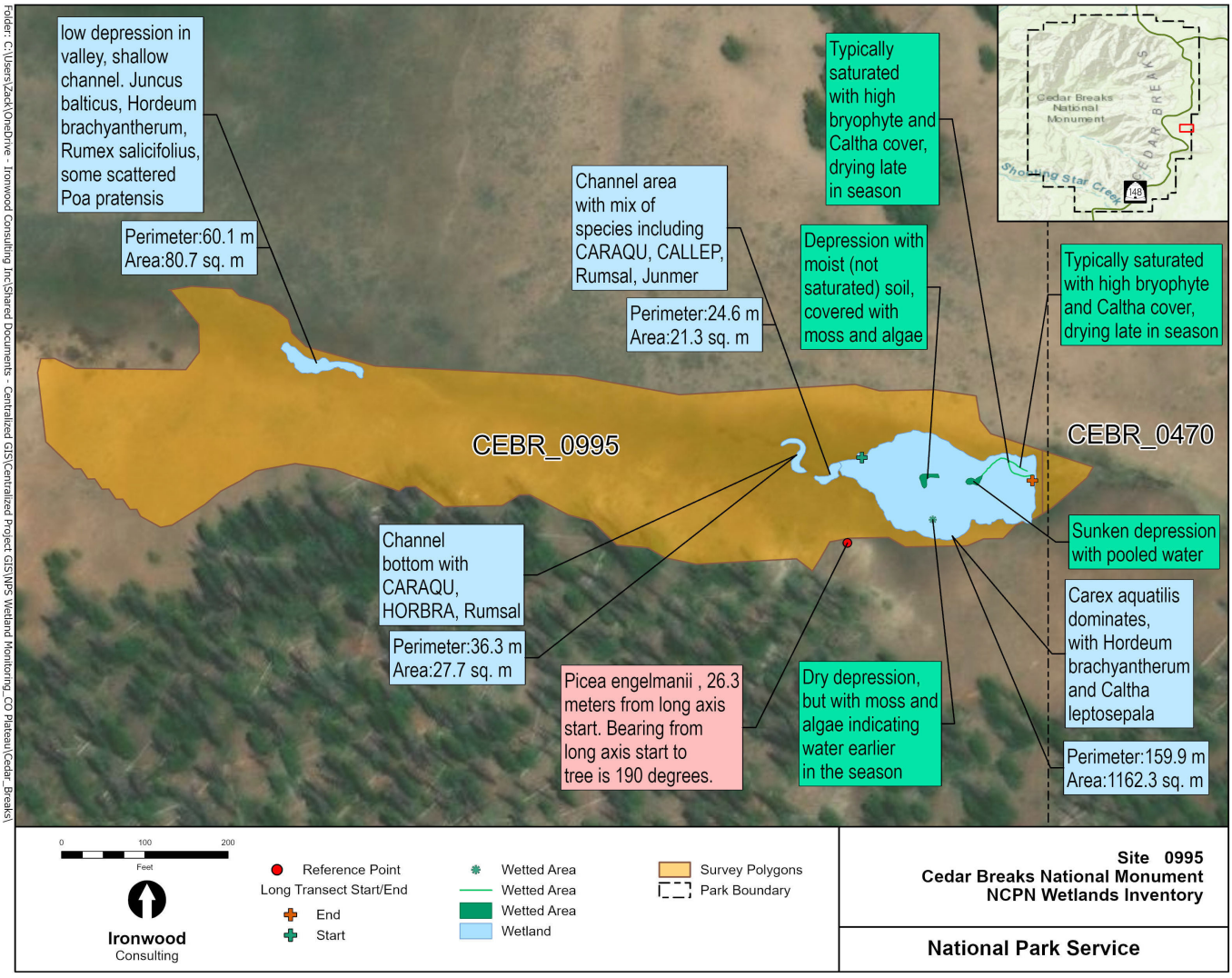


Figure 14. Wetland mapping for CEBR 0995.

Table 29. Herbaceous vegetation quadrat data for CEBR 0995.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Carex aquatilis	water sedge	OBL	54.3	90
Caltha leptosepala	white marsh-marshmarigold	OBL	5.5	30
Deschampsia caespitosa	tufted hairgrass	FACW	1.7	30
Eleocharis sp.	spikerush	–	1.5	5
Rorippa curvipes	bluntleaf yellowcress	FACW	1.2	35
Agrostis stolonifera	redtop	FAC	1.1	15
Polygonum bistortoides	American bistort	FACW	0.9	25
Hordeum brachyantherum	meadow barley	FACW	0.6	10
Dodecatheon pulchellum	darkthroat shootingstar	FACW	0.4	15
Juncus balticus var. montanus	Baltic rush	FACW	0.4	15
Poa pratensis	Kentucky bluegrass	FAC	0.4	10
Symphyotrichum spathulatum	western mountain aster	FAC	0.3	10
Trifolium longipes	longstalk clover	FAC	0.3	10
Zigadenus elegans	mountain death camas	FACU	0.3	5
Phleum alpinum	alpine timothy	FAC	0.2	10
Veronica serpyllifolia	thyme-leaved speedwell	FAC	0.2	5
Carex aurea	golden sedge	FACW	0.1	10
Carex microptera	small-wing sedge	FACU	0.1	5
Taraxacum officinale	common dandelion	FACU	0.1	5
Bryophytes	moss	–	9.8	30
Total	–	–	**69.1**	–
50% of Total	–	–	**34.5**	–
20% of Total	–	–	**13.8**	–

Table 30. Groundcover quadrat data for CEBR 0995.

Groundcover Type	Average Corner Hits (%)
Bryophyte	10.0
Gravel	0.0
Cobble	0.0
Stone	0.0
Boulder	0.0
Bedrock	0.0
Basal	0.0
Litter	88.8
Water	0.0
Wood	0.0
Soil	1.3
Total	**100.0**

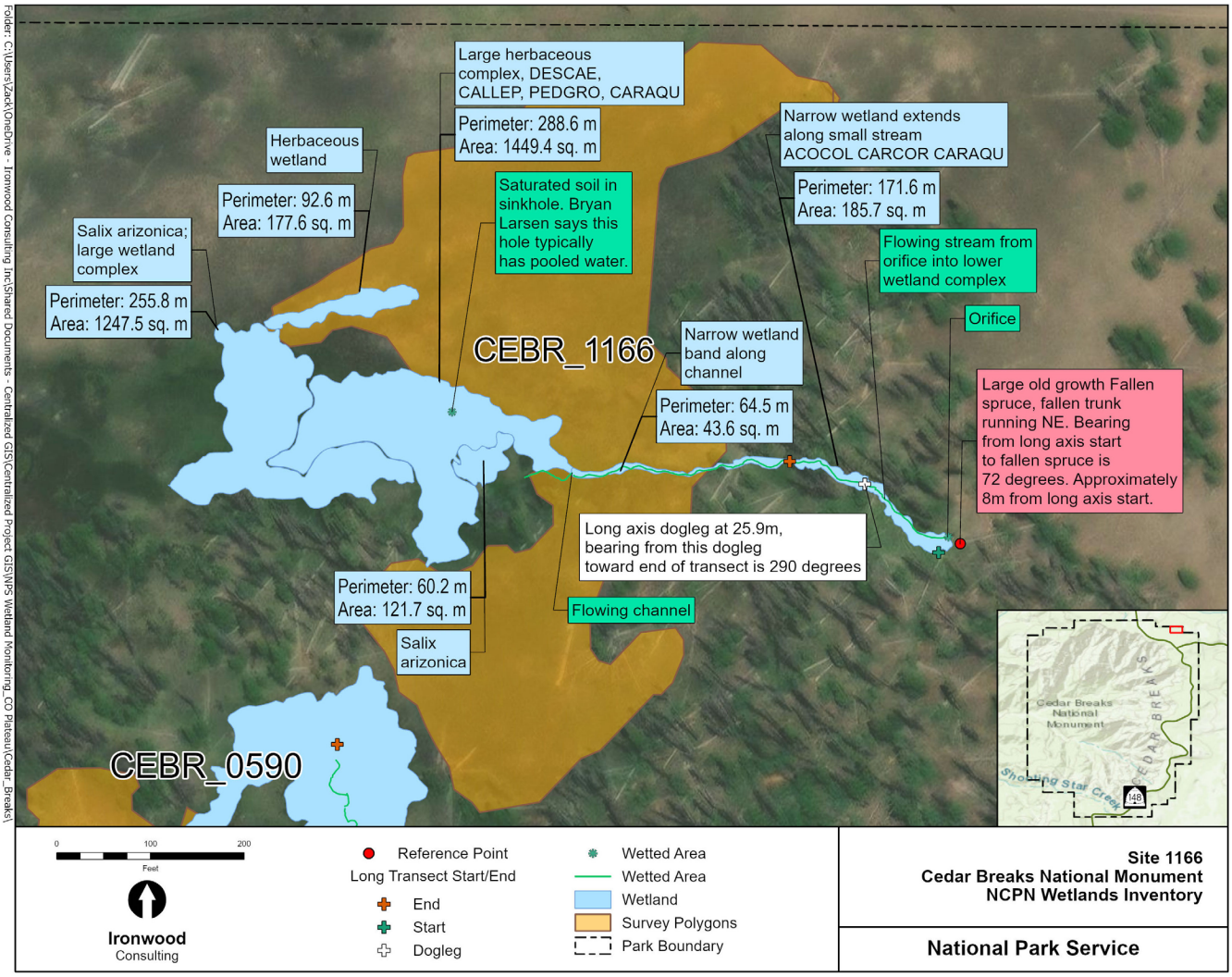


Figure 15. Wetland mapping for CEBR 1166.

dominant herbaceous wetland plants were water sedge, Arizona willow, and beaked sedge with 12.7%, 4.3%, and 3.6% average cover, respectively. Groundcover included litter, bryophyte, water, basal, and wood with 67.3%, 17.3%, 8.7%, 3.8%, and 2.9% average corner hits, respectively (Table 36). Arizona willow and short-fruit willow had average woody line intercept covers of 24.2% and 3.1%, respectively.

The non-native plants common dandelion and Kentucky bluegrass occurred at this site. No noxious weeds were present.

No recreation impacts were found at this site. A spring box was located at the north end of the site. Deer and elk sign were recorded inside the vegetation quadrats, each with 12% frequency. (Appendix C). Both sign types also occurred outside of the quadrats.

CEBR 1353

The CEBR 1353 GDE site occurs at an elevation of approximately 3,138 m with an overall east (88°) aspect and low slope variability across the site. Wetland vegetation provided evidence of groundwater. The primary spring type was characterized as helocrene since this wetland borders CEBR 1352, and the secondary spring type is hypocrene. It included a total wetland area and perimeter length of 0.03 ac (118.9 m^2) and 60.5 m, respectively (Figure 16, Table 33, Appendix B).

Thirty-six plant taxa were encountered during the GDE level II survey, including 29 taxa recorded within the vegetation quadrats and woody line intercept transects (Table 37, Table 38, Appendix D). Total average herbaceous cover was 20.5. The

Table 31. Herbaceous vegetation quadrat data for CEBR 1166. Bryophytes not included in totals.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Cardamine cordifolia	heartleaf bittercress	FACW	54.0	60
Carex aquatilis	water sedge	OBL	38.6	40
Aconitum columbianum	Columbian monkshood	FACW	21.6	33
Elymus trachycaulus	slender wheatgrass	FAC	9.8	33
Achillea millefolium	common yarrow	FACU	9.6	33
Symphyotrichum ascendens	Pacific aster	FACU	8.8	27
Potentilla gracilis	slender cinquefoil	FAC	8.6	27
Carex microptera	small-wing sedge	FACU	4.4	47
Mertensia arizonica	aspen bluebell	UPL	2.6	13
Trifolium longipes	longstalk clover	FAC	2.2	13
Epilobium hornemannii	Hornemann's willow-herb	FACW	2.0	33
Stellaria sp.	starwort	–	2.0	7
Caltha leptosepala	white marsh-marshmarigold	OBL	1.6	7
Hordeum brachyantherum	meadow barley	FACW	1.6	7
Agoseris glauca	pale agoseris	FAC	1.2	7
Geranium richardsonii	Richardson's crane's-bill	FAC	1.2	13
Bromus ciliatus	fringed brome	FAC	1.0	13
Deschampsia caespitosa	tufted hairgrass	FACW	0.8	13
Dodecatheon sp.	shootingstar	–	0.8	7
Polygonum bistortoides	American bistort	FACW	0.8	13
Saxifraga odontoloma	brook saxifrage	FACW	0.6	7
Angelica pinnata	pinnate angelica	FACW	0.4	7
Taraxacum officinale	common dandelion	FACU	0.4	13
Osmorhiza depauperata	blunt sweet-cicely	UPL	0.2	7
Senecio dimorphophyllus	ragwort	FAC	0.2	7
Bryophytes	moss	–	1.5	33
Total	–	–	**175.0**	–
50% of Total	–	–	**87.5**	–
20% of Total	–	–	**35.0**	–

dominant herbaceous wetland plants were violet, water sedge, largeleaf avens, and starry false Solomon's-seal with 4.2%, 2.4%, 2.3%, and 1.8% average cover, respectively. Groundcover included litter, wood, bedrock, bryophyte, and soil with 85.2%, 8.6%, 3.1%, 1.6%, and 1.6% average corner hits, respectively (Table 39). Arizona willow and shrubby cinquefoil had average woody line intercept covers of 13.4% and 1.3%, respectively.

The non-native plants common dandelion and Kentucky bluegrass occurred at this site. No noxious weeds were present.

No recreation impacts or spring developments were found at this site. Deer sign was recorded inside the vegetation quadrats with 3% frequency. Deer and elk sign types also occurred outside of the quadrats.

Table 32. Groundcover quadrat data for CEBR 1166.

Groundcover Type	Average Corner Hits (%)
Bryophyte	4.2
Gravel	0.0
Cobble	0.0
Stone	2.1
Boulder	0.0
Bedrock	0.0
Basal	0.0
Litter	62.5
Water	16.7
Wood	6.3
Soil	8.3
Total	**100.0**

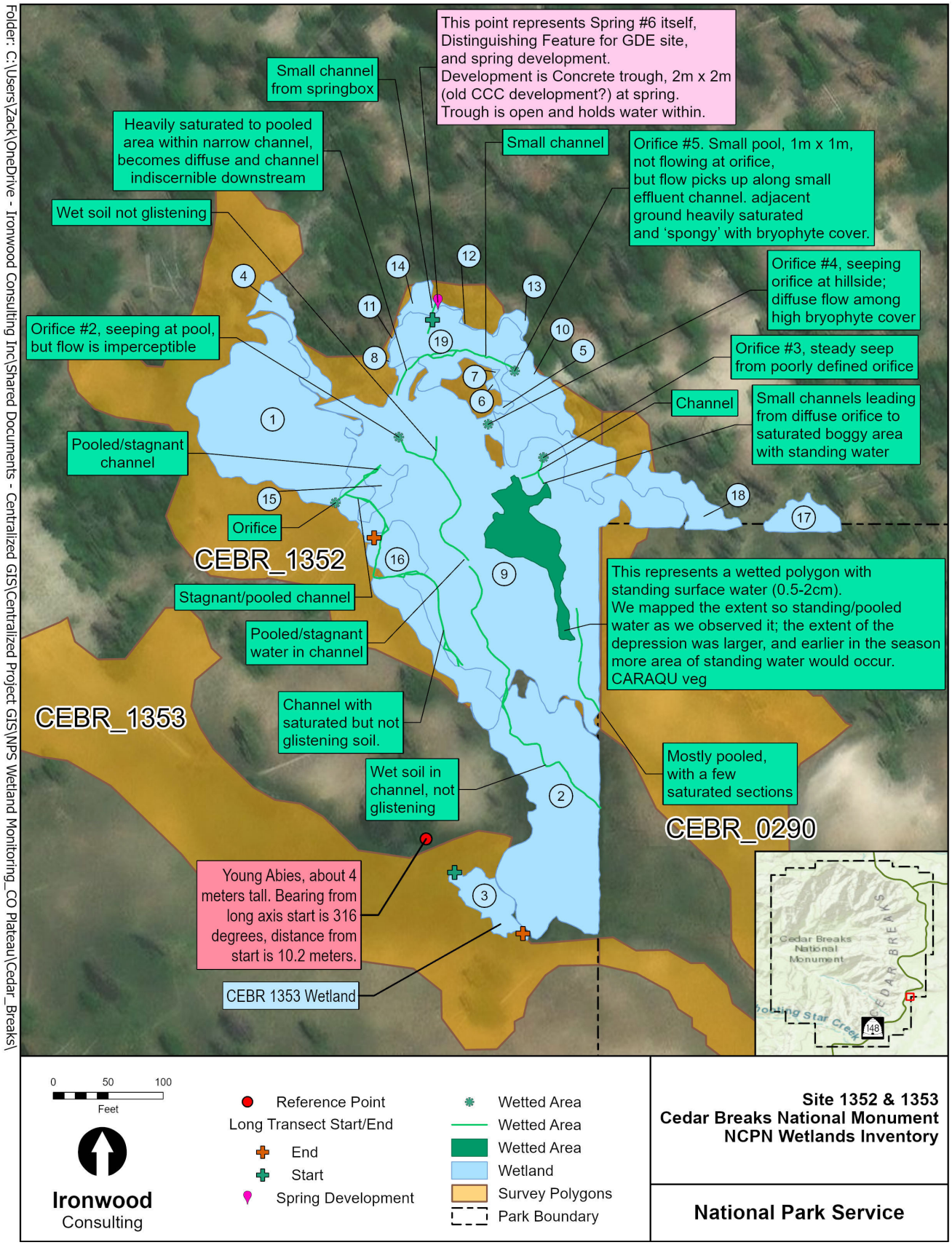


Figure 16. Wetland mapping for CEBR 1352 and 1353; See Table 33 for continued legend.

Table 33. Continued legend for Figure16, CEBR 1352 and 1353.

Number	Area Square Meters	Perimeter	Comments
1	909.4	155.3	SALARI (85% relative Salix cover), SALBRA (15%)
2	964.9	179.8	SALARI; dense willow cover
3	118.9	60.5	CALLEP DODECATHEON BISBIS DESCAE ANGPIN
4	84.2	77.1	CALLEP CARAQU DESCAE HABENARIA
5	8.1	12.6	Massive wetland complex, mostly herbaceous, a few Salix polygons will be mapped out; CARAQU DESCAE CALLEP
6	5.6	10.7	Massive wetland complex, mostly herbaceous, a few Salix polygons will be mapped out; CARAQU DESCAE CALLEP
7	1.7	5.8	Massive wetland complex, mostly herbaceous, a few Salix polygons will be mapped out; CARAQU DESCAE CALLEP
8	0.4	3.5	Massive wetland complex, mostly herbaceous, a few Salix polygons will be mapped out; CARAQU DESCAE CALLEP
9	2682.6	460	Massive wetland complex, mostly herbaceous, a few Salix polygons will be mapped out; CARAQU DESCAE CALLEP
10	121	59	Massive wetland complex, mostly herbaceous, a few Salix polygons will be mapped out; CARAQU DESCAE CALLEP
11	1.7	12.4	Massive wetland complex, mostly herbaceous, a few Salix polygons will be mapped out; CARAQU DESCAE CALLEP
12	1.6	11.4	Massive wetland complex, mostly herbaceous, a few Salix polygons will be mapped out; CARAQU DESCAE CALLEP
13	18	30.3	Massive wetland complex, mostly herbaceous, a few Salix polygons will be mapped out; CARAQU DESCAE CALLEP
14	45.1	46.7	Massive wetland complex, mostly herbaceous, a few Salix polygons will be mapped out; CARAQU DESCAE CALLEP
15	57.1	44	Salix arizonica clump
16	318.4	136.2	Salix arizonica clump, medium density SALARI with some CARAQU PEDGRO CALLEP interspersed
17	92.3	44.6	SALBRA with patches of CARAQU JUNENS DESCAE CALLEP HABENARIA
18	137.4	77.6	Willow dominated with small patches of herbaceous veg interspersed. Dwarf SALBRA (0.25-1m tall) CARAQU CALLEP DESCAE
19	544.6	222.1	Willow dominated with small patches of herbaceous veg interspersed. Dwarf SALBRA (0.25-1m tall) CARAQU CALLEP DESCAE

Table 34. Herbaceous vegetation quadrat data for CEBR 1352. Bryophytes not included in totals.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Carex aquatilis	water sedge	OBL	12.7	100
Salix arizonica	Arizona willow	FACW	4.3	19
Carex utriculata	beaked sedge	OBL	3.6	50
Salix brachycarpa	short-fruit willow	FACW	3.5	8
Caltha leptosepala	white marsh-marshmarigold	OBL	3.2	38
Dasiphora floribunda	shrubby cinquefoil	FAC	1.3	12
Taraxacum officinale	common dandelion	FACU	1.0	19
Symphyotrichum ascendens	Pacific aster	FACU	0.9	38
Eleocharis sp.	spikerush	–	0.8	4
Juncus balticus var. *montanus*	Baltic rush	FACW	0.6	4
Muhlenbergia filiformis	pullup muhly	FACW	0.5	15
Poa pratensis	Kentucky bluegrass	FAC	0.5	19
Angelica pinnata	pinnate angelica	FACW	0.5	23
Dodecatheon sp.	shootingstar	–	0.5	15
Deschampsia caespitosa	tufted hairgrass	FACW	0.4	12
Carex interior	inland sedge	OBL	0.4	4
Carex scirpoidea	slender sedge	FAC	0.4	2
Pedicularis groenlandica	elephant-head	OBL	0.3	8
Polygonum bistortoides	American bistort	FACW	0.3	15
Equisetum variegatum	northern scouring-rush	FACW	0.3	19
Geum macrophyllum	largeleaf avens	FAC	0.3	4
Geranium richardsonii	Richardson's crane's-bill	FAC	0.2	4
Trifolium longipes	longstalk clover	FAC	0.2	4
Aconitum columbianum	Columbian monkshood	FACW	0.2	8
Carex stevenii	Steven's sedge	FAC	0.1	8
Juncus mertensianus	Mertens' rush	OBL	0.1	4
Saxifraga odontoloma	brook saxifrage	FACW	0.1	4
Viola sp.	violet	–	0.1	8
Parnassia palustris	marsh grass of Parnassus	OBL	0.04	4
Bryophytes	moss	–	14.2	42
Total	–	–	**37.2**	–
50% of Total	–	–	**18.6**	–
20% of Total	–	–	**7.4**	–

Table 35. Woody vegetation line intercept summary data for CEBR 1352.

Species	Common name	Wetland Code	Average Woody Plant Cover (%)
Salix arizonica	Arizona willow	FACW	24.2
Salix brachycarpa	short-fruit willow	FACW	3.1
Total	**–**	**–**	**27.2**

Table 36. Groundcover quadrat data for CEBR 1352.

Groundcover Type	Average Corner Hits (%)
Bryophyte	17.3
Gravel	0.0
Cobble	0.0
Stone	0.0
Boulder	0.0
Bedrock	0.0
Basal	3.8
Litter	67.3
Water	8.7
Wood	2.9
Soil	0.0
Total	**100.0**

Table 37. Herbaceous vegetation quadrat data for CEBR 1353. Bryophytes not included in totals.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Viola sp.	violet	–	4.2	41
Carex aquatilis	water sedge	OBL	2.4	38
Geum macrophyllum	largeleaf avens	FAC	2.3	34
Maianthemum stellatum	starry false Solomon's-seal	FAC	1.8	22
Caltha leptosepala	white marsh-marshmarigold	OBL	1.5	13
Deschampsia caespitosa	tufted hairgrass	FACW	1.0	16
Symphyotrichum ascendens	Pacific aster	FAC	0.7	28
Carex aurea	golden sedge	FACW	0.6	9
Mertensia arizonica	aspen bluebell	UPL	0.6	6
Polygonum bistortoides	American bistort	FAC	0.5	19
Taraxacum officinale	common dandelion	FACU	0.4	16
Carex utriculata	beaked sedge	OBL	0.4	16
Delphinium barbeyi	subalpine larkspur	FAC	0.4	3
Gentianopsis thermalis	fringed gentian	FACW	0.3	9
Poa pratensis	Kentucky bluegrass	FAC	0.3	13
Potentilla gracilis	slender cinquefoil	FAC	0.3	3
Achillea millefolium	common yarrow	FACU	0.3	19
Angelica pinnata	pinnate angelica	FACW	0.3	16
Hordeum brachyantherum	meadow barley	FACW	0.2	3
Packera dimorphophylla	splitleaf groundsel	FAC	0.2	3
Phleum alpinum	alpine timothy	FAC	0.2	9
Polemonium occidentale	western polemonium	FACW	0.2	6
Solidago sp.	goldenrod	–	0.2	3
Juncus balticus var. montanus	Baltic rush	FACW	0.2	3
Muhlenbergia filiformis	pullup muhly	FACW	0.2	3
Symphyotrichum spathulatum	western mountain aster	FAC	0.2	9
Trifolium longipes	longstalk clover	FACU	0.2	9
Carex stevenii	Steven's sedge	FAC	0.1	9
Carex microptera	small-wing sedge	FACU	0.1	6
Zigadenus elegans	mountain death camas	FACU	0.1	6
Aconitum columbianum	Columbian monkshood	FACW	0.1	3
Epilobium hornemannii	Hornemann's willow-herb	FACW	0.1	6
Pedicularis groenlandica	elephant-head	OBL	0.1	6
unknown perennial graminoid	unknown perennial graminoid	–	0.1	3
Dodecatheon pulchellum	darkthroat shootingstar	FACW	0.03	3
Fragaria virginiana	Virginia strawberry	FACU	0.03	3
Geranium richardsonii	Richardson's crane's-bill	FAC	0.03	3
Platanthera hyperborea	northern bog orchid	FACW	0.03	3
Bryophytes	moss	–	3.0	13

Table 37 (continued). Herbaceous vegetation quadrat data for CEBR 1353. Bryophytes not included in totals.

Species	Common Name	Wetland Code	Average Absolute Cover (%)	Frequency (%)
Total	–	–	**20.5**	–
50% of Total	–	–	**10.2**	–
20% of Total	–	–	**4.1**	–

Table 38. Woody vegetation line intercept summary data for CEBR 1353.

Species	Common name	Wetland Code	Average Woody Plant Cover (%)
Salix arizonica	Arizona willow	FACW	13.4
Dasiphora floribunda	shrubby cinquefoil	FAC	1.3
Total	–	–	**14.7**

Table 39. Groundcover quadrat data for CEBR 1353.

Groundcover Type	Average Corner Hits (%)
Bryophyte	1.6
Gravel	0.0
Cobble	0.0
Stone	0.0
Boulder	0.0
Bedrock	3.1
Basal	0.0
Litter	85.2
Water	0.0
Wood	8.6
Soil	1.6
Total	**100.0**

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Appendix A. GDE Site Locality Details

GDE site summary locality details are found in Table 40 and Table 41.

Table 40. GDE Site Summary Table Locality Details.

Site Name	Type	Long Axis Start Easting	Long Axis Start Northing	Long Axis End Easting	Long Axis End Northing	Reference Point Easting	Reference Point Northing	Aspect at Reference Point	Elevation at Reference Point (m)
CEBR_0290	Spring	339102	4165357	339100	4165277	339102	4165357	160	3,153
CEBR_0586	Spring	338240	4169531	338212	4169560	338156	4169470	6	3,160
CEBR_0590	Spring	338854	4169511	338845	4169559	338853	4169394	352	3,176
CEBR_0619	Spring	339436	4168857	339451	4168812	339444	4168868	146	3,184
CEBR_0624	Spring	338886	4168856	338838	4168850	338896	4168871	262	3,181
CEBR_0627	Spring	339360	4168704	339396	4168699	339401	4168718	60	3,184
CEBR_0635	Spring	339341	4168322	339383	4168348	339290	4168314	60	3,174
CEBR_0711	Spring	339058	4167087	338977	4166986	339058	4167087	214	3,183
CEBR_0773	Spring	339193	4166620	339198	4166560	339193	4166620	160	3,191
CEBR_0918	Spring	336168	4164409	336125	4164436	336168	4164409	300	2,991
CEBR_0995	Spring	339176	4166252	339225	4166245	339176	4166252	82	3,168
CEBR_1166	Spring	339001	4169606	338963	4169630	339006	4169608	290	3,185
CEBR_1352	Spring	338771	4165327	338758	4165279	338773	4165330	140	3,128
CEBR_1353	Spring	338774	4165206	338789	4165192	338774	4165206	88	3,138

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Table 41. GDE Site Summary Table Locality Details.

Site Name	Reference Point Notes	Dogleg in Long Axis?	Dogleg Easting	Dogleg Northing	Vegetation Quadrat Cut Level
CEBR_0290	Solitary Picea engelmannii near wetland center. Bearing from long axis start is 220˚, distance is 29.4 m.	No	–	–	< 1% Not Recorded
CEBR_0586	Culvert at road; from reference point travel at a bearing of 56˚ to start of long axis.	No	–	–	< 1% Not Recorded
CEBR_0590	Large Boulder, transect start/orifice is ca 250m downstream at 14˚ bearing from boulder	No	–	–	< 1% Not Recorded
CEBR_0619	Large boulder/exposed bedrock. Transect starts ca. 15 m away at 220˚ bearing from boulder.	Yes	339436	4168838	< 1% Not Recorded
CEBR_0624	Boulder at edge of gully/runnel. Start of long axis ca. 20 m at 216˚, just beyond spruce sapling in photo.	No	–	–	< 1% Not Recorded
CEBR_0627	Exposed bedrock; long axis start ca 50 m at 250˚ from boulder/ rock outcropping.	No	–	–	< 1% Not Recorded
CEBR_0635	Distinguishing feature is USGS benchmark, 10,480 ft, 1936 established. Long axis start ca. 50 m at 80˚ from benchmark.	No	–	–	< 1% Not Recorded
CEBR_0711	Reference point is spruce (Picea) that leans north. It occurs 7.6 m from long axis start. Bearing from long axis start to reference point is 106˚.	Yes	–	–	< 1% Not Recorded
CEBR_0773	Populus deltoides, 25.4 m from long axis start; bearing from long axis start is 354˚.	No	–	–	< 1% Not Recorded
CEBR_0918	Abies, about 7 m tall at edge of wet meadow. Distance is 9.2 m, and the bearing from long axis to tree is 90˚.	No	–	–	< 1% Not Recorded
CEBR_0995	Picea engelmanii, 26.3 m from long axis start. Bearing from long axis start to tree is 190˚.	No	–	–	< 1% Not Recorded
CEBR_1166	Large old growth Fallen spruce, fallen trunk running NE. Bearing from long axis start to fallen spruce is 72˚. Fallen spruce approximately 8 m from long axis start.	Yes	338982	4169624	< 1% Not Recorded
CEBR_1352	The spring development point represents Spring #6 itself, the Distinguishing Feature for GDE site, and spring development. Development is Concrete trough, 2 m x 2 m (old CCC development?) at spring. Trough is open and holds water within.	No	–	–	< 1% Not Recorded
CEBR_1353	Young Abies, about 4 m tall. Bearing from long axis start is 316˚, distance from start is 10.2 m.	No	–	–	< 1% Not Recorded

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Appendix B. GDE Site Wetland Features

GDE site summary wetland feature details are found in Table 42 and Table 43.

Table 42. GDE Site Summary Table Wetland Feature.

Site Name	Site Type	Primary GDE Type	Secondary GDE Type	Total Wetland Area (ac)	Total Wetland Area (m^2)	Total Wetland Perimeter Length (m)	Total Orifices	Number of Mapped Channels	Length of Mapped Channel (m)
CEBR_0290	Spring	Helocrene	–	3.6	14,500.4	1,752.9	14	13	315.8
CEBR_0586	Spring	Hypocrene	–	0.7	2,815.6	710.0	0	0	0.0
CEBR_0590	Spring	Helocrene	Exposure	1.3	5,250.9	1,189.1	1	4	95.4
CEBR_0619	Spring	Helocrene	–	0.4	1,740.4	592.7	1	1	77.3
CEBR_0624	Spring	Hillslope	–	2.2	8,786.9	2,150.1	8	8	576.7
CEBR_0627	Spring	Hypocrene	–	0.3	1,118.1	414.4	0	0	0.0
CEBR_0635	Spring	Hypocrene	–	0.5	2,176.1	559.0	0	1	66.5
CEBR_0711	Spring	Hillslope	–	0.7	2,780.2	433.1	3	1	229.9
CEBR_0773	Spring	Helocrene	–	0.2	990.8	397.8	1	3	295.7
CEBR_0918	Spring	Rheocrene	Helocrene	0.6	2,260.0	758.2	1	3	396.2
CEBR_0995	Spring	Hypocrene	–	0.3	1,292.1	280.8	0	1	245.1
CEBR_1166	Spring	Helocrene	–	0.8	3,225.4	933.3	1	1	122.2
CEBR_1352	Spring	Helocrene	–	1.5	5,994.0	1,589.2	6	9	244.9
CEBR_1353	Spring	Helocrene	Hypocrene	0.03	118.9	60.5	0	0	0.0

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Table 43. GDE Site Summary Table Wetland Feature.

Site Name	Mapped Channel Type (if observed)	Wetland/Channel Description	Total Wetted Area (ac)	Total Wetted Length (m)
CEBR_0290	Spring discharge dominated	Very large wetland complex artificially cut off at boundary with USFS, but true wetland extends beyond fence line. Lots of elk and deer sign in this wetland.	0.08	366.14
CEBR_0586	–	Wetland species likely present due to slow snow melt and cool average temps enabling moisture to persist for long periods.	0.00	0.00
CEBR_0590	Spring discharge dominated	Bryan Larsen showed us spring orifice which he says is usually flowing. This year this orifice is not visibly/perceptibly flowing but is pooled with water. No portion of channel is visibly flowing. However, there are portions where water is pooled vs where soil is saturated but no pooled water. Each category of channel was mapped distinctly.	0.00	0.00
CEBR_0619	Spring discharge dominated	Orifice at toe slope (base) of hillside. Water emerging at a trickle and likely emerging more diffusely immediately around orifice, but channel is well defined and has flowing water. A portion of the channel nearest the orifice has flowing water (45m). After this point, channel is not flowing but saturated for the next 31.6m to the park boundary with private property. Channel/wetland were not mapped beyond this point.	0.00	0.00
CEBR_0624	Spring discharge dominated	Orifice at start of long axis is flowing into channel that runs downhill, along the axis into a large wet meadow. There are 8 total mapped orifices in this wetland complex. Several channels (4 main channels) across entire wetland complex. The channel included in the GDE long axis has a single branch that joins it from another orifice (orifice 8). This channel was mapped for 202 meters, but it continues to flow beyond mapped area.	0.00	0.00
CEBR_0627	–	–	0.00	0.00
CEBR_0635	Mixed discharge	Channel is shallow, soil is moist, but not flowing and herbaceous vegetation is growing throughout channel (JUN BAL, CAR AQU, BIS BIS), There are several small depressions within polygon, but none produce running water and only one has water pooled in it. The others just have moist (but not always glistening) soil.	0.00	0.00
CEBR_0711	Spring discharge dominated	Channel flows from orifice into Alpine Pond and continues flowing from southwest end of pond in southwest direction.	0.49	313.13
CEBR_0773	Mixed discharge	Flowing channel length is 63.1 m, but additional dry channels also present.	0.00	0.00
CEBR_0918	Mixed discharge	Water often pools and flows in a very dispersed fashion across this polygon before re-channelizing. Orifice is where water table hits surface in wet meadow. Wet meadow overall has many sections of pooled water indicating a generally high water table at this site.	0.10	218.21
CEBR_0995	Mixed discharge	Large channel running into site from uphill was dry during survey. This site occurs in a broad shallow valley, receiving runoff from uphill. There is also a shallow water table (hypocrene spring), as evidenced by the wetland vegetation. There are several	0.004	30.68

Table 43 (continued). GDE Site Summary Table Wetland Feature.

Site Name	Mapped Channel Type (if observed)	Wetland/Channel Description	Total Wetted Area (ac)	Total Wetted Length (m)
CEBR_1166	Spring discharge dominated	Small, muddy pool with standing water, size is approximately 1m^2. Channel below pool is visibly flowing.	0.00	0.00
CEBR_1352	Spring discharge dominated	Main spring appears to be developed with buried concrete box surrounding it. Multiple channels emerging from multiple orifices at site. Soil is noticeably saturated with occasionally wet mounds throughout wetland.	0.06	113.07
CEBR_1353	–	–	0.0	0.0

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Appendix C. GDE Site Wildlife Summary

GDE site wildlife summary details are found in Table 44 and Table 45.

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Table 44. Percent frequency of scat or tracks found inside vegetation quadrats.

Animal Category	Animal Type	0290	0586	0590	0619	0624	0627	0635	0711	0773	0918	0995	1166	1352	1353	Total Sites Observed
Wildlife	Bear	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Wildlife	Coyote	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Wildlife	Deer	5	9	7	5	–	12	29	–	6	–	5	18	12	3	11
Wildlife	Elk	33	–	7	5	–	18	–	–	31	–	20	12	12	–	8
Wildlife	Rabbit	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Livestock	Cow	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0

Table 45. Animal sign (scat or tracks) observed outside vegetation transects. X indicates a presence.

Animal Category	Animal Type	0290	0586	0590	0619	0624	0627	0635	0711	0773	0918	0995	1166	1352	1353	Total Sites Observed
Wildlife	Bear	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Wildlife	Coyote	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Wildlife	Deer	X	X	X	X	X	X	X	X	X	X	X	X	X	X	14
Wildlife	Elk	X	–	X	–	X	X	X	X	X	X	X	X	X	X	12
Wildlife	Rabbit	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Livestock	Cow	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0

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Appendix D. GDE Site Vascular Plant Inventory Lists

GDE site vascular plant inventory lists are found in Table 46, Table 47, Table 48, and Table 49.

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Table 46. GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 0290 [B]	CEBR 0586 [B]	CEBR 0590 [B]	CEBR 0619 [B]
Achillea millefolium	common yarrow	FACU	I, N	X	–	–	X
Achnatherum lettermanii	Letterman's needlegrass	UPL	N	–	–	–	–
Aconitum columbianum	Columbian monkshood	FACW	N	X	–	X	X
Agoseris glauca	pale agoseris	FAC	N	–	–	–	X
Agrostis scabra	ticklegrass	FAC	N	X	–	–	–
Agrostis stolonifera	redtop	FAC	I	X	–	–	–
Angelica pinnata	pinnate angelica	FACW	N	X	–	X	–
Antennaria pulcherrima	showy pussytoes	FAC	N	X	–	–	–
Bromus ciliatus	fringed brome	FAC	N	–	–	–	–
Bromus inermis	smooth brome	UPL	I	–	X	–	–
Calamagrostis stricta	slimstem reedgrass	FACW	N	–	X	–	–
Caltha leptosepala	white marsh-marshmarigold	OBL	N	X	X	X	X
Cardamine cordifolia	heartleaf bittercress	FACW	N	–	–	X	X
Carex aquatilis	water sedge	OBL	N	X	X	X	X
Carex aurea	golden sedge	FACW	N	X	–	–	–
Carex interior	inland sedge	OBL	N	X	–	–	–
Carex microptera	small-wing sedge	FACU	N	–	X	X	X
Carex pellita	woolly sedge	OBL	N	X	–	–	–
Carex praegracilis	blackcreeper sedge	FACW	N	–	X	–	X
Carex scirpoidea	slender sedge	FAC	N	X	–	–	–
Carex sp.	sedge	–	–	X	–	–	–
Carex stevenii	Steven's sedge	FAC	N	X	–	–	–
Carex utriculata	beaked sedge	OBL	N	X	–	–	–
Chamerion angustifolium	fireweed	FACU	N	–	–	–	–
Dasiphora floribunda	shrubby cinquefoil	FAC	N	X	–	–	–
Delphinium barbeyi	subalpine larkspur	FAC	N	–	–	–	–
Deschampsia caespitosa	tufted hairgrass	FACW	N	X	X	X	X
Descurainia incana	mountain tansymustard	UPL	N	–	–	–	–
Dodecatheon pulchellum	darkthroat shootingstar	FACW	N	X	–	X	–
Dodecatheon sp.	shootingstar	–	–	–	–	–	X

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Table 46 (continued). GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 0290 [B]	CEBR 0586 [B]	CEBR 0590 [B]	CEBR 0619 [B]
Eleocharis sp.	spikerush	–	–	–	–	X	–
Elymus trachycaulus	slender wheatgrass	FAC	N	X		–	X
Epilobium hornemannii	Hornemann's willow-herb	FACW	N	–	–	X	X
Epilobium sp.	willowherb	–	–	–	–	–	–
Equisetum arvense	field horsetail	FAC	N	–	–	–	–
Equisetum hyemale	scouringrush horsetail	FACW	N	–	–	–	–
Equisetum laevigatum	smooth scouring rush	FACW	N	–	X	–	–
Equisetum variegatum	northern scouring-rush	FACW	N	X	–	–	–
Erigeron lonchophyllus	longleaf daisy	FACW	N	X	–	–	–
Fragaria virginiana	Virginia strawberry	FACU	N	–	–	–	–
Gentianopsis thermalis	fringed gentian	FACW	N	X	–	X	–
Geranium richardsonii	Richardson's crane's-bill	FAC	N	–	–	X	–
Geum macrophyllum	largeleaf avens	FAC	N	X	–	X	–
Habenaria sp.	habenaria sp.	–	–	–	–	–	X
Hordeum brachyantherum	meadow barley	FACW	N	X	X	–	X
Juncus balticus var. montanus	Baltic rush	FACW	N	–	X	–	–
Juncus ensifolius	swordleaf rush	FACW	N	–	–	–	–
Juncus mertensianus	Mertens' rush	OBL	N	X	–	–	X
Juniperus communis	common juniper	UPL	N	–	–	–	–
Ligusticum porteri	southern ligusticum	FACU	N	–	–	–	–
Lonicera involucrata	black twinberry	FAC	N	–	–	–	X
Luzula parviflora	small-flowered woodrush	FAC	N	–	–	–	X
Maianthemum stellatum	starry false Solomon's-seal	FAC	N	–	–	–	–
Mertensia arizonica	aspen bluebell	UPL	N	–	–	–	X
Mimulus guttatus	yellow monkeyflower	OBL	N	–	–	–	X
Muhlenbergia filiformis	pullup muhly	FACW	N	X	–	–	–
Osmorhiza depauperata	blunt sweet-cicely	UPL	N	–	–	–	–
Packera dimorphophylla	splitleaf groundsel	FAC	N	–	–	–	–
Parnassia palustris	marsh grass of Parnassus	OBL	N	X	–	–	–
Pedicularis groenlandica	elephant-head	OBL	N	X	–	X	X

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Table 46 (continued). GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 0290 [B]	CEBR 0586 [B]	CEBR 0590 [B]	CEBR 0619 [B]
Penstemon procerus	littleflower penstemon	FAC	N	–	–	–	X
Phleum alpinum	alpine timothy	FAC	N	X	–	X	–
Phleum pratense	timothy	FACU	I	X	–	–	–
Picea engelmannii	Engelmann spruce	FACU	N	–	–	–	X
Platanthera hyperborea	northern bog orchid	FACW	N	X	–	–	–
Platanthera sp.	fringed orchid	–		X	–	–	–
Poa pratensis	Kentucky bluegrass	FAC	I, N	X	–	X	–
Polemonium occidentale	western polemonium	FACW	N	–	–	–	–
Polemonium pulcherrimum	Jacob's-ladder	UPL	N	–	–	–	–
Polygonum bistortoides	American bistort	FACW	N	X	X	X	X
Polygonum polygaloides	milkwort knotweed	FACW	N	–	–	–	–
Polygonum viviparum	alpine bistort	FAC	N	X	–	–	–
Potentilla gracilis	slender cinquefoil	FAC	N	–	–	–	–
Primula parryi	Parry's primrose	FACW	N	–	–	–	–
Pyrola sp.	wintergreen	–	–	–	–	–	–
Rhodiola rhodantha	redpod stonecrop	FACW	N	–	–	X	–
Ribes montigenum	alpine prickly currant	UPL	N	–	–	–	X
Rorippa curvipes	bluntleaf yellowcress	FACW	N	X	–	–	–
Rumex salicifolius	willow dock	FACW	N	–	–	–	–
Salix arizonica	Arizona willow	FACW	N	X	–	X	–
Salix brachycarpa	short-fruit willow	FACW	N	X	–	–	–
Salix scouleriana	Scouler's willow	FAC	N	–	–	–	X
Saxifraga odontoloma	brook saxifrage	FACW	N	–	–	–	X
Senecio dimorphophyllus	ragwort	FAC	N	–	–	–	–
Solidago sp.	goldenrod	–	–	–	–	–	–
Stellaria longipes	longstalk starwort	FACW	N	–	–	–	–
Stellaria sp.	starwort	–	–	–	–	–	–
Symphyotrichum ascendens	Pacific aster	FACU	N	–	–	–	X
Symphyotrichum spathulatum	western mountain aster	FAC	N	X	–	–	–
Taraxacum officinale	common dandelion	FACU	I, N	X	X	X	X

Table 46 (continued). GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 0290 [B]	CEBR 0586 [B]	CEBR 0590 [B]	CEBR 0619 [B]
Thalictrum fendleri	Fendler's meadow-rue	UPL	N	–	–	–	–
Trifolium longipes	longstalk clover	FAC	N	X	–	X	X
unknown forb	unknown forb	–	–	–	–	–	–
unknown perennial graminoid	unknown perennial graminoid	–	–	–	–	–	–
Veronica americana	American brooklime	OBL	N	–	–	–	–
Veronica serpyllifolia	thyme-leaved speedwell	FAC	N	–	–	–	–
Viola nephrophylla	northern bog violet	FACW	N	X	–	–	–
Viola sp.	violet	–	–	–	–	–	–
Zigadenus elegans	mountain death camas	FACU	N	–	–	–	–

[A]I - Introduced, N - Native (United States Department of Agriculture (USDA), and Natural Resources Conservation Service (NRCS).

[B]An "X" denotes that species was observed and an endash ("–") denotes that it was not.

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Table 47. GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 0624 [B]	CEBR 0627 [B]	CEBR 0635 [B]	CEBR 0711 [B]
Achillea millefolium	common yarrow	FACU	I, N	X	X	X	X
Achnatherum lettermanii	Letterman's needlegrass	UPL	N	–	–	–	–
Aconitum columbianum	Columbian monkshood	FACW	N	X	X	–	–
Agoseris glauca	pale agoseris	FAC	N	–	–	–	–
Agrostis scabra	ticklegrass	FAC	N	–	–	–	–
Agrostis stolonifera	redtop	FAC	I	–	–	–	–
Angelica pinnata	pinnate angelica	FACW	N	X	–	–	X
Antennaria pulcherrima	showy pussytoes	FAC	N	–	–	–	–
Bromus ciliatus	fringed brome	FAC	N	–	–	–	–
Bromus inermis	smooth brome	UPL	I	–	–	–	–
Calamagrostis stricta	slimstem reedgrass	FACW	N	X	–	–	–
Caltha leptosepala	white marsh-marshmarigold	OBL	N	X	X	–	X
Cardamine cordifolia	heartleaf bittercress	FACW	N	X	–	–	X
Carex aquatilis	water sedge	OBL	N	X	X	X	X
Carex aurea	golden sedge	FACW	N	X	–	–	–
Carex interior	inland sedge	OBL	N	–	–	–	–
Carex microptera	small-wing sedge	FACU	N	X	X	X	–
Carex pellita	woolly sedge	OBL	N	–	–	–	–
Carex praegracilis	blackcreeper sedge	FACW	N	–	X	X	–
Carex scirpoidea	slender sedge	FAC	N	–	–	–	–
Carex sp.	sedge	–	–	–	–	–	–
Carex stevenii	Steven's sedge	FAC	N	X	–	–	–
Carex utriculata	beaked sedge	OBL	N	X	–	–	X
Chamerion angustifolium	fireweed	FACU	N	–	–	–	X
Dasiphora floribunda	shrubby cinquefoil	FAC	N	–	–	–	–
Delphinium barbeyi	subalpine larkspur	FAC	N	–	–	–	–
Deschampsia caespitosa	tufted hairgrass	FACW	N	X	–	X	X
Descurainia incana	mountain tansymustard	UPL	N	–	–	–	–
Dodecatheon pulchellum	darkthroat shootingstar	FACW	N	–	–	–	–
Dodecatheon sp.	shootingstar	–	–	–	–	–	–

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Table 47 (continued). GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 0624 [B]	CEBR 0627 [B]	CEBR 0635 [B]	CEBR 0711 [B]
Eleocharis sp.	spikerush	–	–	–	–	–	–
Elymus trachycaulus	slender wheatgrass	FAC	N	X	X	X	–
Epilobium hornemannii	Hornemann's willow-herb	FACW	N	X	X	–	X
Epilobium sp.	willowherb	–	–	–	–	–	–
Equisetum arvense	field horsetail	FAC	N	–	–	–	–
Equisetum hyemale	scouringrush horsetail	FACW	N	–	–	–	–
Equisetum laevigatum	smooth scouring rush	FACW	N	–	–	–	–
Equisetum variegatum	northern scouring-rush	FACW	N	–	–	–	–
Erigeron lonchophyllus	longleaf daisy	FACW	N	–	–	–	–
Fragaria virginiana	Virginia strawberry	FACU	N	–	–	–	–
Gentianopsis thermalis	fringed gentian	FACW	N	X	–	–	–
Geranium richardsonii	Richardson's crane's-bill	FAC	N	X	–	–	–
Geum macrophyllum	largeleaf avens	FAC	N	–	X	–	X
Habenaria sp.	habenaria sp.	–	–	X	–	–	–
Hordeum brachyantherum	meadow barley	FACW	N	–	X	X	X
Juncus balticus var. montanus	Baltic rush	FACW	N	–	–	X	–
Juncus ensifolius	swordleaf rush	FACW	N	X	–	–	–
Juncus mertensianus	Mertens' rush	OBL	N	–	–	–	–
Juniperus communis	common juniper	UPL	N	–	–	–	–
Ligusticum porteri	southern ligusticum	FACU	N	X	–	–	–
Lonicera involucrata	black twinberry	FAC	N	X	–	–	X
Luzula parviflora	small-flowered woodrush	FAC	N	–	–	–	–
Maianthemum stellatum	starry false Solomon's-seal	FAC	N	X	–	–	–
Mertensia arizonica	aspen bluebell	UPL	N	X	X	–	X
Mimulus guttatus	yellow monkeyflower	OBL	N	X	–	–	–
Muhlenbergia filiformis	pullup muhly	FACW	N	–	–	–	–
Osmorhiza depauperata	blunt sweet-cicely	UPL	N	–	–	–	–
Packera dimorphophylla	splitleaf groundsel	FAC	N	–	–	–	–
Parnassia palustris	marsh grass of Parnassus	OBL	N	X	–	–	–
Pedicularis groenlandica	elephant-head	OBL	N	X	–	–	–

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Table 47 (continued). GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 0624 [B]	CEBR 0627 [B]	CEBR 0635 [B]	CEBR 0711 [B]
Penstemon procerus	littleflower penstemon	FAC	N	–	–	–	–
Phleum alpinum	alpine timothy	FAC	N	X	–	–	X
Phleum pratense	timothy	FACU	I	–	–	–	–
Picea engelmannii	Engelmann spruce	FACU	N	X	–	–	–
Platanthera hyperborea	northern bog orchid	FACW	N	–	–	–	–
Platanthera sp.	fringed orchid	–		–	–	–	–
Poa pratensis	Kentucky bluegrass	FAC	I, N	X	X	–	X
Polemonium occidentale	western polemonium	FACW	N	–	–	–	–
Polemonium pulcherrimum	Jacob's-ladder	UPL	N	X	–	–	–
Polygonum bistortoides	American bistort	FACW	N	X	X	X	–
Polygonum polygaloides	milkwort knotweed	FACW	N	–	X	–	–
Polygonum viviparum	alpine bistort	FAC	N	X	–	–	–
Potentilla gracilis	slender cinquefoil	FAC	N	–	X	–	–
Primula parryi	Parry's primrose	FACW	N	–	–	–	–
Pyrola sp.	wintergreen	–	–	–	–	–	–
Rhodiola rhodantha	redpod stonecrop	FACW	N	–	–	–	–
Ribes montigenum	alpine prickly currant	UPL	N	–	–	–	–
Rorippa curvipes	bluntleaf yellowcress	FACW	N	–	–	–	X
Rumex salicifolius	willow dock	FACW	N	–	–	–	X
Salix arizonica	Arizona willow	FACW	N	X	X	–	–
Salix brachycarpa	short-fruit willow	FACW	N	X	–	–	–
Salix scouleriana	Scouler's willow	FAC	N	–	–	–	–
Saxifraga odontoloma	brook saxifrage	FACW	N	X	–	–	X
Senecio dimorphophyllus	ragwort	FAC	N	–	–	–	–
Solidago sp.	goldenrod	–	–	–	–	–	X
Stellaria longipes	longstalk starwort	FACW	N	–	–	–	X
Stellaria sp.	starwort	–	–	–	–	–	–
Symphyotrichum ascendens	Pacific aster	FACU	N	X	X	X	X
Symphyotrichum spathulatum	western mountain aster	FAC	N	–	–	–	–
Taraxacum officinale	common dandelion	FACU	I, N	X	X	X	X

Table 47 (continued). GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 0624 [B]	CEBR 0627 [B]	CEBR 0635 [B]	CEBR 0711 [B]
Thalictrum fendleri	Fendler's meadow-rue	UPL	N	–	–	–	X
Trifolium longipes	longstalk clover	FAC	N	–	–	–	–
unknown forb	unknown forb	–	–	–	–	–	X
unknown perennial graminoid	unknown perennial graminoid	–	–	–	–	–	–
Veronica americana	American brooklime	OBL	N	–	–	–	–
Veronica serpyllifolia	thyme-leaved speedwell	FAC	N	–	–	–	–
Viola nephrophylla	northern bog violet	FACW	N	–	–	–	–
Viola sp.	violet	–	–	–	X	–	–
Zigadenus elegans	mountain death camas	FACU	N	X	–	–	–

[A]I - Introduced, N - Native (United States Department of Agriculture (USDA), and Natural Resources Conservation Service (NRCS).

[B]An "X" denotes that species was observed and an endash ("–") denotes that it was not.

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Table 48. GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 0773 [B]	CEBR 0918 [B]	CEBR 0995 [B]	CEBR 1166 [B]
Achillea millefolium	common yarrow	FACU	I, N	X	X	X	X
Achnatherum lettermanii	Letterman's needlegrass	UPL	N	–	–	–	–
Aconitum columbianum	Columbian monkshood	FACW	N	–	X	–	X
Agoseris glauca	pale agoseris	FAC	N	X	–	–	X
Agrostis scabra	ticklegrass	FAC	N	X	–	–	–
Agrostis stolonifera	redtop	FAC	I	–	X	X	–
Angelica pinnata	pinnate angelica	FACW	N	X	X	–	X
Antennaria pulcherrima	showy pussytoes	FAC	N	–	–	–	–
Bromus ciliatus	fringed brome	FAC	N	–	–	–	X
Bromus inermis	smooth brome	UPL	I	–	–	–	–
Calamagrostis stricta	slimstem reedgrass	FACW	N	–	–	–	–
Caltha leptosepala	white marsh-marshmarigold	OBL	N	X	X	X	X
Cardamine cordifolia	heartleaf bittercress	FACW	N	–	X	–	X
Carex aquatilis	water sedge	OBL	N	X	–	X	X
Carex aurea	golden sedge	FACW	N	X	–	X	–
Carex interior	inland sedge	OBL	N	–	–	–	–
Carex microptera	small-wing sedge	FACU	N	X	X	X	X
Carex pellita	woolly sedge	OBL	N	–	–	–	–
Carex praegracilis	blackcreeper sedge	FACW	N	–	–	–	–
Carex scirpoidea	slender sedge	FAC	N	–	–	–	–
Carex sp.	sedge	–	–	–	–	–	–
Carex stevenii	Steven's sedge	FAC	N	X	–	–	–
Carex utriculata	beaked sedge	OBL	N	–	X	–	–
Chamerion angustifolium	fireweed	FACU	N	–	X	–	–
Dasiphora floribunda	shrubby cinquefoil	FAC	N	–	–	X	–
Delphinium barbeyi	subalpine larkspur	FAC	N	–	–	–	–
Deschampsia caespitosa	tufted hairgrass	FACW	N	X	X	X	X
Descurainia incana	mountain tansymustard	UPL	N	X	–	–	–
Dodecatheon pulchellum	darkthroat shootingstar	FACW	N	X	–	X	–
Dodecatheon sp.	shootingstar	–	–	–	–	–	X

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Table 48 (continued). GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 0773 [B]	CEBR 0918 [B]	CEBR 0995 [B]	CEBR 1166 [B]
Eleocharis sp.	spikerush	–	–	X	–	X	–
Elymus trachycaulus	slender wheatgrass	FAC	N	X	–	–	X
Epilobium hornemannii	Hornemann's willow-herb	FACW	N	–	X	X	X
Epilobium sp.	willowherb	–	–	X	–	–	–
Equisetum arvense	field horsetail	FAC	N	–	X	–	–
Equisetum hyemale	scouringrush horsetail	FACW	N	–	X	–	–
Equisetum laevigatum	smooth scouring rush	FACW	N	–	–	–	–
Equisetum variegatum	northern scouring-rush	FACW	N	–	–	–	–
Erigeron lonchophyllus	longleaf daisy	FACW	N	–	–	–	–
Fragaria virginiana	Virginia strawberry	FACU	N	–	–	–	–
Gentianopsis thermalis	fringed gentian	FACW	N	–	–	–	–
Geranium richardsonii	Richardson's crane's-bill	FAC	N	–	X	–	X
Geum macrophyllum	largeleaf avens	FAC	N	–	–	–	–
Habenaria sp.	habenaria sp.	–	–	–	–	–	–
Hordeum brachyantherum	meadow barley	FACW	N	X	–	X	X
Juncus balticus var. montanus	Baltic rush	FACW	N	–	–	X	–
Juncus ensifolius	swordleaf rush	FACW	N	–	X	–	–
Juncus mertensianus	Mertens' rush	OBL	N	X	–	X	–
Juniperus communis	common juniper	UPL	N	–	X	–	–
Ligusticum porteri	southern ligusticum	FACU	N	–	–	–	–
Lonicera involucrata	black twinberry	FAC	N	–	X	–	–
Luzula parviflora	small-flowered woodrush	FAC	N	X		–	–
Maianthemum stellatum	starry false Solomon's-seal	FAC	N	–	X	–	–
Mertensia arizonica	aspen bluebell	UPL	N	X	X	–	X
Mimulus guttatus	yellow monkeyflower	OBL	N	–	–	–	–
Muhlenbergia filiformis	pullup muhly	FACW	N	–	–	X	–
Osmorhiza depauperata	blunt sweet-cicely	UPL	N	–	–	–	X
Packera dimorphophylla	splitleaf groundsel	FAC	N	–	–	–	–
Parnassia palustris	marsh grass of Parnassus	OBL	N	–	X	–	–
Pedicularis groenlandica	elephant-head	OBL	N	–	–	–	–

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Table 48 (continued). GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 0773 [B]	CEBR 0918 [B]	CEBR 0995 [B]	CEBR 1166 [B]
Penstemon procerus	littleflower penstemon	FAC	N	–	–	–	–
Phleum alpinum	alpine timothy	FAC	N	X	–	X	–
Phleum pratense	timothy	FACU	I	X	–	–	–
Picea engelmannii	Engelmann spruce	FACU	N	–	–	–	–
Platanthera hyperborea	northern bog orchid	FACW	N	X	X	X	–
Platanthera sp.	fringed orchid	–		–	–	–	–
Poa pratensis	Kentucky bluegrass	FAC	I, N	X	X	X	–
Polemonium occidentale	western polemonium	FACW	N	–	–	–	–
Polemonium pulcherrimum	Jacob's-ladder	UPL	N	–	–	–	–
Polygonum bistortoides	American bistort	FACW	N	X	–	X	X
Polygonum polygaloides	milkwort knotweed	FACW	N	–	–	–	–
Polygonum viviparum	alpine bistort	FAC	N	–	–	–	–
Potentilla gracilis	slender cinquefoil	FAC	N	X	–	X	X
Primula parryi	Parry's primrose	FACW	N	–	X	–	–
Pyrola sp.	wintergreen	–	–	–	X	–	–
Rhodiola rhodantha	redpod stonecrop	FACW	N	–	–	–	–
Ribes montigenum	alpine prickly currant	UPL	N	–	–	–	–
Rorippa curvipes	bluntleaf yellowcress	FACW	N	–	–	X	–
Rumex salicifolius	willow dock	FACW	N	X	–	X	–
Salix arizonica	Arizona willow	FACW	N	–	–	–	–
Salix brachycarpa	short-fruit willow	FACW	N	–	X	–	–
Salix scouleriana	Scouler's willow	FAC	N	–	–	–	–
Saxifraga odontoloma	brook saxifrage	FACW	N	–	X	–	X
Senecio dimorphophyllus	ragwort	FAC	N	–	–	–	X
Solidago sp.	goldenrod	–	–	–	–	–	–
Stellaria longipes	longstalk starwort	FACW	N	–	–	–	–
Stellaria sp.	starwort	–	–	–	–	–	X
Symphyotrichum ascendens	Pacific aster	FACU	N	–	–	–	X
Symphyotrichum spathulatum	western mountain aster	FAC	N	X	–	X	–
Taraxacum officinale	common dandelion	FACU	I, N	X	X	X	X

Table 48 (continued). GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 0773 [B]	CEBR 0918 [B]	CEBR 0995 [B]	CEBR 1166 [B]
Thalictrum fendleri	Fendler's meadow-rue	UPL	N	–	–	–	–
Trifolium longipes	longstalk clover	FAC	N	X	–	X	X
unknown forb	unknown forb	–	–	–	–	–	–
unknown perennial graminoid	unknown perennial graminoid	–	–	–	–	–	–
Veronica americana	American brooklime	OBL	N	X	X	–	–
Veronica serpyllifolia	thyme-leaved speedwell	FAC	N	–	–	X	–
Viola nephrophylla	northern bog violet	FACW	N	–	–	–	–
Viola sp.	violet	–	–	–	–	–	–
Zigadenus elegans	mountain death camas	FACU	N	–	–	X	–

[A]I - Introduced, N - Native (United States Department of Agriculture (USDA), and Natural Resources Conservation Service (NRCS).

[B]An "X" denotes that species was observed and an endash ("–") denotes that it was not.

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Table 49. GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 1352 [B]	CEBR 1353 [B]
Achillea millefolium	common yarrow	FACU	I, N	X	X
Achnatherum lettermanii	Letterman's needlegrass	UPL	N	–	X
Aconitum columbianum	Columbian monkshood	FACW	N	X	X
Agoseris glauca	pale agoseris	FAC	N	–	–
Agrostis scabra	ticklegrass	FAC	N	–	–
Agrostis stolonifera	redtop	FAC	I	–	–
Angelica pinnata	pinnate angelica	FACW	N	X	X
Antennaria pulcherrima	showy pussytoes	FAC	N	–	–
Bromus ciliatus	fringed brome	FAC	N	–	–
Bromus inermis	smooth brome	UPL	I	–	–
Calamagrostis stricta	slimstem reedgrass	FACW	N	–	–
Caltha leptosepala	white marsh-marshmarigold	OBL	N	X	X
Cardamine cordifolia	heartleaf bittercress	FACW	N	–	–
Carex aquatilis	water sedge	OBL	N	X	X
Carex aurea	golden sedge	FACW	N	–	X
Carex interior	inland sedge	OBL	N	X	–
Carex microptera	small-wing sedge	FACU	N	–	X
Carex pellita	woolly sedge	OBL	N	–	–
Carex praegracilis	blackcreeper sedge	FACW	N	–	–
Carex scirpoidea	slender sedge	FAC	N	X	X
Carex sp.	sedge	–	–	–	–
Carex stevenii	Steven's sedge	FAC	N	X	X
Carex utriculata	beaked sedge	OBL	N	X	X
Chamerion angustifolium	fireweed	FACU	N	–	–
Dasiphora floribunda	shrubby cinquefoil	FAC	N	X	X
Delphinium barbeyi	subalpine larkspur	FAC	N	–	X
Deschampsia caespitosa	tufted hairgrass	FACW	N	X	X
Descurainia incana	mountain tansymustard	UPL	N	–	–
Dodecatheon pulchellum	darkthroat shootingstar	FACW	N	–	X
Dodecatheon sp.	shootingstar	–	–	X	–

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Table 49 (continued). GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 1352 [B]	CEBR 1353 [B]
Eleocharis sp.	spikerush	–	–	X	–
Elymus trachycaulus	slender wheatgrass	FAC	N	X	–
Epilobium hornemannii	Hornemann's willow-herb	FACW	N	–	X
Epilobium sp.	willowherb	–	–	–	–
Equisetum arvense	field horsetail	FAC	N	–	–
Equisetum hyemale	scouringrush horsetail	FACW	N	–	–
Equisetum laevigatum	smooth scouring rush	FACW	N	–	–
Equisetum variegatum	northern scouring-rush	FACW	N	X	–
Erigeron lonchophyllus	longleaf daisy	FACW	N	–	–
Fragaria virginiana	Virginia strawberry	FACU	N	–	X
Gentianopsis thermalis	fringed gentian	FACW	N	X	X
Geranium richardsonii	Richardson's crane's-bill	FAC	N	X	X
Geum macrophyllum	largeleaf avens	FAC	N	X	X
Habenaria sp.	habenaria sp.	–	–	X	–
Hordeum brachyantherum	meadow barley	FACW	N	–	X
Juncus balticus var. montanus	Baltic rush	FACW	N	X	X
Juncus ensifolius	swordleaf rush	FACW	N	X	–
Juncus mertensianus	Mertens' rush	OBL	N	X	X
Juniperus communis	common juniper	UPL	N	–	–
Ligusticum porteri	southern ligusticum	FACU	N	X	–
Lonicera involucrata	black twinberry	FAC	N	–	–
Luzula parviflora	small-flowered woodrush	FAC	N	–	–
Maianthemum stellatum	starry false Solomon's-seal	FAC	N	–	X
Mertensia arizonica	aspen bluebell	UPL	N	X	X
Mimulus guttatus	yellow monkeyflower	OBL	N	–	–
Muhlenbergia filiformis	pullup muhly	FACW	N	X	X
Osmorhiza depauperata	blunt sweet-cicely	UPL	N	–	–
Packera dimorphophylla	splitleaf groundsel	FAC	N	–	X
Parnassia palustris	marsh grass of Parnassus	OBL	N	X	–
Pedicularis groenlandica	elephant-head	OBL	N	X	X

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Table 49 (continued). GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 1352 [B]	CEBR 1353 [B]
Penstemon procerus	littleflower penstemon	FAC	N	–	–
Phleum alpinum	alpine timothy	FAC	N	–	X
Phleum pratense	timothy	FACU	I	–	X
Picea engelmannii	Engelmann spruce	FACU	N	–	–
Platanthera hyperborea	northern bog orchid	FACW	N	–	X
Platanthera sp.	fringed orchid	–		–	–
Poa pratensis	Kentucky bluegrass	FAC	I, N	X	X
Polemonium occidentale	western polemonium	FACW	N	–	X
Polemonium pulcherrimum	Jacob's-ladder	UPL	N	–	–
Polygonum bistortoides	American bistort	FACW	N	X	X
Polygonum polygaloides	milkwort knotweed	FACW	N	–	–
Polygonum viviparum	alpine bistort	FAC	N	–	–
Potentilla gracilis	slender cinquefoil	FAC	N	–	X
Primula parryi	Parry's primrose	FACW	N	–	–
Pyrola sp.	wintergreen	–	–	–	–
Rhodiola rhodantha	redpod stonecrop	FACW	N	–	–
Ribes montigenum	alpine prickly currant	UPL	N	–	–
Rorippa curvipes	bluntleaf yellowcress	FACW	N	–	–
Rumex salicifolius	willow dock	FACW	N	–	–
Salix arizonica	Arizona willow	FACW	N	X	X
Salix brachycarpa	short-fruit willow	FACW	N	X	–
Salix scouleriana	Scouler's willow	FAC	N	–	–
Saxifraga odontoloma	brook saxifrage	FACW	N	X	–
Senecio dimorphophyllus	ragwort	FAC	N	–	–
Solidago sp.	goldenrod	–	–	–	X
Stellaria longipes	longstalk starwort	FACW	N	–	–
Stellaria sp.	starwort	–	–	–	–
Symphyotrichum ascendens	Pacific aster	FACU	N	X	X
Symphyotrichum spathulatum	western mountain aster	FAC	N	–	X
Taraxacum officinale	common dandelion	FACU	I, N	X	X

Table 49 (continued). GDE Site Vascular Plant Inventory List.

Scientific Name	Common Name	Wetland Code	Native Status [A]	CEBR 1352 [B]	CEBR 1353 [B]
Thalictrum fendleri	Fendler's meadow-rue	UPL	N	–	–
Trifolium longipes	longstalk clover	FAC	N	X	X
unknown forb	unknown forb	–	–	–	–
unknown perennial graminoid	unknown perennial graminoid	–	–	–	X
Veronica americana	American brooklime	OBL	N	–	–
Veronica serpyllifolia	thyme-leaved speedwell	FAC	N	–	–
Viola nephrophylla	northern bog violet	FACW	N	–	–
Viola sp.	violet	–	–	X	X
Zigadenus elegans	mountain death camas	FACU	N	–	X

[A]I - Introduced, N - Native (United States Department of Agriculture (USDA), and Natural Resources Conservation Service (NRCS).

[B]An "X" denotes that species was observed and an endash ("–") denotes that it was not.

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